

CALIFORNIA CONCEPT PLAN

UNIQUE WILDLIFE ECOSYSTEM PROGRAM

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PREFACE

The Land and Water Conservation Fund Act of 1965 (P.L. 88-578) as amended in 1976 (P.L. 94-422) provides funds for the acquisition of Unique and/or Nationally Significant Wildlife Ecosystems. Under National and Regional guidelines, wildlife areas are to be inventoried, ranked in order of priority and developed into State Concept Plans. Highly ranked areas are then developed into Decision Documents for potential protection and preservation.

The Concept Plan presented here for California is in partial fulfillment of this directive. Unique Wildlife Ecosystems have been identified and inventoried by a host Federal and State resource agencies, private organizations, universities and concerned individuals. Each site has been ranked numerically using the Region I Evaluation and placed in priority levels. Level I sites are first priorities for protection, exhibiting both extremely high biological values and some imminence of threat. Level II sites demonstrate either lower biological values or threat factors or both. Level III sites are ranked the lowest either due to lack of precise data, late nomination or lack of national significance.

The Unique Wildlife Ecosystem Program is a positive step in the direction of wildlife preservation. The disappearance of the California biotic base requires the concerted effort of this and other resource agency programs directed toward the protection of native flora and fauna.

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California State Overview

The state of California is more of a region than a state. Its great size, physiographic and biological diversity, and human inter-relations contribute to make a complex array of ecosystems. The following overview will briefly summarize this protean region in terms of its natural and human environments, and the threats that the latter exerts upon the former. Following this will be a short evaluation of the public and private efforts to alleviate these threats. Finally, an explanation of the Unique Wildlife Ecosystems Program, its objectives, criteria and justification, will follow.

Natural Environments

The diversity of the California Wildlife Province is a result of a myriad of interrelating environmental and historical factors. Its size, 158,693 square miles, ranks it third among the 50 states, while its 1,264 miles of coastline (nearly 10 degrees latitude) ranks it second only to Florida. This large land mass is geomorphically a product of the collision of the Pacific and North American Continental Plates, causing the surface to be stretched and compressed into a very irregular landscape. Superimposed upon this surface is a Mediterranean climate regime, characterized by cool, moist winters and hot, extremely dry summers punctuated by localized fog regimes. Added to and partly dependent upon these factors are the varying soils, habitats and wildlife components.

For purposes of generalization, the state has been categorized into dominant habitat types with some of the expected wildlife components. While many species of wildlife may not be defined by a single habitat type, enough of the threatened species are known to be obligate inhabitants of a single habitat to justify this approach.

1) Coniferous Forest. These ecosystems, comprising approximately 21% of California's areal coverage, are largely restricted to the Sierra Nevada Cordilleran, the Klamath-Siskiyou Mountains and the northern coastal lowland fog belt. Dominant species, such as Redwood, fir and spruce, are adapted to low evapotranspiration rates. These conditions are provided in the mountains and in the cool fog belt by amelioration of the Mediterranean regime.

The largely north-south distribution of coniferous forests in California accounts for the annual migration of many boreal species. Characteristic of these boreal species are Clark's Nutcracker, Stellers Jay, Spotted Owl, Mountain Chickadee, Porcupine, Bobcat, Spotted Skunk and Brook Trout.

Human use of these forests is intensive. Approximately $\frac{1}{2}$ of the original forests have been cut and the annual cut rate presently exceeds the growth rate by 2.5%. Fortunately, nearly 10% of these native forests are protected in State and National Parks.

2) Oak-Conifer Woodland. These various deciduous and coniferous habitats comprising nearly 14% of the state, are located largely in the foothills of the Sierra Nevada, forming an ecotone between the valley grasslands and the coniferous forests. The dominants of this habitat include both live and deciduous oak, several species of pine with an understory of grasses and forbes. These habitats, occurring from sea level to perhaps 4,000 feet, are adapted to relatively high drought stress and can quickly regenerate after fire. Some of the common wildlife of these environs include Acorn Woodpeckers, Golden Eagles, White-breasted Nuthatches, Scrub Jays, Western Rattlesnakes, Mule Deer, Gray Fox and Red Bats.

Oak-Conifer habitats are largely used for grazing, their value as wood products being limited. Oak habitats, without much fanfare, are being eliminated through lack of seedling regeneration due to over-grazing and cutting for commercial and residential tracts. Oak forests have probably received little attention because many of their wildlife species are able to adapt to other habitats. At this time, very few of dominated reserves have been established in California, one exception being the Starr Ranch, maintained by the National Audubon Society.

3) Grasslands. This once extensive native Central Valley habitat, covering 22% of the state, has been almost completely extirpated by exotic species introduction, and agricultural, urban and commercial expansion. It is estimated that only $\frac{1}{2}$ of 1% of the original native grassland remains still intact.

The composition of this relict habitat was predominantly perennial bunchgrass. Now, grasslands largely consist of annuals such as Wild Oats and Italian Ryegrass. All of these grasses are adapted to periodic fire and summer drought. However, only the introduced annuals are able to withstand heavy grazing pressure, which was not a major factor in the unsettled California ecosystems. Among the wildlife characteristic of these grasslands are King Snakes, Gopher Snakes, Western Skinks, Great Horned Lizards, Horned Larks, Burrowing Owls and San Joaquin Kit Fox.

Native grasslands are also the most underprotected habitat in California; no good examples are currently protected. Now Also

A particularly unique ecosystem occurring within the grassland complex are vernal pools. These ephemeral wetlands, sustained by clay-span soil horizons, occur extensively only in California and South Africa

The plants, which are adapted to conditions of submergence and then complete dehydration, have extreme rates of endemism, approaching 90%. Cultivation is quickly eliminating these microhabitats; only 2 pool areas are presently protected in California.

4) Chaparral. This unique habitat, covering approximately 10% of California, consists of evergreen shrubs with thick, cutinized leaves referred to as sclerophyllous. This very dense habitat occurs only in the true Mediterranean climatic regions of the world and is adapted to annual fires and extreme summer drought. In California, chaparral is best developed in the southern part of the state in foothills ranging from 300-3,000 feet. Chaparral sometimes forms the ecotone between coastal scrub and oak woodland communities. Among the wildlife characteristic of this unusual habitat are Red Diamond Rattles, California Boas, Green Tailed Towhees, California Roadrunners, Mountain Quail, California Pocket Mice, Graceful Kangaroo Rats and Western Mastiff Bats.

Chaparral is a habitat little utilized by humans, other than light livestock grazing, urban expansion and watershed. Relatively little attention is aimed at protective efforts for chaparral areas. Thus, very few chaparral reserves exist, an exception being the Elliot Chaparral Reserve, maintained by the University of California Land and Water Research System.

5) Desert Scrub and Sagebrush. This category lumps several habitat types dominated by xerophytic plants adapted to arid climates and often saline soils. Much of this habitat occurs at low elevations east of the Sierra Nevada and the Mojave Desert. This largely level, open habitat is dominated by such species as Creosote Bush, Big Sagebrush and Yucca Tree. These habitats cover nearly 33% of California's land surface. Some of the wildlife inhabiting these habitats include the Desert Tortoise, Gila Monster, Horned Lizard, Desert Pupfish, Prairie Falcon, LeConte's Thrasher, Desert Kit Fox and Black-tailed Jackrabbit.

The extensive desert environs have only recently become seriously threatened, this through uncontrolled ORV use. Few desert areas do not bear the scars of this activity and few wildlife species can coexist with it. Another serious threat is through development of the few desert springs as resorts and retirement homes. The endemic fish restricted to widely scattered desert springs are usually unable to adjust to the changes in water quality associated with these activities. Very few examples of pristine desert ecosystem exist, a notable exception being the effort by the Bureau of Land Management and the Nature Conservancy to protect the Desert Tortoise Natural Area.

6) Salt and Freshwater Marsh. This habitat, which originally comprised less than 1% of the California region, has been reduced, through man's activities, to less than 30% of its original extent. Salt marshes occur along estuaries and inland playa lakes. Freshwater marsh once occurred widely throughout the Central Valley and at remote sites in desert regions. Dominant plants include Pickleweed, Cordgrass, Cattail, Bulrush and Tules. These hydrophytes are variously adapted to periodic submergence, high salinities and often anaerobic soil conditions.

Wetland habitat is extremely important to wildlife, both consumptive and non-game species. This importance is elicited through the high number of Federally Endangered species restricted to coastal salt marsh environs, including Light-footed Clapper Rail, Least Tern, California Clapper Rail and the Salt Marsh Harvest Mouse. Other species occurring in fresh and/or saltwater marsh include Pintails, Osprey, Striped Bass, Common Aquatic Garter Snakes, Pacific Pond Turtles and Tule Elk.

These habitats have received much attention and preservation efforts are being carried out by several resource agencies. Less protected than waterfowl areas are the coastal and desert salt marshes. Much of this ecosystem has been eliminated through diking and filling activities.

7) Riparian. This habitat will be defined as the arboreal fringe of the many watercourses in California. Floral dominants include cottonwood, willow, oak and walnut. These phreatophytes are adapted to high water tables, clayey soils and periodic flooding. While riparian habitats historically occurred throughout California, recent estimates show this habitat reduced to only 15% of its former coverage; refugia occurring along the Upper Sacramento River and the South Fork of the Kern River. The foremost threats to these habitats include overgrazing, which is preventing regeneration, woodchipping operations and agricultural expansion onto to areas previously scoured by periodic floods. As California's river become increasingly "tamed" by river diversion and impoundment, this latter threat will steadily increase.

Riparian habitat is paramountly important to wildlife for several reasons: 1) north-south orientation allows a wildlife migration corridor; 2) several species i.e. Yellow-billed Cuckoos, are completely dependent upon dense riparian stands for successful nesting; 3) the dominance of coniferous over deciduous habitats in California leaves few alternative habitats for deciduous insectivorous birds. Some of the wildlife characteristic of this habitat include Bell's Vireo, Great Blue Heron, Red-shouldered Hawk, wintering Southern Bald Eagle, Beaver, Muskrat, Mexican Free-tailed Bat, Steelhead Trout and California Slender Salamander.

While few riparian sites are presently protected, public and private awareness of the problem is resulting in limited protection efforts. An example is the Woodson Bridge Nature Preserve maintained by the California Department of Parks and Recreation.

Human Environment

The California Region has greeted three successive waves of human migration. For thousands of years, hunting and gathering tribes lived within the constraints imposed by their limited technology and the vagaries of nature. Later, in the 18th and 19th century, Spanish settlers introduced their culture and cattle to the coasts and grasslands. Finally, with the termination of the Mexican War and the discovery of gold in 1849, the massive immigration of Anglo-Americans began.

California's population trends have subsequently reshaped much of the landscape. Its total population of 21 million plus ranks California as the nation's most populous state. Fully three-fourths of the population live on less than 1% of the land. Much of the population growth is dependent upon immigration both of aliens and interstate migrants seeking out "The Good Life." Unfortunately, many of the natural amenities sought by these people are sacrificed to accommodate them.

The burgeoning population has affected the land in a multitude of ways, paramount among them being urban sprawl, agribusiness expansion and industrial growth. Urban development, especially around the San Francisco Bay region and the Los Angeles Basin, has eliminated over 20% of the cultivated land; this since World War II. Farm land, however, has been maintained in total acreage by the draining of wetlands, and more importantly, the irrigation of land previously too arid for agriculture. Future demands for water are to be met by even greater utilization of the California water resource; it is estimated that $\frac{1}{2}$ million additional acres will be brought into cultivation in the next 20 years. While California consistently produces more food than any other state, its increasing dependence upon toxic pest controls and water control projects threatens the vestiges of native wildlife and their habitats.

Present Avenues of Ecosystem Protection

California's diversity is not limited to natural phenomena; there are probably more public agencies, universities, private organizations and persons dedicated to the perpetuation of natural values than in any other state. California is becoming a state where environmental awareness is quite keen. Few are the really valuable ecosystems that are destroyed without some form of public outcry.

The following is a summary of the functions of those agencies and organizations, both public and private, which have been mandated to protect various aspects of the native landscape. It would be unfair to impose value judgements on each concerned agency's abilities or objectives in protecting wildlife and/or habitats. Several agencies protect most of the wildlife values of a site by management for other than strictly the wildlife, examples of this being recreational parks and waterfowl management areas. Thus, any agencies involved in acquisition and management of habitats, which are to remain in their relative pristine state, will be discussed. Discussion of the dozens of agencies which are involved in land use planning mitigation, while recognized as extremely important to wildlife management, will be omitted for brevity.

Public Agencies: Federal

A. United States Forest Service.

The Forest Service is the most important agency involved in the protection of boreal forest and alpine ecosystems. The Forest Service is presently engaged in the process of classifying its roadless areas as either potential wilderness or multi-use lands. The decisions made as a result of the Rare II Survey will have far reaching effects on the future of California's coniferous forest habitats. Another program carried on by the Forest Service, as mandated by Section 251.23 of Title 36 of the Code of Federal Regulations, is the designation and protection of Research Natural Areas. The objective of this program is to systematically protect examples of all the native forest types native to (in this case) California. As of 1976, there were approximately 16,000 acres of forest protected as Research Natural Areas in California.

Worth noting is that the United States Forest Service, in its various protective programs, is not actively seeking areas to preserve outside of its currently held areas.

B. Bureau of Land Management.

The Bureau of Land Management, like the Forest Service, has provisions for the establishment of Research Natural Areas, these to be used specifically for research and education. While many areas of high natural value have been withdrawn for Natural Area status, none as yet have become officially designated.

Another potential wildlife protective activity is the designation of wilderness areas within present holdings. While roadless area proceedings are just beginning, the potential long term effects on arid land environs by these designations is quite high.

Finally, the Bureau does have the authority to purchase privately held lands under the Organic Act (P.L. 94-579), using Land and Water Conservation Fund monies. These areas must, however, be "primarily of value for outdoor recreation purposes." There are guidelines under the Organic Act for the acquisition of private lands for their biological values. However, money for these acquisitions must come from Bureau appropriations rather than LWCF money. It is unlikely that appropriations will be provided for this end.

C. National Park Service.

The National Park Service, as mandated in the National Park Act of 1916, acquires land often of high biological and pristine values. This agency is, however, directed to preserve lands for their recreational rather than biological value. The funding source is both through congressional legislation and The Land and Water Conservation Fund Act of 1965.

Certain National Parks have cordoned off areas for designation as Research Natural Areas. There is apparently no legal mandate for this designation. Rather, Park Superintendents are responsible for recommending areas within their jurisdiction. There are presently 13 designated Research Natural Areas in California. On the whole, the National Park Service must be considered a recreation oriented agency which incidentally protects biological habitat in the process. The potential for the National Park Service identifying and protecting areas for their high biological value in the near future is quite minimal.

D. United States Fish and Wildlife Service.

The Service has three programs through which biological habitats are protected: Ecological Service, the Migratory Bird Land Acquisition Program and the Endangered Species Program.

The Division of Ecological Services has the responsibility of identifying to public agencies or private agencies under Federal permit or license, the adverse impacts of proposed water resource development projects, and further to make recommendations to those agencies for the conservation and, where appropriate, the enhancement of fish and wildlife resources (Sect. 2 FWCA). Frequently such recommendations result in conservation measures that are ultimately managed as National Wildlife Refuges, retained by the constructive agency and administered as project

lands dedicated to wildlife purposes, or developed and preserved by private agencies in perpetuity or for the life of the project.

Under the Migratory Bird Program, wetland habitats for wintering waterfowl have been identified and ranked relative to the biological values and threat factors. Highly ranked wetlands are then protected through either fee title or easements as monies are made available through the sale of Federal Migratory Bird Hunting and Conservation Stamps. The acquisition of these flyway islands is very important to the maintenance of wetlands species. These sites are, however, protected for their recreational (i.e. hunting) value; the management of these lands for this end may not necessarily be conducive to the maintenance of sensitive non-game species.

The other service program involved in wildlife protection is the Endangered Species Program. Under this program, which is funded through the Land and Water Conservation Fund Act, species of plants and animals, which are listed as Federally Endangered, are protected by one of several means. Critical habitats found necessary to the perpetuation of these species are identified; these habitats, as directed by the Endangered Species Act of 1973, may not be deleteriously impacted by any Federally funded activity. Those critical habitats located on private lands may be acquired. *if this becomes necessary!*

The limitations to this program are largely lack of money and the lengthy bureaucratic process for identification to actual protection. Witness the ~~first~~ recorded extinction of a Federally Endangered Species, the Tecopa Pupfish in California. The other drawback to this protection approach is that a species must be in serious jeopardy prior to any protection effort. This approach, while completely necessary given the present ecological situation, neglects the easier and less expensive option which is to protect key habitats before they are so degraded that their biotic components become seriously threatened.

The legislative funding for the Endangered Species Program and the frequently negative publicity put the entire program in periodic jeopardy. Still, it will remain one of the most effective wildlife preservation programs in the future.

Public Agencies: State

A) California Department of Fish and Game.

The California Department of Fish and Game is involved in a number of programs which beneficially affect the wildlife resource. The program most appropriate to a discussion of protection of important habitats is the Ecological Reserve Program. The Ecological Reserve Act was established:

"... for the purpose of protection of rare endangered wildlife or aquatic organisms or specialized habitat types; gives authority to the Department of Fish and Game to acquire by purchase, lease, gift or otherwise land and water to be set aside as Ecological Reserves."

Under this mandate, several important habitats have been protected exclusively for their wildlife values. The funding source for this program is variable. The upper Newport Bay Ecological Reserve, for example, was purchased with funds received from a legal settlement with an oil company over a massive oil spill. Other acquisitions have been enacted with money from the Park Bond Fund Acts of 1974 and 1976; still others by direct Legislative Approval. Other funding comes from the Environmental Protection Program Fund, which is supported by the sale of personalized license plates.

It is important to note that the majority of presently preserved Ecological Reserves were set up to protect those species listed in the California Endangered Species Act of 1970 and its amendments. This act directed the California Department of Fish and Game to inventory, describe and make recommendations for the preservation of California's endangered species. Many areas have been purchased, as authorized by the Wildlife Conservation Board, to this end, and most of these have become Ecological Reserves.

The drawback to these programs are lack of both funds and the power of condemnation. The Park Bond Funds, for example, once of the major sources of funds, have not been renewed.

B. California Department of Parks and Recreation.

The California Department of Parks and Recreation actively pursues the acquisition of sites to add to the California Park System. Sites which are nominated by State Legislators and State Parks personnel are investigated and ranked in order of priority using the following criteria: 1) National Heritage Preservation-expected recreational use, proximity to urban core populations and, most importantly, representation of the surrounding ecological province. Thus, as ecological type area which is poorly represented will receive a higher ranking than a comparable type with greater state-wide representation. Such habitats as native grassland, which have no representatives in the State Park System, should receive a higher priority than perhaps Redwood forest sites which are most adequately represented in the Park System.

Another criteria under this category, though, is scenic quality. Thus, the value of unique biological areas may be undermined by a lack of visual quality.

2) Cultural heritage-recreational use value, scenic value and the degree of representation of a historical theme.

3) Outdoor Recreation-use by recreationists, proximity to urban area and campground efficiency.

Highly ranked areas are then to be acquired as money becomes available. The power of condemnation can be exercised in extreme situations. The following sources of funds are used: The Land and Water Conservation Fund, the Park and Recreation Revolving Account Fund, the Off Highway Vehicle Fund, the Collier Park Recreation Fund and the Park Bond Acts of 1974 and 1976. These last two bonds of 90 and 110 million dollars respectively are almost completely appropriated, with no new bond issues presently proposed.

Further, perhaps as a result of the Proposition 13 Tax Initiative, State Parks have been instructed to keep annual acquisition commitments below 20 million dollars, a reduction over past years of nearly 50%.

Two situations seem clear. First, the Department of Parks and Recreation, while acquiring areas of excellent biological values, are a predominantly recreation organization. Second, due to budgetary cutbacks the role of State Parks in acquiring native habitats must be seen as diminishing.

C. Coastal Conservancy.

The Coastal Conservancy is a small state agency funded with 9 million dollars by the Park Bond Act of 1976. Their two main functions are land restoration and enhancement. Coastal areas are identified and acquired for restoration as funds exist. Restored areas are then turned over to local resource agencies. This program, while of local importance, probably will not substantially contribute to wildlife protection in California.

D. University of California Land and Water Reserve System.

The Land and Water Reserve System was established in 1965 with the objective of protecting native habitats for study by university students and faculty. Presently, 22 sites have been acquired for this purpose through a variety of sources. This system of reserves is very important for environmental education; its limited source of funding, however, precludes this program from being a particularly effective source of future wildlife protection.

Private Organizations

A. The Nature Conservancy.

The Nature Conservancy is a national, non-profit organization dedicated to the protection of native ecosystems. The Nature Conservancy has thus acquired over 1,000,000 acres of native American habitats; approximately 30 sites are presently protected in California alone. The Nature Conservancy is also effective in buying threatened sites and holding them until a resource agency can later purchase and manage the property.

The Nature Conservancy relies completely upon private donations and bequests for its existence. Private benefactors view this organization as a direct means of putting their money to work for the preservation effort. The only limit to the Nature Conservancy effort is lack of funding for acquisition and management. Considering, however, the impact that the Nature Conservancy has had on the wildlife preservation effort by such large acquisitions as Santa Cruz Island, it must be viewed as a viable source of future land protection in California.

B. The Audubon Society.

The Audubon Society, through its dozens of California chapters with over 45,000 members, is involved to a limited degree in the protection through acquisition of native habitats. They currently own and manage 6 preserves in California. The Audubon Society, in some instances, acquires threatened habitats with the exception of being "bought out" later by another resource agency. A recent example is the Little Butte Peregrine Falcon Eyrie, purchased by the Audubon Society with the intention of later sale to the California Department of Fish and Game as an Ecological Reserve.

The funding for these sites, completely from private endowments and donations, is limited. Reasonably, the Audubon Society will continue to serve much more in the cause of environmental education than as a land acquisition and management organization.

C. Trust for Public Lands.

The Trust for Public lands is a non-profit, charitable conservation organization specializing in pre-acquisition of land; either for its significant ecological characteristics and/or location near densely populated urban areas. Lands are acquired only in the event of a bargain sale by the owner (usually less than 50% of the land value) or if some resource agency has committed to later "buy out" the property from the Trust for Public Lands.

The Trust for Public Lands serves an important function by preserving urban open space, often in the form of relict native environs. This organization will probably be insignificant however, in the future effort to preserve viable tracts of native wildlife ecosystems.

Summary

California is a state severely impacted by man's activities. Agricultural expansion, commercial and residential development and destructive recreational activities, to name a few, have deleteriously impacted the native habitats and their associated wildlife. The culmination of these activities has resulted in the near total extirpation of several once common native habitats and the near and in one case complete extinction of species of wildlife.

In response to these serious problems, several Federal, State and private agencies have enacted programs of protection of native habitats and wildlife. Unfortunately, these programs are saddled with increasing management costs and decreasing funds for acquisition. The efforts of these agencies will thus prove inadequate to meet the burgeoning future need for wildlife protection in California .

Unique Wildlife Ecosystems Program

The Unique Wildlife Ecosystems Program was initiated by the United States Fish and Wildlife Service pursuant to the Land and Water Conservation Fund Act of 1965 (P.L. 88-578) later amended in 1977 (P.L. 94-422). Under this program, areas of high biological significance are identified, evaluated, ranked in order of priority and, when appropriate, protected.

The first stage of this program, identification, was accomplished with the assistance of almost every State, Federal and private organization involved in conservation issues in California. Letters were sent to every university and college, conservation group and resource agency. Most of these groups are noted in Appendix I. Inventories noting the wildlife, habitat and total ecosystem values were completed by these groups and where appropriate, checked against other resource agency information. Also included were data on socio-economic factors and, most importantly, the current threat to the site.

The evaluation of the sites was accomplished by the use of the Region I Evaluation, developed for this program. Under this evaluation (Appendix II), such factors as resident number of State (Appendix III) and Federal (Appendix IV) Endangered species as well as noted "species of concern" were accumulatively counted. The Draft Species of Concern List prepared for the California Department of Fish and Game was used for birds (see bibliography). No current "list of concern" for other life forms exist. Habitats were evaluated, through personal observation and professional opinion, in regards to their pristine quality, relict-ness and overall importance to wildlife. In particular, deciduous riparian, native grassland and coastal salt marsh were ranked above all others for reasons described in the habitat description. Other factors such as wildlife diversity and concentration were also counted as the information was available.

The ranking as shown on page , ran from 64-34. A certain amount of subjectivity is inherent and perhaps even necessary in any evaluation. This program evaluation was not an exception.

The sites were separated into three groupings: Level I, II and III. Level I sites exhibited both high biological value and some form of imminent to eventual threat. Often these sites were "the last" or "the very best example of" rare ecosystems in California. All of these sites have a wide base of support among the resource groups and concerned citizens. It is recommended, therefore, that all of these Nationally Significant Ecosystems be seriously considered for protection under this program.

Level II sites are also of high value, but are either less imminently threatened or of lower wildlife value. Several of these sites were ranked lower simply because of the poorer data submitted. It is anticipated that several of these sites will be ranked higher as more information is made available. It is recommended that these ecosystems be seriously considered for Federal protection, especially if threat factors become acute. For the present, these sites should be "red-flagged" by this program so that other resource and land use planning agencies will be aware of the site's biological value.

Level III sites were not numerically ranked. While all of these sites were noted to be of at least local biological value, most lacked enough information to make a fair evaluation. Others were submitted very near the deadline for this concept plan. Most of these sites will be reevaluated and ranked more accurately as better and more precise information is made available. It is thus recommended that Level III sites be "red-flagged" for local planning agencies but, for the time being not be seriously considered for protection through this program.

It is worth noting that while many of the endangered, threatened or list of concern species in California have been considered in this Concept Plan, many others have not. This may be the result of lack of accurate life history of the species, lack of interest or available time by investigators, or the short amount of time available for this inventory. Those threatened species not considered are listed in Appendix V ; They should serve as a local point for further inventory and evaluation work through this program.

CALIFORNIA UNIQUE ECOSYSTEM

RANKING

Values:

L- low

M- medium

H- high

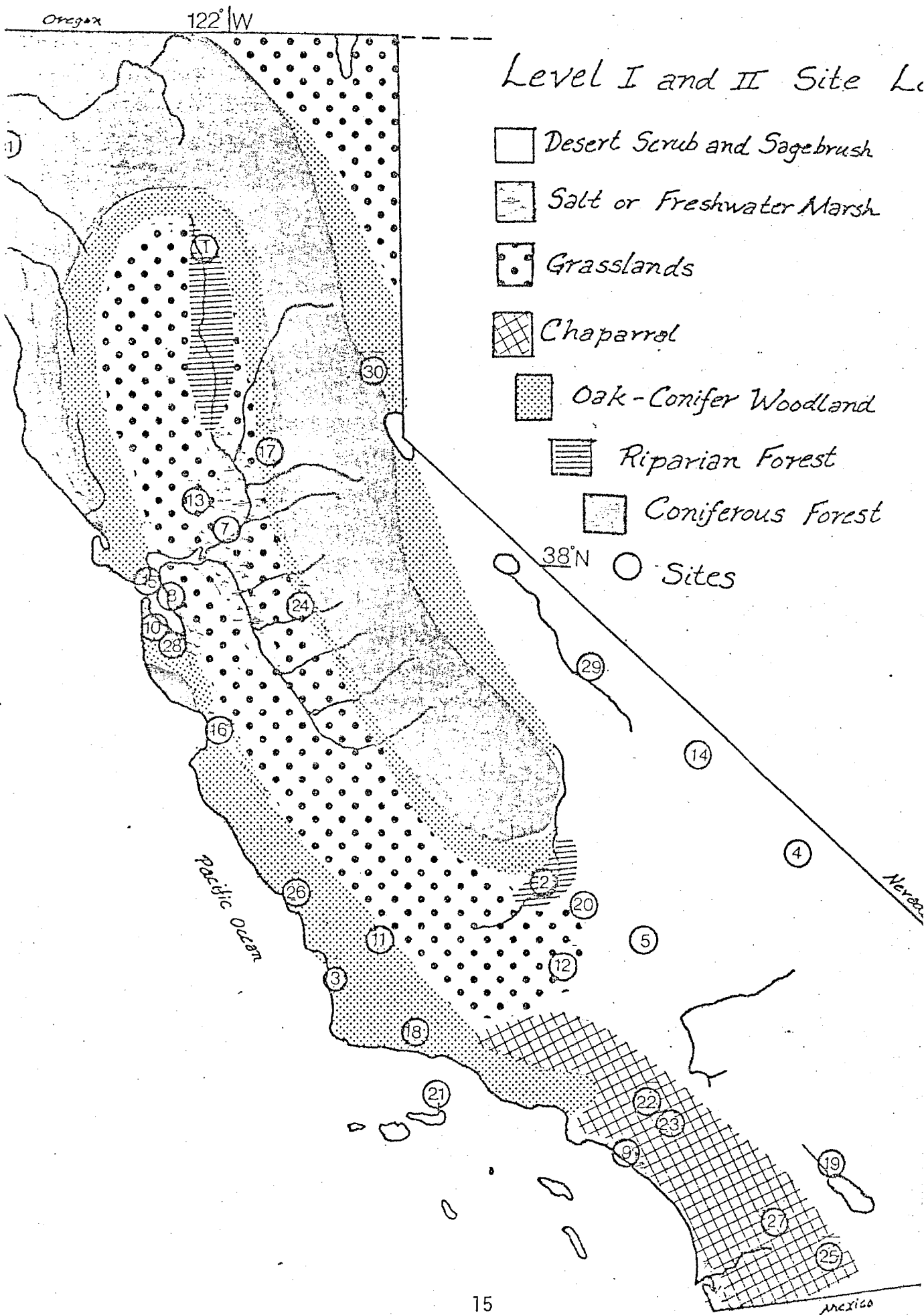
Values:									
L- low									
M- medium									
H- high									
RANK	CANDIDATE AREAS								
		Unique Biological Values	Habitat Value	Secondary Biological Values	Threat & Defensability	Total Points	Educational & Rec Values	Deveolpment	M
<u>Level I</u>									
1.	Cuckoo Island Corridor	17	18	13	16	64	M	L	L
2.	South Fork of the Kern River	17	18	15	13	63	M	L	L
3.	Nipomo Dunes	23	13	15	11	62	H	L	L
4.	China Ranch	14	13	10	19	56	M	L	L
5.	Desert Tortoise Natural Area	11	7	13	20	51	M	L	L
6.	Big River Estuary	7	13	8	21	49	M	L	L
7.	Dozier Grasslands	2	18	10	18	48	H	L	L
8.	Emeryville Cresent	16	13	11	8	48	H	L	L
9.	Bolsa-Chica Marsh	15	8	10	14	47	H	H	L
10.	San Bruno Mountain	4	11	12	20	47	H	L	H
11.	Carrizo Plains	12	9	11	14	46	M	L	L
12.	Hickman Vernal Pools	2	16	8	20	46	M	L	L
13.	Putah Creek	7	13	8	18	46	M	L	L
14.	Saline Valley Salt Marsh	10	13	8	14	45	M	L	L

Level II

15.	West Marin Island	10	11	12	11	44	L	L
16.	Watsonville Slough	10	5	11	18	44	M	L
17.	Valley Vernal Pools	5	14	6	19	44	M	L
18.	Las Tunas Grassland	0	17	7	20	44	M	L
19.	Whitewater River	13	6	13	12	44	M	L
20.	Kelso Creek	10	13	9	11	43	L	L
21.	Scorpion Rock	8	11	10	13	42	L	L
22.	Brea-Olinda Wilderness	4	9	9	18	40	H	L
23.	Santa Ana Foothills	5	8	9	16	38	H	L
24.	McNamee's Cave	2	7	8	20	36	L	L
25.	Rancho Dos Palms	5	11	9	15	40	M	L
26.	Fiscalini Property	5	7	8	20	36	M	L
27.	Pine Creek	12	4	10	10	36	L	L
28.	Kite Hill	1	11	7	16	35	M	L
29.	Fish Slough	5	7	12	11	35	L	L
30.	Sierra Valley Marsh	10	6	10	8	34	H	L
31.	Humboldt Lagoons	2	11	4	17	34	M	L

Level III

Dear Creek
El Segundo Dunes
Afton Canyon
Santa Clara River
Anza-Borrego
Desert
San Sebastian Marsh
Liskey Estate
Bing Crosby Ranch
Rubber Boa Habitat
Goose Lake
Blue Mountain
Reserve
Willow Lake
Garner Valley
Santa Rosa Mt.
Reserve
Gorman Post Road
Hills
Dr. Davis Ranch
Pit River Canyon
Cowhead Lake Slough
Farm Hill
Coachella Valley
Volcan Mt.



LEVEL 1 SITES

I. NAME: Cuckoo Island Corridor

TOTAL ACRES: 3,500

STATE: California

COUNTY: Tehama

LEGAL DESCRIPTION: T25N, R2W; T26N, R2W.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness and significance: This relatively pristine non-impacted site has been identified as one of the best remaining parcels of native riparian habitat with the highest diversity of wildlife remaining in the Central Valley of California. While once a common habitat, deciduous riparian forests are becoming rare due to river diversion and channelization. This deciduous habitat is critical to the existence of many native birds and mammals.
- B. Endangered, threatened or endemic species (including plants and invertebrates): The Yellow-billed Cuckoo, a state listed "rare" species, probably breeds at only one other location in California. This timid bird is apparently unable to exist in highly impacted or disturbed riparian areas. Also, Southern Bald Eagles, a Federal Endangered species, frequent this area in the winter.
- C. Species abundance and diversity: Avian diversity is quite high, including 60 residents and over 70 other migrant species. Fifteen species of mammals, including beaver, bobcat and river otter are abundant here. On one of the islands 15 species of native and exotic fishes inhabit a small pond, and the Sacramento River itself supports a wide variety of game and non-game fish.

- D. Species of major concern and reasons: Other California "species of concern", including Osprey, actively feed in the area. Bell's Vireo, a species nearly extirpated by Brown-headed Cowbird parasitism, may nest in the area also.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The riparian forest is also home to many nesting wading birds, including Great Blue Herons and Common Egrets. Other native and unusual species include Red and Gray Fox, and Badger.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Native riparian habitat is noted by many authorities as one of the three most threatened habitats in the state. This once common habitat serves as a north-south corridor for many migratory song birds.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: The threat to all riparian sites is immediate. River channelization projects are allowing agricultural expansion onto high terrace riparian habitats at the rate of 485 acres per year along the Sacramento River alone. Approximately 50% of the high terrace riparian habitat has been eliminated from the Sacramento River in the past 25 years.
- B. Severity of impact and permanence of change: For the animals adapted to dense corridors of cottowood-willow vegetation, this degradation is permanent.

- C. Degree of protection: Presently, only 500 acres of riparian habitat are known to be fully protected in California. This habitat, which has been reduced to perhaps 15% of its original extent, has only recently been recognized by conservation agencies for its extreme value to wildlife.

VI. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Most of the land that is being brought into agricultural production becomes orchards. Often the cottonwood is cut and chipped. Other riparian areas still sensitive to flooding are often grazed. This latter situation applies to the Cuckoo Island Corridor.
- B. Physical description (geology/soils, topography, climate): The climate is a Mediterranean type with cool, wet winters and hot, dry summers. The parent material consists of deep deposits of Tertiary, Quaternary sand and silt. The terrain is level with numerous oxbows and point bars on the flood plain.
- C. Vegetation/Habitat and estimated acreage: The deciduous vegetation consists of willow, Fremont Cottonwood, Valley Oak, Black Walnut and Western Sycamore. The pond vegetation consists of Elodia and Potamogeton.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	2	0	3,500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The State Wildlife Conservation Board and The Nature Conservancy have both attempted purchase of part of this parcel without success. The National Audubon Society and California Department of Fish and Game are both extremely interested in the preservation of this ecosystem.
- B. Other available information (publications, reports, etc.): "Riparian Cottonwood-Willow Forests in California: An Inventory of Potential Preserves", by David Gaines, prepared by The Nature Conservancy. Also, California Department of Fish and Game and The Red Bluff Audubon Chapter have extensive biological data on the site.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The formation of a wildlife preserve seems compatible with the present land use along the Sacramento River, and therefore controversy appears limited.
- B. Availability: The owners are reportedly not in favor of resource agency acquisition. While a conservation easement is an alternative, acquisition may be preferable for long term protection of this ecosystem.
- D. Estimated annual operation/maintenance expenditures: Several agencies are attempting to purchase, or already own, key habitats along this important reach of the river, including the Bureau of Land Management and the The Nature Conservancy.

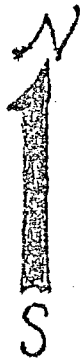
As the riparian sites become a fully protected corridor, a cooperative management program would be feasible.

- E. Development needs: Fencing would probably not be necessary as orchards buffer most of the riparian habitat.
- F. Recreational and/or environmental education potential: This type of habitat is very difficult to traverse and probably only determined wildlife observers will make the effort. However, boating is a common activity in the river and is an easy way to observe the more visible wildlife such as beaver and herons.
- G. History: Unknown.
- H. Archaeological information: Unknown.

Cuckoo Island Corridor

Tehama Co, California

Scale 1:62500



Todd

T. 26

E99

W99

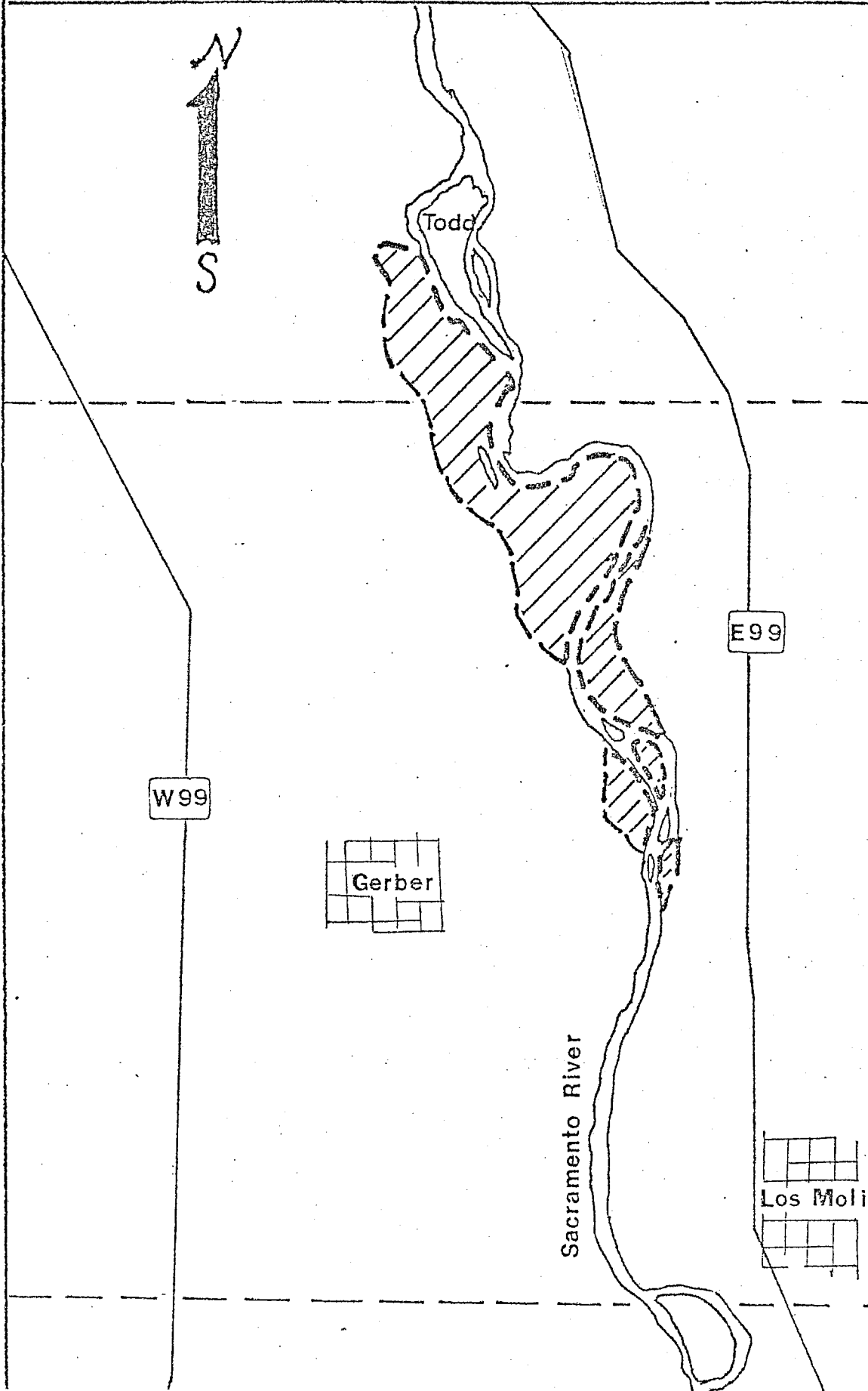
Gerber

Sacramento River

Los Molinos

T. 25

-R.2W.



I. NAME: South Fork of the Kern River TOTAL ACRES: 5,000
STATE: California COUNTY: KERN
LEGAL DESCRIPTION: T26S, R34E; T26S, R35E; T25S, R35E.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: This site is one of the best remaining examples of native deciduous riparian habitat in California. River diversion, along with agricultural expansion, has put riparian habitat and its accompanying wildlife in a very tenuous position. The South Fork of the Kern River harbors species of endangered and threatened birds along with native fishes. Also, wildlife conservation efforts by the Corps of Engineers and the United States Forest Service at the upper and lower reaches of the river insures that this entire ecosystem will remain viable with the preservation of this middle reach of the river.
- B. Endangered, threatened or endemic species (including plants and invertebrates): This site has one of the 2 confirmed breeding populations of Yellow-billed Cuckoo, which is listed by the State of California as "rare". Also, Southern Bald Eagles, a Federally Endangered species, winter in this area. Finally, there have been 3 sitings of the Federally Endangered California Condor here in the last 2 years.
- C. Species abundance and diversity: This areas owes its high diversity, over 217 species of birds, to its unique position as an ecotone between Pacific and Great Basin Physiographic Provinces. The ranges of several geographically isolated species overlap in this area.

Relative species abundance is also high, especially during spring and fall migration.

- D. Species of major concern and reasons: Besides the officially endangered species, this riparian tract also harbors several California "list of concern" species, including Osprey, Red-shouldered Hawks, Golden Eagles and Prairie Falcons. Also occurring up stream is the unique Golden Trout. The overall fishery value of the river is not great, however.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: There is a Great Blue Heron rookery with 20-30 nests here. Also, Wood Ducks nest along the river. Several Great Basin species are found here, such as Le Contes Thrasher, Pinyon Jay and Scott's Oriole. Also, several big game species, such as the Bobcat, Puma and Black Bear are occasionally sighted here.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The riparian deciduous ecosystem is becoming increasingly rare in California due to river diversion and agricultural expansion. As the habitat becomes patchy throughout California, the corridor of vegetation which it provides for the passage of seasonally migrating birds becomes less and less effective. This habitat elimination, then, will effect the number of non-game species able to reach breeding areas in the north. Besides the riparian habitat, a relict 50-100 stand of Joshua Trees occurs within this parcel. On a state-wide basis deciduous riparian habitat has been reduced to approximately 15% of its original extent.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: The pressing problem here is overgrazing and agricultural expansion. The cottonwood forest is predominantly old growth with little or no regeneration taking place. As the older trees are cut or die off, they are being replaced by shrubs and forbes rather than cottonwood. Also, there have been indications that the city of Bakersfield, which controls the lower reservoir, is interested in enlarging that facility, and possibly eliminarting some of the riparian habitat.
- B. