

D-151

File:
NPS Inactive Proposed

reconnaissance survey

july 1980

SHARKTOOTH HILL

CALIFORNIA

ON MICROFILM

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United States Department of the Interior

NATIONAL PARK SERVICE

WESTERN REGION

450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

September 9, 1980

Rocky Mountain
Regional Office

SEP 15 '80

Regional Director	
Deputy Reg. Director	
Administration	
Park Operations	
Plan & Resource Pres.	
Executive Assistant	
Communications & P.A.	
REC	
X DSC - T/W	
Action Taken	

Memorandum

To: Deputy Director, National Park Service
Attention: Chief, Office of Park Planning and Environmental Quality

From: Regional Director, Western Region

Subject: Sharktooth Hill Reconnaissance Survey

Enclosed are 15 copies of our Sharktooth Hill Reconnaissance Survey for internal use and for distribution to the Land Planning Group. The Survey indicates a broad consensus as to the national significance of the fossil resources at Sharktooth Hill. There is also little question as to the existence of credible threats to the resource. Under the present situation, Sharktooth Hill's fossil resources are being lost. While there are a number of agencies and organizations with at least some interest in the site, none appears to have the resources and intensity of interest to lead the way to some sort of solution.

Sharktooth Hill offers basically two potentials. First, the site has the raw material for further important paleontological research. The scientific information potential of the site has by no means been exhausted and there will be the demand for further excavations by professional paleontologists as time and funds become available to them. Second, the site offers the potential for interpretation of geological phenomena for the general public. This latter potential is clouded by the site's well-established but not fully substantiated reputation for harboring Valley Fever. Also, from a visitor use standpoint, the site is truly single-purpose. Esthetic values are lacking and cultural resources apparently minimal.

There is a clear and definite need for a more detailed and fully coordinated study to formulate alternative funding and management schemes for Sharktooth Hill and to define the extent of the Federal interest. The appropriateness of the site for NPS administration is not so clear, although this would certainly be one option to be considered in such a study. At this point, it appears that an ideal solution to the Sharktooth Hill problem would probably



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involve its management by an academic institution or a museum. This kind of arrangement would provide for the needs of the paleontological research community while making the site available on a more restricted basis to the public, commensurate with the Valley Fever risks and the possibly limited demand for such use.

An alternative study for Sharktooth Hill would focus on identification of alternative management schemes, requiring discussions and coordination with a broad array of government and private interests. Additional components of the study would involve a land acquisition analysis (complicated by mineral rights questions), evaluation of the site's interpretive potentials and the costs associated with their realization, further investigation of archeological evidence, and clarification of the Valley Fever situation. Such a study would require approximately two man years of effort, including contributions by lands, cultural resource, and interpretive specialists.

Samuel H. Chapman

Enclosures 15

cc:
Manager, Denver Service Center, with 2 copies of enclosure

RECONNAISSANCE SURVEY

SHARKTOOTH HILL

JULY, 1980

Western Regional Office

National Park Service

U.S. Department of the Interior

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RESOURCE DESCRIPTION

LOCATION

Sharktooth Hill fossil site is located approximately four miles northeast of Bakersfield, California, as shown on Map 1. The area of concern, however, extends considerably beyond Sharktooth Hill itself to include a number of other areas of exposure of the same fossiliferous strata. Map 2 shows the outer limits of the area of fossil exposure.

A 320 acre portion of the area of concern is a designated but not yet registered National Natural Landmark. (Designation represents official recognition of the site's significance by the Secretary of the Interior; registration indicates an intention by the owner to protect the site.) It is outlined on Map 2. The land is owned by the Southern Pacific Land Company. An updated Landmark Evaluation report recommends expansion of the landmark to include a number of additional areas known to contain fossil deposits. This area is also shown on Map 2.

The study area is adjacent to the eastern margin of the great Central Valley. Terrain consists of low, rounded hills between 500-1300' in elevation. Natural vegetation in the area is grassland, significantly altered by heavy grazing use. Soils are thin and eroded by wind and water. Much of the area is extensively laced by primitive roads and evidence of current and past oil exploration and production operations is plentiful. Two major streams intersect the area of concern from east to west. The Kern River passes through the area in the south, providing the basic recreation resource for the Kern River State Recreation Area (administered by Kern County). A few miles further north is Poso Creek. Both streams are well supplied with

riparian vegetation and consequently provide habitat for a wide variety of wildlife. Upland areas provide habitat for quail, kit fox, and a variety of rodents and raptors.

