United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name: Klamath Lake Reservation
other names/site number: Lower Klamath National Wildlife Refuge

2. Location

street & number: California State Highway 161 at U.S. Highway 97 ☐ not for publication
city, town: Dorris ☒ vicinity
state: California code: CA county: Siskiyou code: 093 zip code:
Oregon OR Klamath 035

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☐ private	☐ building(s)		2 buildings
☐ public-local	☒ district	01	36 sites
☐ public-State	☐ site	10	structures
☒ public-Federal	☐ structure		objects
	☐ object	11	38 Total

Name of related multiple property listing: _____

Number of contributing resources previously listed in the National Register: 1

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official — Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is

☐ entered in the National Register ☐ See continuation sheet
☐ determined eligible for the National Register ☐ See continuation sheet
☐ determined not eligible for the National Register.
☐ removed from the National Register.
☐ other, (explain:) _____

Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
LANDSCAPE/conservation area	LANDSCAPE/conservation area

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
NO STYLE	foundation N/A walls N/A roof N/A other N/A

Describe present and historic physical appearance.

The Lower Klamath National Wildlife Refuge, straddling the California-Oregon border, is one of the six wildlife refuges of the Klamath Basin National Wildlife Refuge complex. The Lower Klamath refuge was the first to be created, in 1908; the other refuges were established between 1911 and 1978.

The Klamath Basin once consisted largely of shallow lakes and extensive marshes comprising some 187,000 acres of wetlands at the turn of the century. This ideal environment attracted millions of waterfowl which converged upon the basin during their annual spring and fall migrations along the Pacific coast.

Prehistoric inhabitants exploited the rich resources of the lake and marshes. Archeological sites dating from approximately 5,000 B.C. through A.D. 1850 have been identified within and around the refuge. Settlers constructed irrigation canals in the late 19th century to supply water to their farms around the lake. In 1904, Lower Klamath Lake had a total swamp and water surface of 88,300 acres. Annual flooding of the Klamath River often filled the 140-square-mile lakebed. Until 1917, boats plied the Klamath River from Klamath Falls to Laird's Landing at the southern tip of the Lower Klamath Lake. After 1917, large-scale reclamation activities diminished the wetlands area, reducing the number of birds stopping in the basin, until the waterfowl habitat was restored to a portion of the lakebed in the 1940s.

Federal reclamation activities in the Klamath Basin, initiated in 1905 by the U.S. Reclamation Service (now Bureau of Reclamation), created a system of dams and reservoirs in the Upper Klamath basin to divert and distribute water for irrigation of basin lands. Sixty-two percent of the Klamath Project's 225,000 irrigable acres are in south-central Oregon, and thirty-eight percent are in north-central California.

The Bureau's efforts to reclaim the Lower Klamath lakebed for homesteading and cultivation resulted in cutting off the lake's main water supply from the Klamath River in 1917. By the early 1920s Lower Klamath Lake contained only about 1,000 acres of open water. When it was found that the alkaline soils of the dry lakebed were unsuitable for farming, reclamation efforts in the Lower Klamath lake were abandoned in favor of the more suitable lands surrounding the adjacent Tule Lake.

[X] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:
☒ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☒ A ☐ B ☐ C ☐ D NHL Criteria: 1 and 3

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☒ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
CONSERVATION	1908 - 1949	1908

Cultural Affiliation
N/A

Significant Person
N/A

Architect/Builder
N/A

State significance of property, and justify criteria; criteria considerations, and areas and periods of significance noted above.

The Klamath basin wetlands have historically served as a major stopping place along the Pacific flyway for millions of waterfowl each year. Lower Klamath National Wildlife Refuge, established by President Theodore Roosevelt's Executive Order No. 924 in 1908, was the first large area of public land to be set aside as a wildlife refuge. The 81,619-acre Klamath Lake Reservation, noted for its prime waterfowl habitat, far exceeded in acreage the small nesting colonies designated as refuges beginning in 1903. The withdrawal of public lands for forest reserves and wildlife refuges during the Theodore Roosevelt administration illustrates the growing awareness at the turn of the century of the effects of depredations on wildlife by market hunters and the loss of wildlife habitat through over-grazing, cutting and burning of timber lands, erosion due to poor agricultural practices, and drainage of wetlands for farming. Theodore Roosevelt became known as the "conservation" President because of his stewardship philosophy toward natural resources and wildlife.

The Lower Klamath National Wildlife Refuge is an outstanding illustration of the twentieth century conflict between utilitarian (or reclamation) interests and conservation interests in the use of public lands. Superimposed on an existing federal reclamation project, the waterfowl habitat disappeared as the marshes and lakes of the Klamath Lake Reservation were drained for agricultural purposes until intensive water management measures were initiated in 1940 to bring the refuge back to productivity. The conflict between reclamation and wildlife issues in the Lower Klamath basin began to be resolved at a time when wildlife managers were beginning to apply modern scientific principles to managing wildlife on public lands. Biologists and natural scientists were realizing the value of preserving wildlife habitats to maintain and increase wildlife populations. Although the water control structures built in the 1940s which restored the waterfowl habitat to Lower Klamath Lake were constructed primarily to serve reclamation purposes, these and later structures within the refuge were engineered to maintain proper water levels in the lake and marshes that would enhance the breeding, nesting, and feeding qualities of the refuge. Grassy uplands and grainfields intermixed with the wetlands were also vital to providing a suitable habitat. The system of water control structures which restored the waterfowl habitat to

☒ See continuation sheet

9. Major Bibliographical References

Books and Articles:

DiSilvestro, Roger L. Audubon Wildlife Report, 1985. New York: National Audubon Society, 1985.

Doughty, Robin W. Feather Fashions and Bird Preservation. Berkeley and Los Angeles: University of California Press, 1975.

Gabrielson, Ira N. Wildlife refuges. New York: MacMillan Company, 1943.

Kallman, Harmon, Chief Editor. Restoring America's Wildlife, 1937-1987. Washington, D.C.: U.S. Department of the Interior, Fish and Wildlife Service, 1987.

[X] See continuation sheet

Previous documentation on file (NPS):

- [ ] preliminary determination of individual listing (36 CFR 67) has been requested
- [ ] previously listed in the National Register
- [ ] previously determined eligible by the National Register
- [X] designated a National Historic Landmark
- [ ] recorded by Historic American Buildings Survey # _____
- [ ] recorded by Historic American Engineering Record # _____

Primary location of additional data:

- [ ] State historic preservation office
- [ ] Other State agency
- [X] Federal agency
- [ ] Local government
- [ ] University
- [ ] Other

Specify repository:
U.S. Bur. Rec., Klamath Project Office
Klamath Basin National Wildlife Refuges

10. Geographical Data

Acreage of property 53,598 acres (46,980 acres in California; 6,618 acres in Oregon)

UTM References

	Zone	Easting	Northing
A	10	595720	4659920
B	10	614850	4651050
C	10	620020	4642300
D	10	609440	4631780

[X] See continuation sheet

Verbal Boundary Description: Boundaries are delineated on the U.S.G.S. quadrangles (Maps E-L). Map B is a very reduced copy of the eight U.S.G.S. quadrangles that encompass this property. It shows the refuge parcels and locations of contributing resources.

