The Archaeological and Historical Site Inventory at Lake Oroville, Butte County

A Report for the Public

Prepared for the California Department of Water Resources
The inventory of historical and archaeological resources was conducted under the auspices of the California State Department of Water Resources, Lester A. Snow, Director, for the Oroville Facilities Relicensing FERC Project No. 2100 in Butte County in order to meet regulatory requirements of Section 106 of the National Historic Preservation Act.

cover: Bidwell Bar as Butte County seat, ca. 1854 (Butte County Illustrated 1887) and views from the 2002 archaeological field season at Lake Oroville.
What is Archaeology?

Archaeo means “old” and logos means “study,” so the word archaeology literally means “the study of old things.” Specifically, archaeologists study past human life through the material remains that people have left behind.

In California, most archaeologists are specialists in either prehistory—the Native American past—or historical archaeology—the more recent era for which there are written records. Both groups use artifacts to date the places they study and to help reconstruct the way of life of the people who lived there. At its most basic, an archaeological site is simply a place where artifacts are found in their original context.

The prehistoric past is often depicted as a long period of time in which life went on virtually unchanged. Archaeology tells a quite different story of the dynamic relationship between ancestral Maidu, their neighbors, and the natural environment in which they lived. There are many things to be learned: What was the way of life like here? How long has this area been occupied? How did people respond to change in the natural environment? What were relationships like between ancestral Maidu and their neighbors and how did their cultures influence each other? Studying archaeology and Native American traditional accounts are the only ways to learn how people lived in the distant past; thus prehistoric sites are irreplaceable sources of information about the Maidu people and their ancestors.

The arrival of explorers, miners, and settlers transformed the land and severely disrupted the traditional Maidu way of life. Their ubiquitous farms and mines profoundly changed the lower Feather River area, creating not just isolated sites but broad cultural landscapes. Fortunately, written records and oral accounts have survived that describe life in the 19th and early 20th centuries. The method of historical archaeology puts these sources together with the actual remains—the artifacts used by people and features like stone fences and mining ditches—to create a more rounded and complete picture of life at this place in the past.
What is the Oroville Facilities Archaeology Project?

Construction of the Oroville Facilities, which involved damming the Feather River and creating Lake Oroville, inundated over 15,800 acres, including the towns of Bidwell Bar and Enterprise. The project also affected hundreds of archaeological sites, from millennia-old prehistoric villages to the remains of Gold Rush-era mines and more recent ranches and farms.

In 2002 and 2003, teams of university archaeologists and members of local Indian tribes conducted an archaeological inventory in the more than 40,000 acres encompassing Lake Oroville. This work was done for the California Department of Water Resources [DWR] to determine how many important archaeological sites are within the project boundary as part of the relicensing of the Oroville Facilities hydroelectric project.

The archaeological teams surveyed 15,476 acres and recorded 803 distinct archaeological and historical resources. Of these, 250 sites are from the prehistoric era and relate to the thousands of years of Native American life along the Feather River; 478 sites are from the historic period, dating to the Gold Rush and later; and 75 sites have evidence of both prehistoric and historic-era occupation.

This booklet describes the archaeological resources inventory of the Oroville Facilities area, its background and methods, and some of its results.
Oroville Dam was built between 1962 and 1967. It is part of a network of structures extending more than 10 miles along the Feather River that support water supply, power generation, flood control, wildlife and fisheries, irrigation, and recreation.

Although the Oroville Facilities were constructed many years ago, operating them continues to affect archaeological sites. These impacts include erosion by the reservoir’s waters; inadvertent harm to sites by vehicles, recreational activities, or construction; and even intentional damage by visitors through vandalism and the looting of archaeological sites.

The Federal Energy Regulatory Commission [FERC] granted DWR a license to operate the hydroelectric components of the Oroville Facilities, known as FERC Project No. 2100, in 1957. The license will expire in 2007. As part of its application for a new license, DWR must consider how aspects of the environment, such as archaeological sites, may be affected by the operation of the Oroville Facilities.

State and federal laws require that projects that use public funds, or receive licenses or permits from public agencies such as FERC, must assess how their activities will affect important cultural resources. The first stage is to identify sites that are eligible for listing on either the California Register of Historical Resources or the National Register of Historic Places—the state’s and nation’s inventories of important archaeological sites, as well as important historic buildings, structures, and objects, and places of traditional importance to Native Americans and other ethnic groups. This booklet focuses on archaeological resources.