The nearest population center, Bakersfield, had a population of approximately 175,000 within its greater urbanized area in 1970 and has grown considerably since. Some two hours to the southeast is the Los Angeles-Long Beach urbanized area, with a population in 1970 of over 8 million. Other southern California population centers and their 1970 populations include Oxnard-Ventura (240,000), San Bernardino-Riverside (585,000), San Diego (1,198,000), Santa Barbara (130,000), and Simi Valley (55,000).

LAND OWNERSHIP

Lands in the study area are almost exclusively in private ownership, the one exception being a quarter section held by the City and County of San Francisco. Parcelization in the area is moderate, with extensive subdivision (to 2.5 acre parcels) occurring only in one-half section. Most of the ownerships in the area are large, on the average exceeding 1/2 section. Individual ownerships predominate, although some large corporate owners such as Southern Pacific and Tenneco are also represented.

Sharktooth Hill is located in oil country with a long history of exploration and production within and around the study area. Mineral rights, consequently, are owned separately from surface rights on many parcels.

RESOURCE VALUES

NATURAL RESOURCE VALUES - The pre-eminent natural values of Sharktooth Hill are paleontological. While there are within the general area some five

different geologic formations with rich fossil deposits ranging in age from 6 to 22 million years in age, and including both marine and terrestrial species, the Sharktooth Hill bonebed, a mid-Miocene marine deposit containing an unusually rich collection of both marine and terrestrial vertebrate fossils, is of paramount significance. Two national significance criteria contained in NPS Management Policies would appear relevant to this resource.

These are:

- (1) A site containing rare or unusually abundant fossil deposits.
- (2) A site that can be described as an invaluable ... geological benchmark due to an extensive and long-term record of research and scientific discovery.

The Sharktooth Hill bonebed lies apparently on the floor of a shallow bay which was a repository for the skeletal remains of a wide variety and a large number of marine, and a few terrestrial, species. A satisfactory explanation for the concentration of bones in the strata has not yet been offered, although a number of theories have been advanced, ranging from cataclysmic events involving either volcanic poisoning or rapid uplift, to the theory that the bones accumulated over a long period of time. In any event, the concentration of bones in the strata is quite remarkable.

The species diversity at Sharktooth Hill is extraordinary. According to Dr. Edward Mitchell, former Geology Curator at the Los Angeles County Museum, "The Miocene rocks exposed at Sharktooth Hill contain one of the most abundant, diverse, and well-preserved fossil marine vertebrate faunas in the world." Again, from Dr. Mitchell, we find that the "... marine mammal fauna is easily the largest described assemblage of this type from the eastern

margin of the North Pacific ..." and that the site "... contains one of the largest Miocene shark assemblages described from western North America."

Dr. Lawrence C. Barnes, Curator of Paleontology at the Los Angeles County Museum, has indicated that nearly a hundred species have been identified in the bonebed. Dr. Barnes notes that, "The list of known species is larger than from any other marine vertebrate bearing rock unit on the west coast of North America, and is one of the most diverse fossil vertebrate assemblages known. The bonebed has produced one of the most diverse shark assemblages, the most ancient fossil osprey, the rare toothed bird, Osteodontornis, and unusually large numbers of fossil whales and sea lions. Several important fossils of terrestrial animals have been found in the bonebed. Included are horse, tapir, elephant, carnivore, and tortoise. These represent parts of animals that were washed from the land into the sea at the time of deposition of the bonebed."

The history of paleontological discovery at Sharktooth Hill is quite extended, having begun in the 1850's with the discovery of fossil sharkteeth by a geologist with a government railroad survey team. These finds were subsequently formally described by Professor Louis Agassiz of Harvard in 1856, thereby inaugurating more than a century of important fossil discoveries in the area. Involved in evaluation of the fossil evidence have been some of the most eminent of the country's paleontologists, and a number of major quarry operations have been accomplished at the site. The importance of Sharktooth Hill as a benchmark in paleontological research is reflected in the following statement by Dr. Barnes: "Among those fossil marine vertebrate species that have been named for specimens found in the western United States, 57% of the

sharks, 21% of the sea lions and walruses, and 38% of the whales and dolphins were based on specimens collected from the Sharktooth Hill bonebed. This means that the type locality (the source of the specimens used to typify a new species) of these species is at Sharktooth Hill."

Even given the over 100 years of research at Sharktooth Hill, the potential of the site to yield important new information has by no means been exhausted. Significant information gaps exist both in satisfactorily explaining the origin of the bonebed and in analyzing and classifying the many species found in the deposit. In the near future, the Los Angeles County Museum, funded by a National Science Foundation grant, expects to be excavating several quarries in different locations. This work, extending over a two-year period, could begin as early as winter 1980.