[X] See continuation sheet

Boundary Justification: The boundary encompasses the area of federal ownership within the original boundary of the executive order that created the refuge (E.O. 924 dated August 8, 1908, as modified by E.O. 2200, dated May 14, 1915; E.O. 3187, dated December 2, 1919; and E.O. 3422, dated March 28, 1921), as further defined by the Kuchel Act of 1964, which established the current status and extent of the refuge. Extending from the Kuchel Act boundaries are the water control structures built in the 1940s that were instrumental in restoring the waterfowl habitat to the refuge. [ ] See continuation sheet

11. Form Prepared By

name/title Ann E. Huston, Historian
organization National Park Service, Western Region date May 1990
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city or town San Francisco state California zip code 94102

Construction in the early 1940s of a pumping plant and tunnel from Tule Lake to Lower Klamath Lake to control water levels in and around Tule Lake and canals to channel water between the Klamath River and Lower Klamath Lake were instrumental in restoring the waterfowl habitat to Lower Klamath Lake and reestablishing the Klamath basin as one of the premier waterfowl areas in North America. Not until 1949 was the basic system of water control structures in place and functioning much as it does today. Water levels in the refuge are controlled by a system of dikes, canals, drains, pumps, and other water control structures constructed beginning about 1940. Modern water management techniques maintain adequate water levels at all times, to provide waterfowl and marsh bird nesting and brood-rearing habitats, help with the production of cereal grains and wetland plants that feed migrating and wintering waterfowl, and curtail waterfowl disease losses to botulism during the hot summer months.

Today's Lower Klamath National Wildlife Refuge bears little resemblance to the wildlife reservation created in 1908, which was a natural wetlands area evidencing a few individual water diversion activities for small-scale agricultural efforts. Almost no evidence remains within the refuge of the nineteenth-century irrigation activity. The refuge's present wetland acreage, which totals some 17,700 acres in nesting season and up to 40,000 acres in winter, represents only a fraction of the original wetlands. Today the size and extent of Lower Klamath Lake are manipulated almost entirely by the human hand

The refuge is a mix of shallow marshes, open water, grassy uplands, and croplands that are used by marsh birds and waterfowl. Water, consisting to a large degree of irrigation run-off, is pumped to the refuge from Tule Lake through a 6,600 foot tunnel, and diverted from the Klamath River via the Ady Canal. Excess water is returned to the Klamath River via the Klamath Straits Drain and the Ady Canal. The P-Canal, P-1 Canal, and P-1-A Lateral channel water to various areas of the refuge. Of the refuge's current acreage, approximately 28,000 acres are permanent and seasonal wetlands. Another 10,000 acres are upland pastures that provide nesting and grazing areas for geese; cattle grazing is permitted in the uplands as it provides new growth attractive to geese. About 4,500 additional acres of refuge lands are share-cropped by refuge permittees. Two-thirds of the crops produced are harvested by the permittees; the remaining third is left standing in the field to reduce waterfowl depredations of non-refuge crops and to provide a cereal grain food source. Approximately 6,600 acres of refuge lands in Oregon are leased by the Bureau of Reclamation to local farmers for the raising of crops as are another 1,400 acres in California. All agricultural leased lands within the refuge are managed by joint agreement between the U.S. Fish and Wildlife Service and the Bureau of Reclamation for the benefit of waterfowl.

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The refuge as it is currently configured is composed of the large parcel of wetlands and fields straddling the Oregon-California border, a small parcel to the northwest in Oregon, and several small non-contiguous parcels on the east side in California, which encompass White Lake and the course of the P-1 Canal. A large dike constructed by the Fish and Wildlife Service in 1940 along the California border separates the wetlands from the agricultural lease lands on the Oregon side. The 6,618 refuge acres in Oregon are leased to farmers by the Bureau of Reclamation, while the Fish and Wildlife Service controls hunting and recreation activities in this area. The irrigation structures within this area are maintained by the Bureau of Reclamation and Klamath Drainage District.

A network of dikes, canals, and other water control structures separates artificial impoundments of marshes and water from share-cropped grainfields, grassy uplands, and lease lands within the refuge on the California side. The P-Canal and P-1 Canal extend northwest and southwest from the outlet of the Tule Lake tunnel through the discontiguous parcels to the east of the main refuge parcel. The Ady Canal and Klamath Straits Drain extend northward from the refuge to the Klamath River. This system of water control structures, which was in place by 1949, was constructed to restore the water supply to the Lower Klamath lakebed and is essential to maintaining water levels within the refuge to create the proper waterfowl habitat; the water control structures therefore contribute to the landmark.

The boundary of the landmark encompasses the property in federal ownership within the original boundary of the executive order that created the refuge (Executive Order 924, dated August 8, 1908, as amended by E.O. 2200, dated May 14, 1915, E.O. 3187, dated December 2, 1919, and E.O. 3422, dated March 28, 1921). The Kuchel Act of 1964, set permanent boundaries for the refuge and established the priority of wildlife requirements over reclamation needs within the refuge. The contributing elements of the landmark include the management units of the refuge and the water control structures in California and Oregon which were built by the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, and Klamath Drainage District to control the water levels in the refuge and restore the waterfowl habitat. Map B shows the boundaries of the refuge and its contributing elements.

CONTRIBUTING RESOURCES:

Refuge management units, consisting of impoundment areas, marsh areas, fields, etc. (Siskiyou County, CA). Essentially comprising the entire refuge land area, these parcels are counted as 1 contributing site.

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System of U.S. Fish and Wildlife Service dikes, levees, canals, drains, siphons, flumes, bridges, and water control structures (Siskiyou County, CA). Construction of these structures within the large refuge parcel in California began in 1940 to create the refuge management units, prevent refuge water from flooding adjacent agricultural tracts, and direct water from the Klamath River and Tule Lake to the various refuge units. The initial system of dikes and canals was in place by 1949 (see Map B). Strengthening of these early water control structures and construction of additional structures within the refuge has continued to the present. Because there is no inventory of the existing water control structures within the refuge, all structures built before 1949 which retain integrity are considered to contribute to the landmark; the system is counted as a single contributing "structure."

Pumping plant D and Tule Lake Tunnel (Siskiyou County, CA). The Bureau of Reclamation constructed Pumping Plant D in 1940-41 to pump excess water from Tule Lake to Lower Klamath Lake, in order to prevent flooding of agricultural lands adjacent to Tule Lake. The three original pumps are enclosed within a concrete building, which was enlarged in 1952 to add 2 pumps, increasing the pumping capacity of the plant from 150 cubic feet/second to 250 cubic feet/second. Water is carried to the refuge through a 6,600 ft. tunnel constructed in 1940-41 which discharges into the P-Canal. The tunnel is horseshoe-shape in cross-section, concrete-lined, is 5.75 feet in diameter, and has a capacity of 250 cubic feet/second. The pumping plant and tunnel are counted as two contributing structures.

P-Canal (Siskiyou County, CA). The Bureau of Reclamation constructed the P-Canal in 1941-42 from the outlet of the Tule Lake tunnel along the eastern edge of the Lower Klamath lakebed to carry water pumped from Tule Lake to the southern units of the wildlife refuge. The canal is maintained by the U.S. Bureau of Reclamation for 1.8 miles until it reaches the the eastern boundary of the refuge. From there the canal is managed by the U.S. Fish and Wildlife Service. The canal has a capacity of 250 cubic feet/second, a bottom width of 16 feet, and a water depth of 6.3 feet. The canal within its banks is counted as one contributing structure.

P-1 Canal (Siskiyou County, CA). The P-1 Canal also was constructed by the Bureau of Reclamation in 1941-42, with the same specifications as the P-Canal. It carries water from the outlet of the Tule Lake Tunnel northward to the eastern units of the refuge at the California-Oregon border. The canal within its banks is counted as one contributing structure.

P-1-A Lateral (Siskiyou County, CA). This is a short lateral constructed by the U.S. Fish and Wildlife Service in 1945 which carries water west from the P-1 Canal to the central part of the refuge. The canal within its banks is

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counted as one contributing structure.

Ady Canal (Klamath County, OR). The Ady Canal extends approximately 5 miles southward from the Klamath River to the western edge of the refuge at the California/Oregon border. It provides water to the refuge from the Klamath River and also serves to drain excess water from the refuge back to the Klamath River. The U.S. Fish and Wildlife Service and the Klamath Drainage District formed an agreement in 1939 to enlarge an existing Drainage District canal, the South Canal, for the benefit of the drainage district and the bird refuge. The Canal is managed through an agreement between the U.S. Fish and Wildlife Service and the Klamath Drainage District. The canal within its banks is counted as one contributing structure.

Klamath Straits Drain (Klamath County, OR and Siskiyou County, CA). The Klamath Straits Drain extends approximately 8.5 miles from the refuge at the California/Oregon border to the Klamath River and is situated just north and east of the Ady Canal. The Bureau of Reclamation completed the drain outlet in 1945-46 and enlarged the drain in 1947-48. The drain carries excess water pumped into the refuge from Tule Lake north to the Klamath River. The channel was enlarged again in 1951-52, from a capacity of 150 cubic feet/second to 300 cubic feet/second, to reduce the threat of flooding of agricultural lands adjacent to Tule Lake and to allow better control of the water levels within the refuge. The drain was enlarged again in 1975-81 to a capacity of 600 cubic feet/second. Although quadrupled in capacity since its construction, the drain follows its original route and continues to serve its original function. The waterway within its banks is counted as one contributing structure.

Pumping Plants E and F (Klamath County, OR). Both pumping plants were constructed by the Bureau of Reclamation in 1945-46 to lift water through the Straits Drain. Pumping plant E is located approximately 1/2-mile north of the northern boundary of the wildlife refuge. Pumping plant F is located at the drain outlet at Highway 97, north of Dorris. The capacity of the pumping plants was increased in 1952 from 200 cubic feet/second to 300 cubic feet/second in concert with the enlargement of the Klamath Straits Drain. Three pumps of 100 cfs each were added at each pumping plant in 1976-81 as part of the second enlargement of the Straits Drain. Each pumping plant is counted as a contributing structure.

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NON-CONTRIBUTING RESOURCES:

Two recently-constructed Fish and Wildlife Service shop buildings are located on the eastern periphery of the refuge on the California side and do not contribute to the significance of the landmark.

Thirty-six archeological sites, all in California, have been identified within the boundaries of the refuge. Though several of these sites may be individually eligible for the National Register, they do not contribute to the significance of the landmark. The sites are marked on Maps C and D; site forms are located at the California Archeological Inventory Information Center at California State University, Chico. Survey reports are listed in the bibliography. Sites Sis-11 through Sis-284 were first recorded between 1949 and 1960; few of the site forms have been updated with more current information. The sites are enumerated as follows:

Sis-11: Artifacts collected; no site information provided.

Sis-223: Very large village midden (estimated 5 acres), extensively looted; evidence of destroyed or removed burials. Extensive lithic debris, considerable obsidian and basalt; desert side-notch projectile point recorded. This site was identified as one of a series of 5 discernible concentrations along the southeast shore of Lower Klamath Lake that may be collectively eligible for the National Register (with Sis-224, 229, 230 and 760).

Sis-224: Lithic scatter or thin-based midden; part of a series of 5 discernible concentrations along SE shore of Lower Klamath Lake; site size approximately 100 x 100 feet. This site was identified as one of a series of 5 discernible concentrations along the southeast shore of Lower Klamath Lake that may be collectively eligible for the National Register (with Sis-223, 229, 230 and 760).

Sis-225: Chipping station covering approximately 50 x 500 feet.

Sis-229: Lithic scatter or thin-based midden, approximately 200 x 100 feet in size. This site was identified as one of a series of 5 discernible concentrations along the southeast shore of Lower Klamath Lake that may be collectively eligible for the National Register (with Sis-223, 224, 230 and 760).

Sis-230: Large midden at base of rocky escarpment; bedrock mortars; chipping stations on terrace of escarpment overlooking midden; two small caves just to SE of midden under second rocky cliff. Approximate area 225 x 170 feet, depth 4-6 feet. Except for road disturbance, site is in excellent condition. This

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site was identified as one of a series of 5 discernible concentrations along the southeast shore of Lower Klamath Lake that may be collectively eligible for the National Register (with Sis-223, 224, 229, and 760).

Sis-231: Concentration of artifacts, obsidian, dacite, and chert flakes. Site area approximately 100 feet in diameter.

Sis-232: Campsite, approximately 300 x 100 feet.

Sis-234: Probable campsite, approximately 300 feet in diameter.

Sis-235: Two burials exposed in sand; no artifacts associated.

Sis-236: Burial encircled by willow stakes.

Sis-238: Large campsite. Associated artifacts: points, bowl mortars, pestles.

Sis-240: Concentration of obsidian and basalt flakes and artifacts; site area approximately 200 feet in diameter; depth up to 8 feet.

Sis-241: Concentration of artifacts and obsidian and basalt flakes; site area approximately 200 feet in diameter.

Sis-242 (Cressman's Copic Island site): Midden site with surface concentration of obsidian and basalt chipping debris; approximately 150 x 500 feet; at least 20 bedrock mortars in boulders at south end of site.

Sis-243: Concentration of artifacts and flakes; site approximately 150 feet in diameter.

Sis-244: Cairn burial in crevice: no artifacts noted.

Sis-245: Chipping station; site approximately 200 feet in diameter.

Sis-246: Concentration of chipping debris along bar and lakeshore; site approximately 50 by 1,000 feet.

Sis-247: Chipping station; site approximately 2,500 x 200 feet.

Sis-248: Rock mortar; chipping debris on NW side of road; site approximately 300 x 100 feet.

Sis-252: Open campsite or chipping station; approximately 75 feet square.

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Sis-253: Possible open blowout campsite on shore of small playa lake; approximately 50 feet square.

Sis-254: Open campsite along shoreline of small playa lake (dry); approximately 50 x 50 feet. (May be same site as Sis-1166)

Sis-255: Open campsite (blowout) on shoreline of small playa lake, site approximately 100 by 100 feet.

Sis-257: Scattered obsidian fragments on silt surface; site destroyed for all practical purposes. Site approximately 3750 x 4800 feet, delineation based on occurrence of obsidian nodules and pebbles.

Sis-258: Concentration of obsidian chipping debris with some chert and abundant burned bone; midden shallow when present. Site approximately 73 x 60 feet.

Sis-259: Occupation site on small rise, two small rises on top of midden concentration; burned bone present. (May be same site as Sis-1166.)

Sis-261: Cremation pit, extensively looted.

Sis-278: Collection area (probably several campsites); site approximately 2500 square feet.

Sis-279: Cave, completely excavated.

Sis-284: Cemetery; 2 burials uncovered during 1957 excavation. May be same as Sis-1167/H.

Sis-760: Large, thin-bedded midden in the arms of two low, hog-back terraces; site is at edge of an ancient beach line. This site was identified as one of a series of 5 discernible concentrations along the southeast shore of Lower Klamath Lake that may be collectively eligible for the National Register (with Sis-223, 224, 229, 230, and 760).

Sis-1165 (Sheepy East 3): Very sparse flake scatter in blowout at southern margin of "dune" area; no evidence of midden. Site approximately 30 x 90 feet

Sis-1166 (Sheepy East 1): A late prehistoric temporary camp situated on a low mound on the northeast shore of Lower Klamath Lake. The site must have been an island during times of higher lake levels. The site exhibited approximately 80 cm of cultural deposit and, along with a variety of flaked

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and ground stone artifacts, yielded a surprising abundance of mammal and fish bone. The site was probably occupied between A.D. 250 and 1350, with the most intensive occupation occurring around A.D. 1300. The site was used primarily as a temporary butchering/processing area for chub and antelope, as well as other ancillary subsistence activities. The site appears to be one of a number of similar late period procurement/processing stations ringing Lower Klamath Lake, occupied by groups emanating from more permanent village locations. The site has been determined eligible for the National Register. (May be same as Sis-254.) Site size approximately 90 x 90 feet. (Site reported in McGuire, 1985; see bibliography for reference.)