The initial step in this process was to inventory the archaeological sites within the Oroville Facilities project area—to survey the land in order to find out where archaeological sites were located, identify and document their content and characteristics, and assess their condition.
The Oroville Facilities FERC Project 2100 boundary and its vicinity.
How was the survey done?

The survey was carried out by a consortium of archaeologists from Sonoma State University and California State University, Sacramento, in consultation with the Maidu Advisory Council and Tribal Legacy Coordinators representing Mooretown, Berry Creek, and Enterprise rancherias. Three to four teams, working concurrently, conducted the survey. To ensure that experts were available to deal with any conceivable discoveries, each team consisted of prehistoric and historical archaeology specialists, along with trainees from each of the three tribes.

The size of the Oroville Facilities FERC Project No. 2100 area, which encompasses approximately 41,140 acres, posed a significant challenge for the archaeological team. The amount of dry land in this area varies with the water level. When the reservoir is full, about 21,410 acres of dry land are exposed. During the course of the survey, the water level dropped to 210 feet below the maximum reservoir level, exposing an additional 8,000 acres of land for survey.

Instead of surveying all the land within the project boundary, archaeologists surveyed as much of the entire fluctuation zone as possible and sampled the remaining portions of the project area, to gather

Why Sample?

Sampling is an archaeological research strategy in which carefully selected parts of the area being studied are taken to represent the entire study area.

Whether or not to sample and how to go about it were crucial decisions for Oroville Project archaeologists. These decisions began with the recognition that it isn't possible to find every site in a large project area like the Oroville Facilities. In some places, vegetation is too thick to see the ground surface, while in other areas sites have been buried by alluvium or mining debris. Even without these constraints, it is understood that not every artifact or every site that ever existed has survived. Some materials decay, and entire sites may disappear by natural processes such as erosion, or through human activity.

Since people's use of the land has always been strongly influenced by the natural environment, when doing a sample survey, archaeologists try to examine a full range of natural settings in order to estimate the number of sites present in various environmental and topographic zones. At Oroville, archaeologists used a strategy that combined a sample of different environmental zones with a “targeted” approach that spot-checked locations where the historical research indicated that sites might be present.

By surveying a large enough proportion, archaeologists are able to estimate the number of sites that have survived within the Project area as a whole.
information that could be used to portray the area as a whole. Sample transects outside of the reservoir pool were chosen randomly to represent the area’s topographic and environmental zones. The locations of many known prehistoric or historic-era sites were also spot-checked. Eventually, over 15,000 acres were surveyed.

**Background Research**

The work began with background research on the area’s natural environment and history. Project historians found maps of Butte County from the 1850s to the present that showed towns, roads, some of the larger mining areas, and, in some cases, the names of landowners. They also consulted other primary sources, such as census records, photographic archives, Homestead proofs, and mining claims. Secondary sources—the results of historians’ interpretations—were a major part of the background research, helping to provide a general picture of the history of the area. Not all events or people make their way into history books or archives, so an important element of the background research involved gathering oral histories from people who had grown up in the area, recording their memories and stories.

One of the first tasks of the primary record research was to identify project-area homesteads. The Homestead Act of 1862 permitted U.S. citizens and those in the process of naturalization to obtain 160 acres of public land at no cost—providing they settled and improved it by building a house and a fence, thereby showing that they were serious settlers. After five years the homesteader would file a witnessed Proof of Homestead, testifying that they occupied the land and listing what they had done to improve it. If all was in order, the settler received title to the land. Improvements listed on the proofs might include houses, outbuildings, and crops, making these documents valuable sources of information for the modern historian.

Another goal of the historical research was to link historic-era archaeological sites to the names of people who lived or worked there. This was accomplished.
through map research, since some maps listed landowners; in the case of mining sites, mining claim books were examined to identify the names of claimants.

With a personal name—whether from Homestead proofs, maps, or mining claims—project historians could research individuals on federal population census schedules. These invaluable records list each resident’s name, age, occupation, and place of birth, as well as additional information that varies with the census year.

Background research for prehistoric archaeology included reviewing information on the natural environment prior to the Gold Rush. Information about Native American lifeways in the late 19th and early 20th centuries was also researched to assess how the Maidu people used the land before contact with settlers disrupted both the local ecosystem and traditional lifeways. Tribal members on the inventory team provided information about prehistoric Native American sites in the project area, while maps drawn by 19th- and 20th-century ethnographers were used to pinpoint some old village locations. Reviewing reports of archaeological excavations and surveys elsewhere in the Feather River area helped to assess land use in the most ancient past, beginning at least 3,000 years ago.

A records search with the California Historical Resources Information System was conducted to determine the number, locations, and types of sites that had already been found in the survey area. This work also helped archaeologists design their survey strategy and ensure that the team did not unwittingly record sites that had already been identified. Revisiting these previously recorded sites also helped to document the effect of constructing the Oroville Facilities and operating the complex for nearly 50 years.

Fieldwork

All fieldwork needs careful planning, but at Oroville the sheer size of the survey area added an extra level of complexity.

As much as 30 percent of the Oroville project area above the highest reservoir level was surveyed in a series of parallel survey corridors or transects. These slices sampled all environmental zones in the land bordering the reservoir.
Lake Oroville's fluctuation zone. This is the zone between the high and low levels of the reservoir. Largely stripped of vegetation and annually inundated, and then exposed, much of this bank shows evidence of severe erosion.

Since the archaeologists selected the survey transects by random sampling—that is, giving every corridor an equal chance to be selected—they were able to estimate what numbers and types of resources are likely to be in unsurveyed areas.

The annual rise and fall of the water level has exposed and eroded the ground in the reservoir’s water-fluctuation, or “draw-down,” zone. Since it is particularly important to assess how this process is affecting archaeological sites, the entire fluctuation zone exposed in 2002 and 2003 was surveyed—except for portions too steep to be safely climbed. In much of the project area, dense vegetation made it difficult to see archaeological remains on the ground surface. But in the fluctuation zone, visibility was excellent, as all the vegetation had been stripped away either during construction or from erosion.

The archaeologists also spot-checked locations that were likely to have been used during the historic era. These included places on which Homestead or mining claims had been filed.

Another task for the teams involved re-recording known archaeological sites. Some of these sites had not been examined for 40 years, and up-to-date information on all was needed. Areas that are currently being developed for recreation or slated for construction or other ground-disturbing activities were also surveyed.

The general survey method involved the team spreading out at evenly spaced intervals of about 80 feet (25 meters) and walking in a straight line while examining the ground surface for evidence of prehistoric or historic-period sites. In wooded terrain where survey members could lose sight of one another, archaeologists maintained the interval distances by using Global Positioning System [GPS] units. Site locations were mapped using GPS and recorded on standard forms.
What did the survey find?

After working for 178 days in the field, the teams had surveyed almost 20 square miles of land and recorded 803 prehistoric and historic archaeological sites.

Prehistoric Archaeology

Konkow Maidu people have lived in the Oroville project area for thousands of years: an archaeological site excavated in the 1960s had evidence of continuous occupation from about 3,000 years ago until early historic times. Today, many Konkow Maidu are members of tribal groups based in the Oroville-Chico area, including Berry Creek, Mooretown, Enterprise, Mechoopda, and the Konkow Band of Maidu.

The prehistoric archaeology team recorded the remains of Konkow Maidu villages and special-use sites dating to the time before written records. The archaeologists grouped the sites into seven categories according to the kinds of artifacts they contain and the main activities that they appear to represent:

- open-air residential sites,
- caves and rockshelters,
- limited lithic scatters,
- rock art,
- quarries and workshops,
- bedrock milling sites, and
- cemetery areas.

Open-air residential sites are large and contain several different types of tools and other artifacts. Some have bowl-shaped depressions on the ground surface, the remains of semi-subterranean houses that would have been roofed with bark or grasses. At over 25 feet in diameter, one of the recorded depressions may have been a ceremonial roundhouse. In other places, the introduction of charcoal and other organic material has changed the soil into a dark midden. These were probably villages that were used intensively and for a prolonged period of time.

Occasionally, the archaeologists found sites that were clearly used by Maidu people in the 19th century, after settlers had moved into the area. Glass trade beads and fragments of bottle glass mark these places, which are especially
important as they hold invaluable information on this brief episode in Maidu history.

Smaller sites with fewer artifacts of a more limited range may have served special functions involving the gathering and processing of food and other resources that were carried back to the camp or village. Among these special-use sites are quarries, from which high-quality stone was taken to be made into tools, and milling sites, where acorns were pounded into flour using wooden or stone pestles in cup-shaped depressions (mortars) pecked into bedrock or boulders.

Flat slab millingstones, also found in the project area, are generally thought to have been used primarily to grind seeds and roots and only secondarily to prepare acorns. Millingstones were used during a much earlier time period than mortars, which first appeared about 2,500 years ago when acorns began to be used intensively for food in this part of California.

Many natural and cultural factors influenced how prehistoric people used this area. Maidu lived close to the land and adjusted their way of life to match the seasonal availability of wild food and other natural cycles. Indeed, the people’s responses to annual events like salmon runs can be seen in the kinds of places where prehistoric sites are found and the kinds of artifacts they contain:

*Recording a bedrock mortar. These features, where Maidu women ground acorns into flour, are important indicators of prehistoric lifeways in what is now the Oroville Facilities Project area.*
fishing sites are situated near particularly good fishing locations along the rivers, while hunting camps, which tend to contain arrow and dart points and stone knives, but lack millingstones, are often situated along major game trails.

There is much to be learned about changes over time in human occupation and interaction in and around the Oroville Facilities project area. The small, arrow-sized stone projectile points that were found during the survey are believed to date after about 1,500 years ago, when the bow and arrow appeared in California. Larger points that were hafted onto throwing darts and spears represent an earlier period, back at least 3,000 years before the present. By studying subtle differences in the styles of these tools, archaeologists will be able to reconstruct local innovations as well as cultural influences between the ancestral Konkow Maidu and their neighbors. These tools speak of a dynamic prehistoric past in which relationships between groups kept ideas and goods flowing.

About one prehistoric site was found for every 48 acres examined; varying terrain, vegetation, and land disturbance affected both the survival of sites and whether or not they could be found. Sites are often difficult to see in wooded environments, and many that existed near watercourses were destroyed by mining: only one prehistoric bedrock mortar was found in the 2,100 acres surveyed around the Oroville Wildlife Area, which had been heavily disturbed by dredge mining in the early 20th century. It is estimated that 1,000 or more prehistoric sites existed in the project area before mining and other historic-era activities drastically reduced that number.

Certain areas of the Feather River basin were more conducive to occupation or resource procurement than others to the indigenous population. Since more sites are found in these areas, they are of greater concern to DWR management and of greater importance to our understanding of the past. To analyze site distribution, the archaeologists divided the reservoir basin into six study units and counted the number of sites and artifact categories in each (see map “Prehistoric archaeology study units in the Oroville Facilities Project area” and table “Prehistoric sites in the reservoir fluctuation zone”). These study units are defined on the basis of major river branches and differences in their natural resources; they include the West Branch, North, Middle, and South forks of the Feather River, the “Neck” or channel below the juncture of the West Branch and North Fork, and the “Confluence,” where the various forks converged into a single stream.

The areas that contain the most prehistoric sites have several traits in common. The terrain is gently to moderately sloping; well-developed soils support hardwood or mixed coniferous/hardwood forest; and good access would have been offered to one or more of the river branches. These same qualities make the areas attractive for modern uses, which have endangered some of these sites.
Prehistoric archaeology study units in the Oroville Facilities Project area. The number of prehistoric sites found in each of the six study units is shown in the table below.

Prehistoric sites in the reservoir fluctuation zone

<table>
<thead>
<tr>
<th>Study Unit</th>
<th>South Fork</th>
<th>Middle Fork</th>
<th>Confluence</th>
<th>Neck</th>
<th>North Fork</th>
<th>West Branch</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>74</td>
<td>45</td>
<td>37</td>
<td>45</td>
<td>12</td>
<td>10</td>
<td>223</td>
</tr>
</tbody>
</table>

The figures above show the number of prehistoric archaeological sites recorded in the fluctuation zone in each of the six study units of each reservoir. One-third of the sites are along the South Fork, with fewer found in the Middle Fork, Neck, and Confluence areas. Relatively few sites were discovered in the steep-sided North Fork and West Branch sections. Although additional sites were found above the fluctuation zone, these proportions reflect overall site density in the project area.
While the number of sites in various areas of the reservoir basin offers a general sense of archaeological sensitivity, questions persist about the kinds of prehistoric activities engaged in at different places and the importance of individual sites. To get a fuller picture of prehistoric land use, archaeologists looked at the number and relative proportion of certain kinds of artifacts in different areas. The analysis showed that many artifact categories are unevenly distributed around the reservoir. This indicates that certain activities like hunting and acorn collecting were more important in some areas than others at different times in the past.

The information that these sites contain provides clues about prehistoric life along the Feather River that can be explored to better understand the past and how to manage its archaeological remains. Future analysis will doubtless teach us more about these settlements, and how they fit together to create a highly successful culture and a way of life that survived for millennia.

**Historical Archaeology**

In April 1848, three months after the discovery of gold at Sutter's Mill, John Bidwell found gold on the Feather River at a spot that was to become the town of Bidwell Bar. He promptly began to work the claim using local Konkow Maidu workers. News of the California strikes spread rapidly and within a year California's non-native population had increased from 20,000 to around 100,000. Butte County alone supported 3,052 miners by 1850.

Mining remained an important part of the economy along the Feather River well into the 20th century, a fact that is reflected in the local archaeology: nearly one-quarter of the historic-era sites found during the Oroville Facilities survey involved mining.

The easily worked surface placer deposits were mined out within a few years of the start of the Gold Rush. After that it took ever-increasing amounts of money, machinery, and labor to get to the gold ore. Corporations constructed reservoirs and miles of ditches and flumes to bring water to the diggings for hydraulic and sluicing. Powell Creek, near the former site of Enterprise, contains evidence of small-scale hydraulic mining. In other places, miners...
built dams, flumes, and ditches to redirect the entire river away from the diggings so they could work the riverbeds.

Various kinds of mining left distinctive traces, and often, outright scars on the landscape. In some areas the landscape had been worked and reworked by successive mining companies that sought to extract the last vestige of gold from the earth. Potter’s Ravine, which was being mined by 1853, still contains a variety of placer mining remains. These range from shallow prospect pits, dug to test if gold was present, to impressive wall-like stacks of waste rock, evidence that the entire stream was moved to allow mining in the riverbed, and a seemingly endless network of ditches. More than 17 miles of ditches were recorded in the Oroville project area, showing the importance of water supply to the mining operations, and illustrating the grand scale of the industry.

**Types of Mining**

Most of the gold in the Oroville area was in the form of placer deposits—gold that had eroded from quartz veins and deposited in river bottom gravels. Surface placers in shallow water were mined out during the early years of the Gold Rush. After this, rivers were dammed and diverted to get to the gold; later, massive floating dredges were used to process the gold-bearing gravels. The creation of placer deposits has been ongoing for millennia, so some of these ancient riverbeds are now located on dry land or lie deep beneath the ground’s surface. Miners often worked these deposits by ground sluicing or hydraulic techniques—washing away the overlying soil—or by tunneling, also known as drift mining.

The days of the individual prospector “striking it rich” lasted only a few years after 1849. Once the surface deposits were worked out, gold mining became a much more expensive proposition that required dams, miles of ditches and flumes, processing facilities, labor, and equipment. These more extensive operations were usually managed by mining companies or corporations. “Hard-rock” or quartz mines that extracted gold ore from quartz veins required tunneling and expensive equipment, such as stamp mills, to extract and process the ore.
In 1898 a form of mining newly developed in New Zealand was first used successfully in California on the Feather River. Dredge mining left vast fields of cobble tailings that still dominate the landscape along the Feather River south of Oroville. About 8,000 acres (12.5 square miles) of the project area within the Oroville Wildlife Area is a dredge field. These tailings provided much of the material used to construct the Oroville Dam.

Less common in the project area than placer mining was hard-rock or quartz mining, in which shafts were excavated deep into the gold-bearing veins of quartz. The surveyors found several mining tunnels (or adits), ore-cart tracks, and what may have been foundations for long-dismantled ore-processing facilities. The Southern Cross Mine, developed in the early 20th century on the Upper South Fork, contains adits, waste-rock piles, and what seems to be the foundation of a stamp mill used to crush the ore.

From the 1850s, California’s “Lime King” William Gwynn quarried for limestone (an essential ingredient of 19th-century building mortar) in the aptly
named Lime Saddle area. In kilns that still survive on the landscape, the stone was burned into the lime that helped rebuild Sacramento after the devastating fires of the 1850s and 1860s.

Mining tends to dominate the written history of the area, yet after the 1850s most local people were working at other enterprises, especially logging, farming and ranching, and commerce.

Although agriculture (notably olive and citrus orchards) was important to the area's economy, it is less visible archaeologically than mining. Most agricultural sites found during the survey were the remains of farm buildings, pens, landscaping, and non-native vegetation. Some of the ditches and dams were used for irrigation as well as mining. Most agricultural sites were found in the flatlands, in the western portion of the project area.

Many farmers and ranchers continued to mine on the side, becoming more or less involved as economic conditions and personal whims dictated. John McKinstry Smith was a good example of this trend; Smith was farming his Brightsides Ranch by 1857 and for many years operated the Banner Mine.

Transportation networks were an essential element in the growth of Butte County, tying the local economy and society to national and international networks. An early link was the Beckwourth Trail. This year-round route between the Sacramento Valley and the Great Basin was established in 1851 by African American pioneer Jim Beckwourth. The trail ran through the Middle Fork to Bidwell Bar and on to Marysville.

Surveyors also discovered several roads and trails built along the steep-sided walls of the North, Middle, and South forks, cut into bedrock and shored using stacked-rock retaining walls for long distances. Many of these roads seem...
The California Northern Electric Railroad grade. Lacking track and the wooden sleepers on which they were set, the raised berm of the abandoned railroad grade is barely visible as it plies a straight course into the distance. Railroads were crucial links between the Oroville area and the nation for both trade and culture.

to have been used only from the 1850s to 1880s, when the area was intensively occupied, and then abandoned.

The demand for residential and commercial fuel, construction lumber, and timbers to hold up mine tunnels required a seemingly endless supply of wood. Early logging destroyed the local supplies and narrow-gauge railroads were built to bring timber down from increasingly isolated locations. The best known of these was the Butte and Plumas railroad that, by the early 1900s, connected Bidwell Bar to Berry Creek. The grade of the California Northern Electric, the local railroad that linked Oroville to Marysville in 1864, still survives, as does the route of the Western Pacific. The WP, which linked San Francisco to Salt Lake City, ran along the North Fork and through Beckwourth Pass. It was completed in 1910. Although the track was removed years ago, the level grades of these railroads still exist.

Remnants of two communities, Bidwell Bar and Enterprise, were inundated by Lake Oroville. While these sites are inaccessible, the archaeological survey found the evidence of more dispersed residences in the surrounding hills. Associated with mining, agricultural, and industrial sites were the ruins of people’s homes—from the temporary camps of miners and railroad and construction workers, to long-occupied farmsteads. About one-third of the historic-period sites had domestic elements, such as house foundations, tent pads, fence lines, and scatters of household artifacts. Many retained signs of their occupants’ livelihood in the form of remnant orchards, terraces for planting, and the ruins of stone corrals and fences.
What’s Next?

The tangible remains of Butte County’s past still survive as individual archaeological sites and huge cultural landscapes that evoke Maidu tradition and settler innovation. The work of professional archaeologists, historians, and traditional Maidu scholars has repopulated what had become a largely uninhabited landscape, bringing to light a rich cultural heritage that deserves recognition and protection.

The next stage of this archaeological project will involve focused research on selected sites to determine what information they contain, for not all have survived intact from decades of erosion, mining, logging, and impacts from visitors. The sites will also be studied to see which are eligible for listing in the California Register of Historical Resources or the National Register of Historic Places.

The archaeological inventory and historical research completed so far are only the beginning of a larger effort that will help DWR effectively manage the many important cultural resources at the Oroville Facilities.
Photo Credits

The three historical photos shown on pages 13, 14, and 15 are courtesy of California State University, Chico, Meriam Library, Special Collections, and the donor, the Pioneer Museum of Oroville, California.

Using a sluice box on the Feather River, ca. 1890 (p. 13): “Gold Mining with a rocker,” ca. 1890. Sc20479.


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Archaeological survey team member recording a site.