CULTURAL RESOURCE VALUES

PREHISTORIC - Archeological data on the area is somewhat limited. Only one bedrock-mortar site has been documented: however, Bakersfield College, the regional archeological clearinghouse for the area, indicates receipt of reports as yet unverified, of additional sites in canyon and creek areas. Overall, the area is considered to be of medium archeological sensitivity.

HISTORIC - Two State Historical Landmarks are located in close proximity to the study area. Included are the Kern River Discovery Well, a hand-excavated oil well of 1899 vintage located just south of the designated Sharktooth Hill National Natural Landmark, and Posey Station, a stop on the Butterfield Stage Route, which operated from 1858-1861. Posey Station is located where State Route 155 crosses Poso Creek. In addition to these documented sites, there

may be other historical evidence in the area related either to early oilfield operations or to the passage of gold miners through the area enroute to goldfields to the east in the 1850's.

Although not in any way formally recognized, the long, unusual, and colorful record of paleontological activity at Sharktooth Hill provides a historic dimension of its own. Since its chance discovery in the early 1850's by the geologist William P. Blake, Sharktooth Hill has for over 100 years been a focus of scientific inquiry. A number of scientific excavations have been made at the site by a progression of the country's most noted paleontologists and scientists in related fields, and many of the discoveries have been of great significance in fossil research. Collections of fossils from Sharktooth Hill are displayed in many of the country's leading natural history museums.

RECREATION RESOURCE VALUES - The rounded and sparsely vegetated hills of the study area are not inherently attractive for recreation use except during the brief spring wildflower season, when one may enjoy displays of poppies, lupines, and fiddlenecks. Esthetically the area has been severely impacted by human activities, with prominent overhead transmission lines immediately adjacent to some of the richest fossil sites, eroded soil from excessive grazing, oil production and waste disposal facilities, excavation pockmarks from the many fossil activities, and an extensive system of random unpaved roads.

The fossil resources, and related geological phenomena do, however, present an opportunity for extensive recreation appreciation of the area. At present, the recreation use of the site is limited to the random collection by amateurs of the readily obtainable fossiles. With public acquisition,

development and interpretation, recreation activities could be considerably expanded. The concentration of fossils in the bonebed would permit, for example, the exposure and display in place of sections of the bonebed, permitting the visitor an opportunity to fully appreciate the nature of the resource. The availability in the immediate area of a variety of strata spanning millions of years and providing fossils from several different periods would permit the development of displays demonstrating various geological and biological principles. The existence of petroleum-bearing formations in the area would add yet another timely geologic dimension. Finally, the long history of the site would add an extra dimension which, if interpreted, would further enhance recreation use.

A negative factor of uncertain significance is the possible concentration of Valley Fever spores in the Sharktooth Hill area. Valley Fever (coccidioidomycosis) is a fungal infection which attacks the respiratory system and produces symptoms similar to tuberculosis. Patients generally recover after several weeks or months of varying degrees of incapacitation. In some cases the affliction can advance to a progressive stage (coccidioidal granuloma) which can cause death.

Valley Fever is not unique to Sharktooth Hill but is found throughout desert valleys in southern California and Mexico. The spores are thought to be carried on particles of dust and hence breathing dust from infected areas may produce the disease. The Kern County Health Department believes the danger of Valley Fever in the Sharktooth Hill area may be significant and advises people to stay away. At one time the Department posted signs at the entrance to Sharktooth Hill warning of the danger; recurring vandalism,

however, has made it impossible to maintain signing at the area. The County is in the process of obtaining and evaluating further information on the problem.

SITE RELEVANCE TO THE NATIONAL PARK SYSTEM PLAN

NATURAL HISTORY - The primary theme of relevance to Sharktooth Hill is Theme 19, the Golden Age of Mammals, ranging from the Oligocene to the Recent Epoch, and encompassing the Miocene. The Plan indicates that this theme is of prime significance in the South Pacific Natural Region and enjoys little or no representation within the National Park System. The Inventory of Significant Geological, Fossil and Marine Sites and Features in the South Pacific Border Region (Theme Study) classified Sharktooth Hill as highest priority for preservation action among fossil sites in the Region. This document notes that Sharktooth Hill is "nationally if not globally unique as a fossil locality for marine vertebrates"

HISTORY - The historic importance of Sharktooth Hill in American paleontology suggests that the area may have some relevance to historic themes as well as natural history. The theme most related to this area would be America At Work, Subtheme: Science and Invention, and Facet: Natural Science.

LAND USES

Most of the land within the study area is currently used only for grazing. However, the area is sprinkled with oil wells and portions of the area are being used for related oil production activities such as oil field sludge disposal "farms" where oil field wastes are contained and to some extent evaporated and biodegraded in diked-off areas.

The current Kern County General Plan designates the entire area of concern as "extensive (non-irrigated) agriculture." While the plan is being revised at this time, changes in the land use designation are not anticipated. Zoning in the area is mixed between Light Agriculture (A-1) and Exclusive Agriculture (A) Districts. The A-1 District permits subdivision to minimum lot sizes of 2.5 acres while the A District provides for minimum lot sizes of 20 acres. A variety of non-agricultural uses are permitted in these Districts upon issuance of a Conditional Use Permit by the County. Such use permits are required, for example, for the above mentioned sludge disposal areas. Significant residential development in the area is not planned or considered likely.

A potential land use change in the area of some significance could result from the Corps of Engineers' Poso Creek Project. This Project, formulated in the mid-1960's and subsequently tabled because of a lack of local support, would have included a dam on Poso Creek inundating portions of the study area. The Project is presently being reanalyzed by the Corps of Engineers in a reconnaissance-grade analysis of alternatives scheduled for completion in the Fall of 1980.

THREATS

NON-SCIENTIFIC COLLECTION OF FOSSILS

The most immediate threat to the integrity of the fossil resources is their non-scientific collection, both by amateurs in search of artifacts for their personal collections and by commercial dealers in search of sometimes quite significant profits. For many years confined to a relatively limited area of the bonebed exposure, non-scientific collecting has in recent years

spread to other and less well-known sites in the area. Non-scientific collecting is destructive not only because it involves the removal of fossils but because it inevitably includes the breakage of specimens and the loss of the overall context of the bed, which supplies valuable information to the paleontologist. A scientific excavation involves the careful removal of overburden from above, revealing the fossils in context. In contrast, amateurs generally attack the bonebed from the side, chopping out portions of the bonebed and sifting through the debris for sharkteeth.

The collection of shark teeth in the area has been a local recreation activity for many years. Not only individuals but various groups, sometimes even including school classes and Scout troops, have been known to visit Sharktooth Hill to collect fossils. Access to the site is good via a network of oilfield roads, information is plentiful through published rockhound guides of various sorts, and, although lands are private, little effort is made by law enforcement personnel to prevent trespass. There are no signs indicating either that the lands are private or that the fossil resources are more than locally significant. On a typical weekend day it is not unusual to see 20 or more separate groups digging in the area.

Commercial exploitation of the fossil bed has increased in recent years. Unfortunately, there appears to be an active market in shark teeth, with the large 4-6" teeth bringing as much as several hundred dollars and the more common 1-3" teeth bringing a few dollars each. The concentration of teeth in the bonebed is sufficiently high to provide a knowledgeable and energetic worker, equipped only with hand tools, a return of several hundred dollars a day. It appears likely, however, that the commercial operators may

find it not only profitable, but even physically imperative, to turn from hand tools to a more mechanized approach to mining the sharkteeth. The reason for this is that most of the readily accessible portions of the bonebed have already been thoroughly exploited. The further collection of specimens will require the removal of substantial amounts of overburden. The probably clumsy use of heavy equipment on the site may be expected to have particularly severe impacts on the bonebed's scientific value. An example of the commercial collection aspect can be seen in the area just north of the Landmark, where the former owner has sold the land for use ultimately as a hazardous waste disposal area, but has recognized the commercial value of the fossils by retaining for himself the right to excavate the bonebed.

LAND USE CHANGES

The present economic uses of the study area, apart from the commercial fossil excavation activities, do not offer significant threats to the integrity of the resource. There are, however, distinct possibilities of land use changes which could either physically disrupt the bonebed or preclude its future scientific excavation. Among these are expanded oilfield operations (including waste disposal) and the Corps' of Engineers Poso Creek Project. The former is by far the greater and more immediate threat. In fact, Kern County is presently reviewing an application for a Conditional Use Permit for a large-scale waste disposal dump in a fossil rich area just northeast of the designated landmark. Residential development in the area of interest does not appear to be a major threat. Although some limited subdivision could occur, the area does not appear to be well-suited for urbanization and such land use is not anticipated in the County General Plan.

RESOURCE PROTECTION

The existing efforts of both public and private organizations are inadequate to provide for the protection of the fossil resources.

The Federal capabilities in the area are at present quite limited because of the absence of any Federal ownership. The one Federal program which does have applicability and some potential in the area is the National Natural Landmarks Program, administered by the Heritage Conservation and Recreation Service (HCRS). As indicated previously, a portion of the fossil site is already designated and there is potential for expansion of the Landmark to include the remainder of the bonebed.

The Landmark Program does not, however, provide the Federal Government with either regulatory authority to compel site protection on private land or financial incentives to materially encourage site protection by owners. The success of this essentially voluntary program is dependent on the environmental and social consciousness of the owners and land use regulators and on the persuasiveness of HCRS' appeals to such consciousness. While this program may in some instances be successful in the short term, the long-term capability of the program for providing resource protection would appear to be tenuous.

At present, the State of California has only very limited ownership in the area. A small portion of the bonebed lies on State-owned land within the Kern River State Recreation Area. However, the State has recognized the considerable significance of the Sharktooth Hill site. In its Sierra Foothill and Low Coastal Mountain Landscape Preservation Study, the Department of Parks and Recreation finds Sharktooth Hill to be one of the most significant natural sites in the province and accords it significant priority for preservation

action. Two state programs which could be applied in the area would include the State Park System and the University of California's Natural Land and Water Reserves System. The Department of Parks and Recreation has considered the area's potential as a unit of the State Park System and has concluded that, because of the nature of the resources and the Valley Fever problem, the better approach would be for inclusion in the University system, where it would be available for scientific and limited educational use without jeopardizing the health of the general public. However, the University is not, because of funding limitations, in a position to undertake acquisition and management of the area at this time. In addition, the lack of a nearby campus both to utilize the site and to provide for economical management tends to militate against inclusion of Sharktooth Hill in the University system.

Existing local government capabilities in the area include the basic land use regulatory powers and law enforcement jurisdiction. Kern County has jurisdiction in the area of concern and has responsibility for zoning, subdivision approval, and control of construction activities through the issuance of permits. A variety of land uses other than agriculture are permitted in the subject area upon issuance by the County of a Conditional Use Permit. Such a permit can provide a vehicle for limiting or mitigating damage to critical resources. The County Sheriff is responsible for law enforcement in the area, and could provide some additional protection to the fossil resources by extending greater efforts to prevent trespass.

The long term capability of local government to protect the fossil resources through land use regulation and increased police protection would be questionable even with a firm local preservation commitment, and there is

no indication that such commitment exists. Acquisition and management of the area by Kern County would, of course, be theoretically possible but does not appear probable. The County Museum does have considerable interest in the area, and has played an active role in seeking preservation of the site.

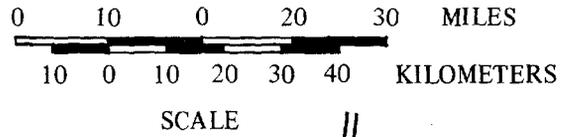
A variety of private organizations, including various museums, colleges, and conservation organizations, could potentially play a role in the protection of the Sharktooth Hill resources; however, there are no such prospects in sight.

LAND VALUES

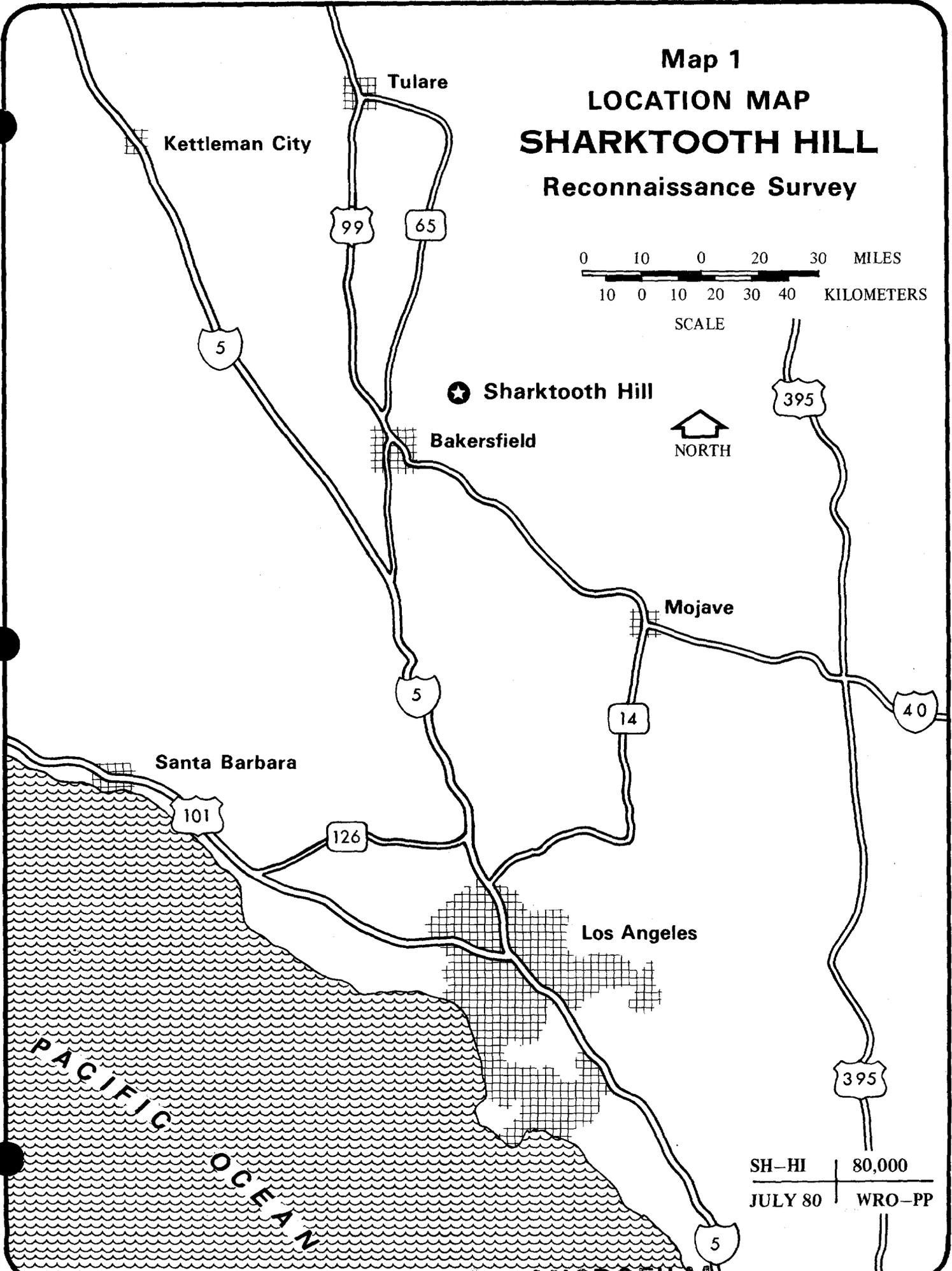
Land values in the area range from about \$300 per acre for lands usable primarily for grazing up to as much as \$1000 per acre for land suited for large lot (2.5 or 20 acre) residential sites. (Values are exclusive of mineral rights.) Only a small portion of the area appears suitable for such residential use, and consequently the average for the area is probably about \$500 per acre.

Land price appreciation in the area of concern has been moderate in recent years, particularly by Kern County standards. Most of the more speculative real estate activity has tended to focus on irrigable land for which water has become available or on lands suitable for intensive residential development.

Map 1
LOCATION MAP
SHARKTOOTH HILL
Reconnaissance Survey



★ Sharktooth Hill



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APPENDIX I - SHARKTOOTH HILL SURVEY CONTACTS

Barnes, Lawrence G. -----Department of Vertebrate Paleontology,
Los Angeles County Museum

Breuer, Chris-----Kern County Museum

Cheatham, Dan-----Natural Land and Water Reserves System,
University of California

Christensen, Donald-----Pacific Southwest Region, Heritage Conservation
and Recreation Service

MacGregor-Hanifan, Joanne-----Bakersfield District, Bureau of Land Management

Moore, Melinda-----Kern County Planning Department

Olson, Mrs.-----Health Education, Kern County Health Department

Schiffman, Robert A.-----Regional Office, California Archeological Site
Survey, Bakersfield College

Simon, Fred-----Kern County Planning Department

Spharler, Lon-----Planning Division, California Department of Parks
and Recreation

APPENDIX II - LIST OF RELATED REPORTS & STUDIES

Barnes, Lawrence G., Sharktooth Hill National Natural Landmark: Revised Evaluation (Draft), 1978. (In HCRS' National Natural Landmark File)

California Dept. of Parks and Recreation, Sierra Foothill and Low Coastal Mountain Landscape Preservation Study, 1973.

Lipps, Jere H, et al, Inventory of Significant Geological, Fossil and Marine Sites and Features in the South Pacific Border Region, 1973. (Theme Study prepared for use in National Natural Landmark Program)

Mitchell, Edward, History of Research at Sharktooth Hill, Kern County, California, 1965. (Published by Kern County Historical Society)

Shrawder, John F., Natural Landmark Evaluation Report on Sharktooth Hill, Kern County, California, 1976. (In HCRS' National Natural Landmark File).

1. Name of jurisdictional area (State, county, etc.) _____

California, Kern County

2. Working title assigned to the site Sharktooth Hill

3. Give the gross acreage included within the survey boundaries and provide a breakdown of ownership. 7,000 ± ; all private

	Estimated Acreage	Type of public agency/ commercial enterprise/etc.
Federal	_____	_____
State	_____	_____
Local	_____	_____
Private	_____	_____
TOTAL ACREAGE	_____	

4. General geographic description and principal resource characteristics of the site. What significant natural, scenic, recreational, fish and wildlife or historic values are known to exist on the site(s)? Is the area or parts of it a nominated or registered natural or historic landmark? Has it been treated in a theme study? Is a theme study scheduled? When?

Low foothills of Sierra-Nevada. Vegetation: Grassland. Significant values are geological: Extremely rich and well known mid-Miocene marine fossil site. 320 acre portion is designated National Nat'l. Landmark.

5. Describe the general pattern of land ownership and the purposes for which the site(s) is/are now being used? Check all that apply, indicating minor uses by "x" and major uses by "m".

Farm or farm woodlot _____	Residential non-farm _____
Farm residential _____	Military _____
Grazing <u>X</u>	Commercial _____
Mining <u>Oil wells</u>	Timber production (including nursery) _____
Fish and Wildlife _____	Other (specify) _____
Recreation <u>Illegal fossil collecting</u>	Other Public <u>Oilfield sludge</u> (Specify) <u>disposal area</u>

6. Note population patterns and any pertinent demographic trends or features. Cite distance of area from densely populated areas and the effect of uses, if any, emanating from these areas and their effect on the site. Describe accessibility of the site to the population of the area (pedestrian, auto, public transportation, etc.) Site is highly accessible to population of

Bakersfield via paved and unpaved roads. 1970 Bakersfield population was approximately 150,000 with substantial growth since. Site is only about five miles from the edge of the city.

7. The potential of the site for providing recreation, and/or open space or natural or cultural values. Natural values are pre-eminent. Fossils are of national significance. Recreation value (interpretation of fossils) potentially threatened by presence of serious pathogenic agents on site.

8. Has the site been identified as a significant natural, cultural or recreational area or open space meriting protection? Yes

9. If yes, by whom and when? Have plans been proposed for its protection?

1. Identified as priority area in Theme Study
2. Portion designated as National Landmark in 1976.
3. Identified by State of California as high priority preservation area in 1973.

No firm plans have been proposed for protection.

10. Is all or part of the site(s) now part of an approved plan of a public agency with full or partial capability to provide recreation and resource protection (i.e., as a secondary use)? No

If so, does it have a high priority ranking that may permit its protection within the next 5 years, based on current financial expectations and management capabilities?

11. By whom and for what land use(s) is the site(s) presently zoned or otherwise protected?

Not zoned _____
Agricultural Minimum lot sizes 2.5 or 20 acres: variety of non-agricultural uses permitted with Conditional Use Permit.

Low density single family residential _____
Medium density single family residential _____
High density single family residential _____

Townhouse/cluster/low rise multi-family residential _____
High rise multi-family residential _____
Commercial _____
Other (specify) _____

12. Is a change of zoning classification now pending on all or part of the site(s)? No

13. If yes, what new use is sought and when is it expected to be acted upon?

14. For what future purposes is the site(s) being considered, and by whom? Most of site is expected to remain in grazing use. Portions will be developed as oilfield sludge disposal areas.

15. How would you describe the general development pressures on the sites?

Is imminent danger of development incompatible with protection of identified values. A portion is threatened by near term sludge dump.

All of site threatened by vandalism.
Not now, but probable within 3 to 5 years _____

Not in danger within 8 to 10 years _____

16. Current price escalation of land acquisition Little speculative activity in area: price escalation not a serious problem. Land prices estimated to average \$500/acre.

17. To what extent is, or could the area be, protected under existing Federal, State, local controls and authorities (e.g., National Flood Insurance Program, Environmental Protection Agency and Corps of Engineers regulations, authority over waterways, etc.)

Existing authorities are largely inadequate in long term. Some short term protection is possible through exploitation of Landmark Program and local land use controls. Ultimate protection will require acquisition and management.

Name of person(s) filling out sheet

Daniel Olson- Western Regional Office

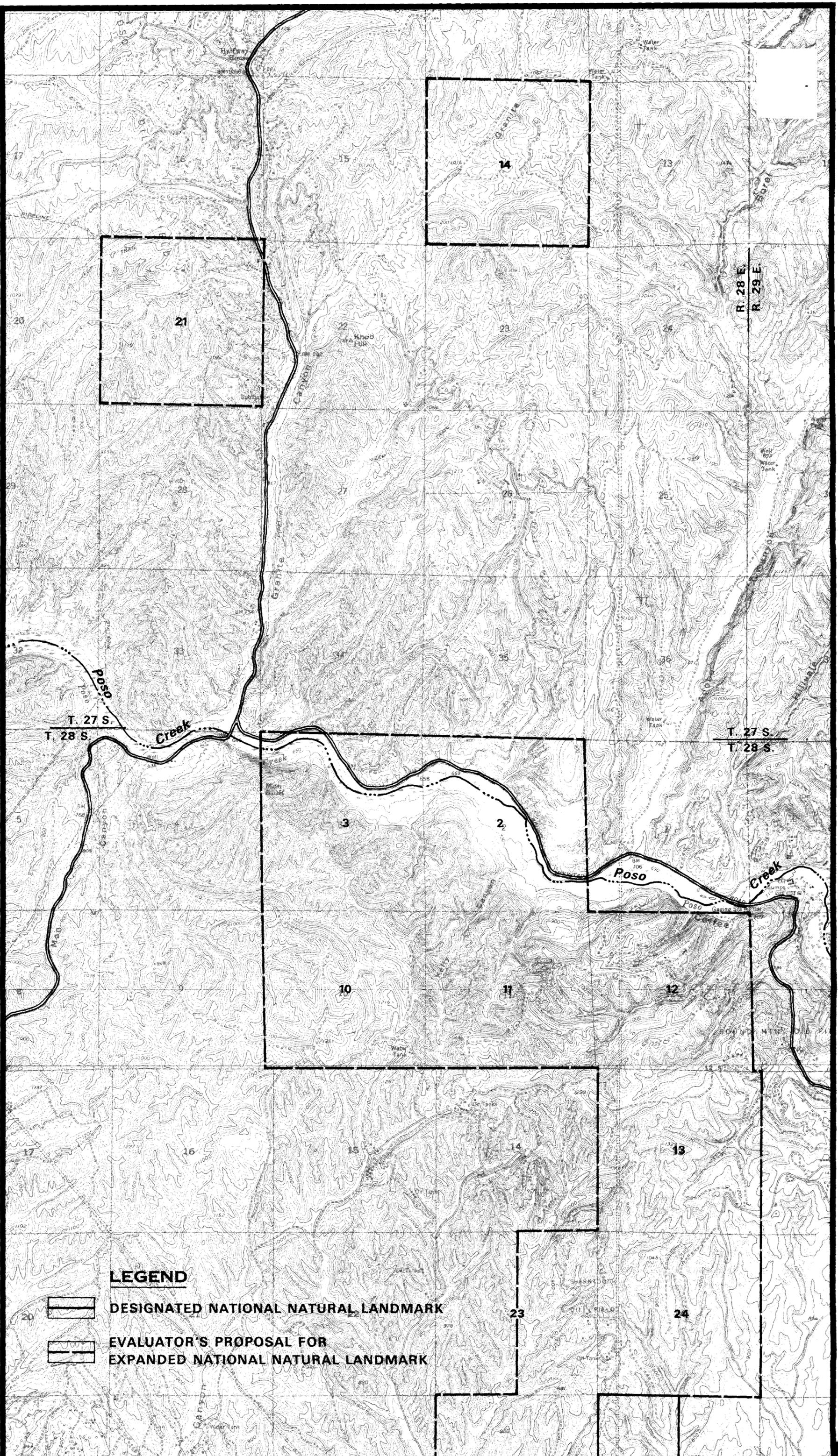
LEGEND



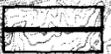
DESIGNATED NATIONAL NATURAL LANDMARK



EVALUATOR'S PROPOSAL FOR EXPANDED NATIONAL NATURAL LANDMARK



LEGEND



DESIGNATED NATIONAL NATURAL LANDMARK



EVALUATOR'S PROPOSAL FOR EXPANDED NATIONAL NATURAL LANDMARK



NORTH

0 1/2 1 Mile

0 5 10 Kilometer

SCALE

Map 2
STUDY AREA
SHARKTOOTH HILL
Reconnaissance Survey
CALIFORNIA

ON MICROFILM

SH-HI 80,001
JULY 80 WRO-PP