Sis-1167/H (Sheepy East 2): Scatter of large basalt cores (5), chert, basalt, and obsidian flakes. Cores are all within a 5 meter diameter circle. No midden is evident, but charcoal flecks are present in silty gray clay. (May be part of site Sis-284.)

Lower Klamath Lake and allowed it to operate as a refuge was in place and functioning as it does today by 1949. Manipulation of the environment has become a vital part of modern wildlife management practices.

The Lower Klamath National Wildlife Refuge illustrates the combined land use that occurs where reclamation and wildlife interests are joined, with wetland areas for feeding, nesting, and wintering and adjacent croplands and grazing areas that provide food and cover compatible with and beneficial to the refuge purposes. Water levels and flows are manipulated by an artificial water control system which benefits both wildlife management and agricultural uses.

Wildlife conservation continued to compete with homesteading and reclamation interests in the Lower Klamath refuge until the 1964 Kuchel Act established the boundaries of the refuge and proclaimed the primacy of wildlife values over reclamation interests within the refuge boundaries. The 53,000 acres that remain of the original 81,000-acre wildlife reservation are currently managed for the benefit of wildlife conservation, and also consistent with optimum agricultural use.

The conflict continues to the present over preservation of wildlife habitats and populations nationwide, particularly wetland areas and waterfowl, as resource managers struggle to balance wildlife conservation interests with mining, grazing, reclamation, agricultural, urbanization, and other development interests.

The Lower Klamath refuge and the five other wildlife refuges in the Klamath Basin National Wildlife Refuge complex continue to be an important stopping point for the majority of the waterfowl in the Pacific flyway. These refuges are so strategically located that at times they harbor more than half the ducks and geese that use the Pacific flyway. The Klamath Basin Refuges are internationally known for their bird life. During winter, the refuges support several hundred thousand waterfowl and large wintering populations of birds of prey highlighted by the United States' largest wintering concentration of bald eagles outside Alaska. The spring and summer months are alive with nesting and brood-rearing activities by waterfowl and other marshbirds such as grebes, pelicans, cormorants, herons, egrets, shorebirds, gulls, and terns.

The refuge has been evaluated only for its national significance in the area of conservation. The refuge may contain archeological and other historical values at the state and local levels of significance. Except where noted, archeological sites identified have not been evaluated for their National Register eligibility.

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Historic Context

During the second half of the 19th century, the writings of Henry David Thoreau and the work of Frederick Law Olmsted and others helped stimulate the emergence of an American conservation ethic. Scientific investigations into natural resources by the eminent naturalist John Muir, forester Bernhard Eduard Fernow, and arborculturalist Charles Sprague Sargent fostered a greater public appreciation for nature and an awareness that America's once-vast natural and animal resources were rapidly disappearing. John James Audubon deplored the slaughter of large game and waterfowl and George Perkins Marsh strove to emphasize the human ability to effect physical and biological change on natural resources and wildlife. The warnings sounded by these men and others about the dangers of landscape alteration and destructive environmental change echo today.

Nineteenth-century federal laws encouraged development of public lands, through the Homestead Act, Swamp Lands Acts, 1872 Mining Act, Timber Culture Act, Timber and Stone Act, Desert Land Act, etc. Completion of the transcontinental railroad hastened the disposal of public lands in the West to homesteaders, miners, lumber companies, and ranchers in the late 1800s. In many instances, "development" equalled exploitation; a frontier mentality prevailed about an infinitude of resources. The latter half of the 19th century has been referred to as the "age of extermination," as the passenger pigeon was hunted to extinction, systematic slaughter nearly erased the buffalo from the American landscape, and encroaching settlement destroyed the pronghorn antelope's habitat.

Migratory birds, primarily waterfowl, were a primary concern of 19th century conservationists. Market-hunting between 1840-1910 decimated migratory bird populations. From the 1870s natural scientists in the U.S. expressed anxiety about the trend toward extinction of many plume birds as hunters waged war upon seabirds along the Atlantic coast and upon herons in the Gulf states. In Tule Lake and the Lower Klamath basin, forster's terns, western grebes, and white pelicans were shot for their plumage. By the end of the century evident declines in numbers of ducks and geese could be attributed directly to overshooting. Legal protection of birds and wildlife, however, remained the domain of the States, few of which had passed wildlife protection laws.

Conservationists, alarmed at the destruction of timber resources, scenic areas, and wildlife by the exploitive activities of private individuals and large business concerns, advanced the principle of reserving portions of the public domain for the public benefit. Scientists and sportsmen alike espoused conservation principles for both aesthetic and utilitarian reasons. In 1870 the State of California created the first government-owned wildlife refuge at

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Lake Merritt in Oakland. The reservation of Yellowstone by President U. S. Grant in 1872 as "a public park or pleasuring-ground" set an important precedent in establishing federal protection of wildlife and scenic values. Withdrawal of public lands into forest reserves began in 1891. In 1892 President Benjamin Harrison set aside the first federal refuge specifically for wildlife by creating a national salmon reservation on Afognak Island, Alaska. Reservation of public lands by state and federal governments enhanced conservation of timber and natural resources and wildlife. The Audubon Society and the American Ornithologist's Union worked toward protection of plume species and migratory waterfowl. The Audubon Society developed its own system of bird refuges and also paid for wardens on early national wildlife refuges.

The Theodore Roosevelt administration actively promoted conservation through the establishment of forest reserves, national parks and monuments, and wildlife refuges. Roosevelt made a concerted effort to awaken in the American people a desire to conserve the nation's resources and wildlife through prudent stewardship and to place the future public interest above individual ambitions. During his seven years as President, Roosevelt fought an unrelenting battle with his opponents and Western landed interests who were accustomed to controlling the nation's natural resources. Despite opposition, Roosevelt doubled the number of national parks in the United States, established the first eighteen national monuments, set up millions of acres of forest reserves, and created more than fifty wildlife refuges during his presidency. The term conservation came into general use during Roosevelt's second administration.

By 1905 the modern wildlife conservation movement had begun to take form. As scientific research into wildlife populations advanced in the second half of the 19th century, the Division of Economic Ornithology and Mammalogy (later renamed the U.S. Biological Survey), predecessor of the U.S. Fish and Wildlife Service, was established in 1886 within the Department of Agriculture to gather information and investigate the economic status, migration, and distribution of birds and mammals in the U.S. Laws and enforcements, refuges, protection for breeding stocks, and state and federal administration were in place by the first years of the twentieth century, but were not well-coordinated or organized.

Theodore Roosevelt's creation of the first wildlife refuge at Pelican Island, Florida, in 1903 was the first national recognition of the desirability of reserving public lands to protect waterfowl. In spite of the establishment of a large number of waterfowl refuges in the first decade of the 1900s, one of the great weaknesses of the wildlife conservation movement was a general lack of protection for migratory game birds, whose numbers were being decimated by

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market hunters. The Lacey Act of 1900 affirmed the federal government's role in wildlife protection by authorizing the Secretary of Agriculture to conserve and restore bird species and regulate the importation of foreign wildlife. The Act provided little enforcement authority, however, and decimation of bird populations continued.

In 1916 the U.S. and Great Britain approved the Migratory Bird Treaty, one of the most important agreements concerning wildlife. It immediately ended spring hunting and sale of migratory game birds, placed certain species under protection, and regulated hunting of ducks, geese, doves, and other game birds. The 1916 treaty and a 1936 treaty with Mexico allowed comprehensive management of waterfowl in a continental program with Mexico and Canada.

Through the first quarter of the twentieth century the concerns of conservationists centered on waterfowl. The devastating consequences of prolonged drought in the central U.S., drainage of wetlands, and over-shooting by market hunters and sports enthusiasts became acute in the 1920s. The number of waterfowl flights had significantly decreased and adequate breeding, feeding, and wintering grounds were disappearing. Development of public lands had severe consequences for wildlife and waterfowl. Midwestern mechanized farming converted vast prairies, wetlands, and forests to croplands. Poor agricultural practices, over-grazing, and cutting and burning of timberlands, hastened erosion and destroyed wildlife habitats.

In response, Congress passed the Migratory Bird Act of 1929 (Norbeck-Andresen Act), which provided a comprehensive legislative basis and authorized appropriations to purchase and develop lands for wildlife conservation. An essential part of the waterfowl management program, designed to meet the international obligations of the United States and to fulfill the needs of waterfowl, was the creation of the National Wildlife Refuge system. From the beginning, waterfowl and migratory birds enjoyed primacy in the establishment of refuges; nearly three-fourths of the national refuges were set aside for these birds. The refuge areas, located strategically along each of the four recognized waterfowl flyways--the Atlantic, Mississippi, Central, and Pacific--provide feeding, nesting, and wintering grounds for migratory waterfowl in the U.S.

Refuges began to be recognized as part of a comprehensive land management scheme to ensure the best wildlife production. Although large numbers of refuges had been created during the first quarter of the 20th century, they were largely "paper" refuges, which failed to preserve or restore wildlife habitats, particularly on reclamation project lands. Of Theodore Roosevelt's nearly 60 wildlife reservations, only a few were located in prime waterfowl habitat, among them the Lower Klamath refuge and Malheur Lake refuge in

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Oregon. Most were better-suited and intended for colony-nesting birds and big game mammals.

It became evident that habitat restoration was an essential key to maintaining and increasing wildlife populations. Because most of the first wildlife refuges had been established over existing reclamation project reservoirs and sumps, maintenance of wildlife habitats was subordinated to furthering the goals of reclamation, with the result that swamps and marshes continued to be drained and little was accomplished to protect wildlife. An extreme example is that of the Winnemucca Lake National Wildlife Refuge in Nevada, a former waterfowl haven. Completion of the Derby Dam on the Truckee River in 1905, as part of the Newlands Reclamation Project, lowered the level of Pyramid Lake so that its overflow to Winnemucca Lake ceased. By 1938 the lake was dry and in 1966 it was removed from the national refuge system.

Water development projects have had a huge impact on wildlife, particularly waterfowl. Water projects have converted 10 million acres of deserts to farm fields, cities, and industrial areas. Damming and channelization of rivers and streams has led to loss of wetlands and wildlife habitat, complicated by increased salinity and toxic run-offs. Water control projects increased greatly in number and scale after the turn of the century and passage of the 1902 Reclamation Act. Most of America's major waterways have been dammed or channelized by the Bureau of Reclamation, U.S. Army Corps of Engineers, and power companies for reclamation, flood control, power production, and other purposes. The threat to wetlands and wildlife by water development projects was recognized in 1934 in the Fish and Wildlife Coordination Act, which required agencies carrying out water control or manipulation projects to consider wildlife values in project planning. Later amendments strengthened the law by requiring project planners to minimize harm to wildlife and mitigate any project impacts on wildlife.

Scientific wildlife management techniques advanced in the 1930s, inspired by forester Aldo Leopold's theories of game management. Leopold postulated that the quality and quantity of habitat govern the number of wild animals that a given area can support. It was therefore necessary to preserve a variety of environments in which wildlife may continue to exist.

For waterfowl, three types of habitat are necessary: breeding areas, resting and feeding areas, and wintering grounds. Modern wildlife management techniques are aimed at preserving and restoring adequate wetlands to accommodate waterfowl populations. Simply protecting natural wetland areas is often insufficient. Wildlife management objectives sometimes require intensive manipulation of the environment. Although wildlife is the most important resource managed on the refuge, management of other resources is

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also essential on modern refuges: cropland is needed for food and cover; trees provide additional cover; grasses are essential; water is critical and must be managed and manipulated by irrigation canals, dikes, impoundments, and man-made islands. Modern management techniques often require sophisticated water control systems to adjust for seasonal variation in water levels and to provide the required waterfowl habitats. Manipulation of water flows is accomplished by pumps, canals, drains, dikes, and other engineering structures, all of which must be regularly monitored and maintained.

The Presidential Duck Committee convened under Franklin D. Roosevelt in 1933 recommended the expenditure of $50 million to acquire and restore America's wetlands. As a means of funding acquisition of refuge lands, Congress passed the Migratory Bird Hunting Stamp Act in 1934, largely through the efforts of J. N. "Ding" Darling, Chief of the Bureau of Biological Survey. Proceeds from the sale of duck stamps were earmarked to buy and lease federal waterfowl sanctuaries. The Pittman-Robertson Act, passed in 1937, created a continuous source of stable funding to the States for wildlife research and management by adding a manufacturer's excise tax to hunting equipment and handguns.

Great progress was made through the 1930s in land acquisition, construction, and improvements to refuge facilities. Darling was very effective at organizing and coordinating federal conservation activities and training professionals. During his short stint in the Franklin D. Roosevelt administration, Darling fathered the Cooperative Wildlife Research program and helped organize the first North American Wildlife Conference and the National Wildlife Federation. Funds from the Federal Aid in Wildlife Restoration program (Pittman-Robertson Act) were invaluable in establishing research facilities and providing trained professional State and federal wildlife managers. Waterfowl research has provided data on managing for waterfowl, improving nesting areas, habitats needed during migration, preventing disease outbreaks, and reducing mortality. Today's U.S. Fish and Wildlife Service was created in 1940, when Roosevelt consolidated the Bureau of Biological Survey from the Department of Agriculture and the Bureau of Fisheries from the Department of Commerce into a single agency within the Department of Interior.

With the decline of the waterfowl population and an increasing loss of wetlands in the 20th century, maintenance of existing waterfowl refuges and wetland habitats has become increasingly important. Competition for water supplies between agricultural needs and wildlife needs continues. The 215 million acres of wetlands that existed at the nation's founding have now dwindled to less than half that number in the lower 48 States, over 80 percent of the wetlands drained for agricultural purposes. California alone has lost 90 percent of its wetlands to agricultural and other development. Modern wildlife managers must take into account other State and Federal programs related to agriculture, power production, reservoir impoundment, stream

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channelization, and flood control. Efforts continue to preserve the nation's wetlands and wildlife habitats and to balance conservation interests and development interests on the nation's public lands.

Historical Background:

The Klamath Basin, located on the California-Oregon border, is a valley of nearly a million acres, once composed of large shallow lakes and extensive marshes Its rich soil, abundance of feed, and widespread water areas were ideal for waterfowl and supported millions of water and marsh birds in their annual spring and fall migrations along the Pacific flyway. Its lakes and marshes attracted peak fall concentrations of over 6 million waterfowl and supported large concentrations of marsh birds such as pelicans, cormorants, egrets, and herons

Archeological evidence of human occupation of the Klamath basin has been dated to approximately 5,000 B.C. Prehistoric inhabitants maintained permanent villages along the lakes and marshes with an economy based largely on duck hunting, fishing, small-game hunting, and the utilization of water plants such as wocus, or water lily, a plant whose seeds provided a basic food staple. Remains of prehistoric occupation sites along the Lower Klamath lakeshore provide information about settlement and subsistence patterns. Archeological investigations have identified several cultural phases which illustrate a shift from a subsistence pattern in which a wide range of floral and faunal species were exploited, to a regional specialization based upon fish and wocus The latest cultural period represents the ethnographic Modoc population in interaction and conflict with Anglo residents in the Klamath basin

Early Anglo settlers in the Klamath Basin recognized the farming and grazing potential of the land. Diversion of water for agricultural purposes began in 1882 By 1903 approximately 13,000 acres of agricultural land were being irrigated through private irrigation projects In 1905, California and Oregon ceded their titles to the lakebeds of Upper and Lower Klamath Lakes and Tule Lake to the United States Department of the Interior and authorized the lowering of the water levels in these lakes for a federal reclamation project that proposed the eventual irrigation of about 236,000 acres. The Klamath Irrigation Project literally almost drained the Lower Klamath Lake in less than 20 years.

President Theodore Roosevelt established the waterfowl refuge known as the Klamath Lake Reservation by Executive Order No. 924, on August 8, 1908. Three subsequent Executive Orders (E.O. 2200 of May 14, 1915, E.O. 3187 of December

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2, 1919, and E.O. 3422 of March 28, 1921) reduced the original 81,619 acres of the reservation by decreasing the refuge area in California. By 1908, all but 7,000 acres of the Executive Order land in Oregon was already under private ownership, so that the effective refuge boundaries in Oregon eventually became those lands remaining in federal ownership. The Kuchel Act of 1964 (Public Law 88-567) fixed the present boundaries of the refuge.

Created within the existing Klamath Irrigation Project administered by the U.S. Reclamation Service (predecessor of the U.S. Bureau of Reclamation), only lands "unsuitable for agricultural purposes" were set aside for waterfowl protection, and the executive order did not specify water rights. Consequently, two inherently contradictory policies were adopted, one calling for conservation of the wetlands as a refuge, and the other for diverting the water supplies and draining the wetlands to accomplish reclamation aims.

The goals of the U.S. Bureau of Reclamation's Klamath Project were to drain Lower Klamath Lake and Tule Lake to reclaim the marshland for agricultural purposes. The California and Northeastern Railway Company formed an agreement with the Bureau of Reclamation in 1907 to construct a railroad embankment across the Klamath River that would also serve as a water control device, restricting the flow of water from the river to Lower Klamath Lake. In 1917 the water control gates were permanently closed, preventing further river water from reaching the lake. The Bureau of Reclamation ensured that farmers in the basin who were irrigating their crops with water from the lake, via the nineteenth-century Adams and Van Brimmer Canals, were provided with water from other sources. The water level in Lower Klamath Lake receded quickly after 1917, so that by 1922 all that remained was a small pond in the extreme south end, fed by ground water, springs, and inflow from creeks. Dust storms and peat fires in the dry lake bed plagued inhabitants of the basin.

Reclamation efforts were concentrated in the Tule Lake area when it was determined that the Lower Klamath lakebed soils and alkali conditions were unsuitable for farming. As development of the Tule Lake area progressed, homesteaders sought additional lands Due to seasonal changes in the lake levels, threat of flooding of agricultural areas adjacent to Tule Lake increased as more lands were reclaimed and homesteaded.

In 1938, the Bureau of Reclamation released a report outlining plans for reclamation of additional lands in the Tule Lake area which would be accomplished by pumping excess water from Tule Lake to Lower Klamath Lake. Establishing better control over the water levels in Tule Lake would reduce the risk of flooding agricultural lands, and homesteading of the newly reclaimed acreage would pay for construction of the water control structures necessary to carry out the project. Additional benefits of the proposal

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included reduction of the dust nuisance in the Lower Klamath lakebed and restoration of the waterfowl habitats of the Lower Klamath and Tule Lake (created in 1928) refuges.

The diversion of water, the disappearance of the lake, and the decline of the area as a home for waterfowl had been the subject of debate during the 1920s and 1930s between the Reclamation Service and the U.S. Biological Survey (predecessor of the U. S. Fish and Wildlife Service). The Biological Survey's efforts to control illegal shooting were the only protection afforded waterfowl in the Klamath basin refuges into the 1930s.

In 1940-41, the Bureau of Reclamation constructed Pumping Plant D on the western edge of Tule Lake. Surplus irrigation water from Tule Lake was then pumped to the refuge through the 6,600-foot Tule Lake tunnel, which was built through the 800' - 1000' hills that separated Lower Klamath Lake and Tule Lake. The P-Canal, P-1 Canal, and P-1-A Lateral, constructed between 1941 and 1945, carried the Tule Lake water to the various units of the refuge. Additional water could be diverted from the Klamath River through the Ady Canal. Excess water was pumped back to the Klamath River through the Klamath Straits Drain, completed between 1945 and 1949. During the ensuing years the U.S. Fish and Wildlife Service added to the network of dikes, canals, and water control structures to protect adjacent agricultural fields and to allow manipulation of the available water supply to most effectively manage the waterfowl habitat.

Upon completion of the Tule Lake tunnel, P-canals, Ady Canal, and Klamath Straits Drain, Lower Klamath Lake became an intermediate unit in the larger irrigation and drainage system. In this situation, refuge managers faced increasing difficulty managing the water levels and maintaining the waterfowl habitat in Lower Klamath Lake. The increased pumping capacity of Pumping Plant D, which was enlarged in 1950-51, resulted in greater discharges from Tule Lake into Lower Klamath Lake. In addition, drainage operations on the Klamath Drainage District lands north of the refuge governed the time and quantity of discharges from the refuge through the Klamath Straits Drain. Enlargement of the Klamath Straits Drain and increasing the pumping capacity of Pumping Plants E and F in 1951-52, to drain excess water from the refuge into the Klamath River, assisted the Fish and Wildlife Service's efforts to control water levels within the refuge.

Construction and improvement of additional water control structures continued within the executive order boundaries of the refuge to further the goals of reclamation and waterfowl conservation. The U.S. Fish and Wildlife Service and the U.S. Bureau of Reclamation approved an agreement on January 8, 1942, which established the responsibilities and jurisdiction of each agency for

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management of refuge lands. The agreement clearly gave priority to reclamation needs in construction and operation of water control structures in the Lower Klamath and Tule Lake refuges. The 1957 Klamath River Basin Compact between the States of California and Oregon reinforced the primacy of agricultural interests over waterfowl needs in the matter of water rights. Debate continued, however, over homesteading of federal lands and whether use of water and land for waterfowl preservation purposes would take precedence over reclamation activities. Pressure was brought to bear on the Department of the Interior to open additional refuge lands to homesteading, while others were lobbying for preservation of the waterfowl habitat. After a Congressional study, the Kuchel Act of 1964 (Public Law 88-567) resolved the issues by dedicating the use of refuge lands to wildlife conservation. The Act stated that all land in federal ownership within the Executive Order boundary "shall be administered by the Secretary of the Interior for the major purpose of waterfowl management, but with full consideration to optimum agricultural use that is consistent therewith." The act set permanent boundaries for the refuge and and prohibited further homestead entry on refuge lands.

Although the Kuchel Act was a victory for wildlife in the Klamath Basin, it also benefitted farmers in California's central valley. An additional motivation for passage of the act was to sustain the waterfowl in the Klamath Basin refuges until the farmers in California's central valley could harvest their crops, so that the birds would not ravage the grain fields on their flights south along the Pacific flyway. Again, both wildlife and agricultural interests were being served. Waterfowl populations have decreased even more since passage of the Kuchel Act, so that it is no longer necessary to maintain as much of the refuge lands in share-cropped acreage to provide food for the birds. In recent years the flooded area of the refuge has been increased from about 28,000 acres up to about 40,000 acres.

Less than 25 percent of Lower Klamath Lake's historic wetland acres now remain. Today the agricultural and conservation interests in the Klamath Basin are controlled jointly by the Bureau of Reclamation and the U.S. Fish and Wildlife Service to permit agricultural uses that are compatible with waterfowl protection. Since 1977, the Fish and Wildlife Service has assumed administration of all grazing and haying leases and management of public use and wildlife programs. The Bureau of Reclamation continues to administer the leasing of agricultural croplands.

The Klamath Basin continues to be a major migration stop in the Pacific Flyway, where three-fourths of all the ducks and geese in this flyway feed and rest before proceeding to wintering grounds in the fall and to breeding territory in the spring.

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	Zone	Easting	Northing
E	10	603980	4635450
F	10	591300	4652040

VERBAL BOUNDARY DESCRIPTION (continued)

The landmark consists of the refuge lands defined by the Kuchel Act (PL 88-567) in 1964, as well as the water control structures that were essential in re-establishing the refuge's waterfowl habitat, which include:

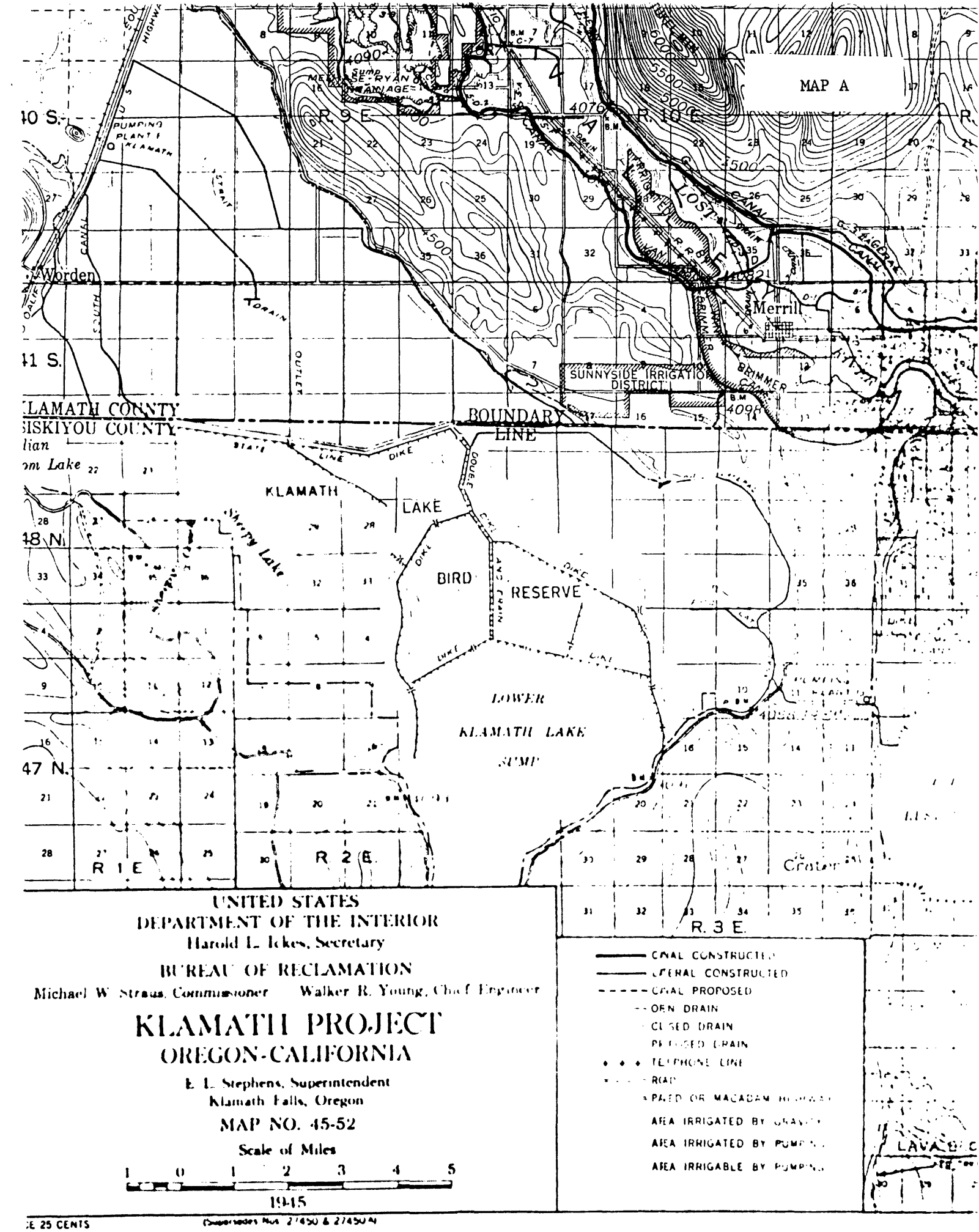
- The main refuge area which spans the California/Oregon border;

- A small non-contiguous parcel to the northwest in Lake Miller;

- Several small non-contiguous parcels to the east, through which run the P Canal, P-1 Canal, and P-1-A Lateral. The P Canal connects the Tule Lake Tunnel and Pumping Plant D to the refuge.

- The Ady Canal and the Klamath Straits Drain stretch north from the refuge to U.S. Highway 97 in Oregon.

The Kuchel Act boundaries are shown on Map A and on the U.S.G.S. quadrangles. The boundaries of the portions of the Klamath Straits Drain, the Ady Canal, the P Canal, P-1 Canal, and P-1-A Lateral not located within the refuge parcels are defined as the canal within its banks. The limit of the Klamath Straits Drain and Ady Canal is the east side of U.S. Highway 97. Pumping Plants E and F are located within the confines of the Klamath Straits Drain. The boundary of the Tule Lake Tunnel is the tunnel itself; the boundaries of Pumping Plant D are the structure housing the pumping equipment and any adjacent related water control structures.



UNITED STATES
DEPARTMENT OF THE INTERIOR
Harold L. Ickes, Secretary

BUREAU OF RECLAMATION
Michael W. Straus, Commissioner Walker R. Young, Chief Engineer

KLAMATH PROJECT
OREGON-CALIFORNIA

E. L. Stephens, Superintendent
Klamath Falls, Oregon

MAP NO. 45-52

Scale of Miles

1 0 1 2 3 4 5

1945

CANAL CONSTRUCTED
CANAL CONSTRUCTED
CANAL PROPOSED
OPEN DRAIN
CLOSED DRAIN
PIPE CLOSED DRAIN
TELEPHONE LINE
ROAD
PAVED OR MACADAM HIGHWAY
AREA IRRIGATED BY GRAVITY
AREA IRRIGATED BY PUMPING
AREA IRRIGABLE BY PUMPING

E 25 CENTS

(Supersedes Nos. 27450 & 27450A)

LOWER KLAMATH NATIONAL WILDLIFE REFUGE

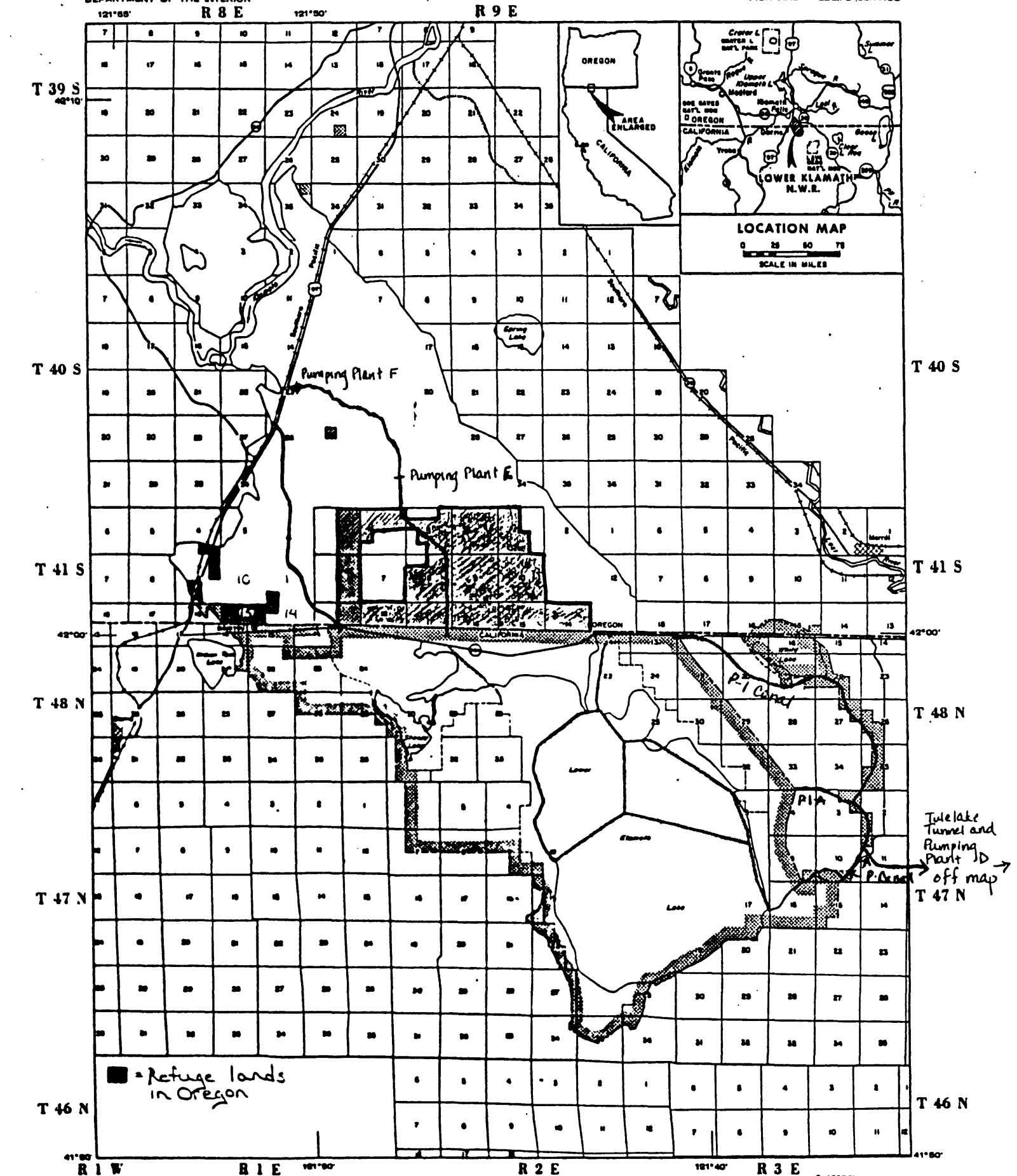
LOWER KLAMATH NATIONAL WILDLIFE REFUGE

MAP B

UNITED STATES DEPARTMENT OF THE INTERIOR

SISKIYOU COUNTY, CALIFORNIA AND KLAMATH COUNTY, OREGON

UNITED STATES FISH AND WILDLIFE SERVICE



COMPILED IN REALTY FROM SURVEYS BY USGS, FWS, BLM

MOUNT DIABLO AND WILLAMETTE MERIDIANS

MEAN DECLINATION 1960

PORTLAND, OREGON MAY 1960

REV

1R CALIF 39 435

LOWER KLAMATH NATIONAL WILDLIFE REFUGE

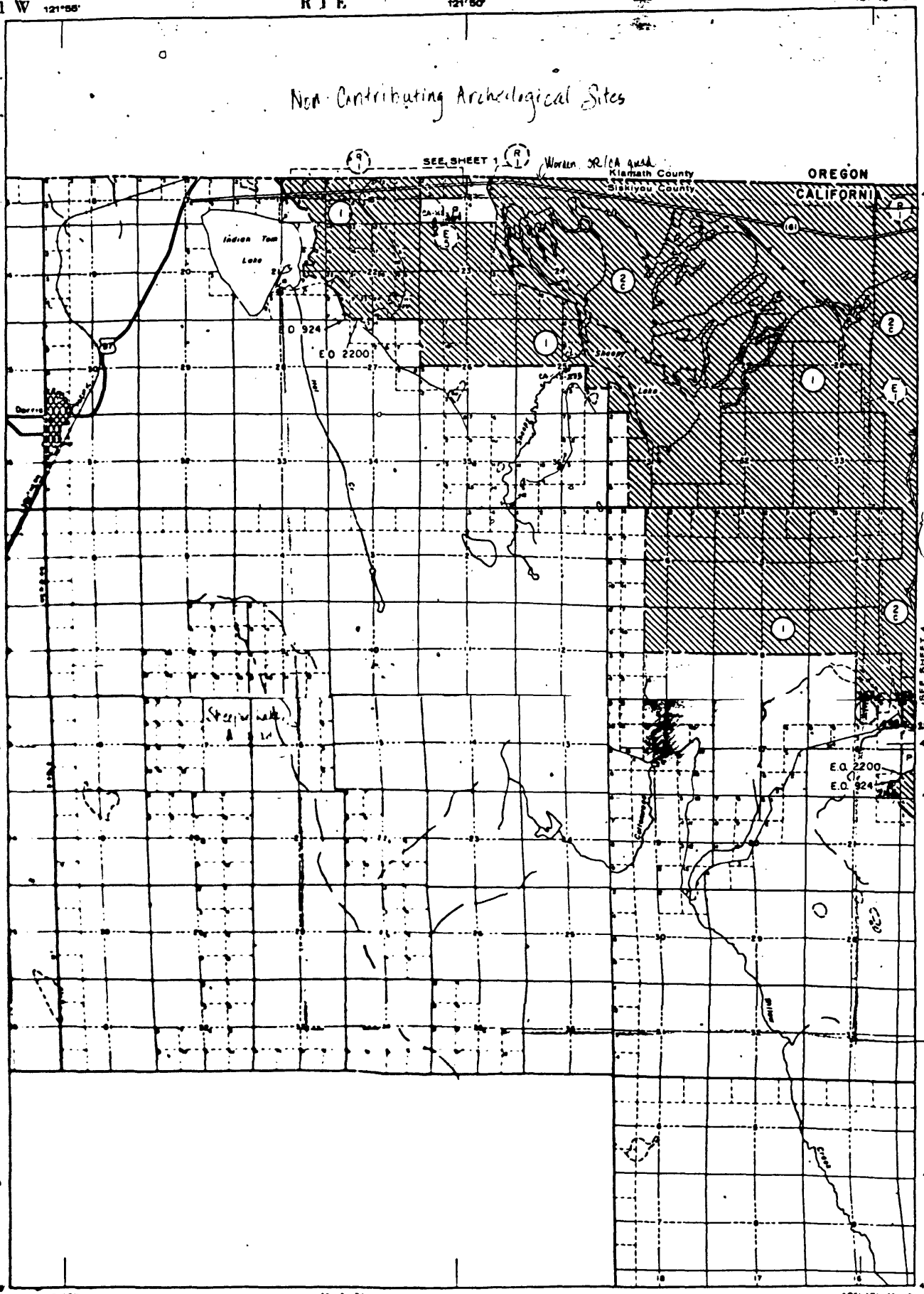
MAP C

UNITED STATES
DEPARTMENT OF THE INTERIOR

SISKIYOU COUNTY, CALIFORNIA AND KLAMATH COUNTY, OREGON

UNITED STATES
FISH AND WILDLIFE SERVICE

Non-Contributing Archeological Sites



COMPILED IN REALTY
FROM SURVEYS BY USGS FWS BLM

MT. DIABLO MERIDIAN

0 2000 6000 10000 FEET

18°30'
MEAN
DECLINATION
1977

MAP D

LOWER KLAMATH NATIONAL WILDLIFE REFUGE

UNITED STATES DEPARTMENT OF THE INTERIOR

SISKIYOU COUNTY, CALIFORNIA AND KLAMATH COUNTY, OREGON

UNITED STATES FISH AND WILDLIFE SERVICE

R 2 E R 3 E

Non-Contributing Archeological Sites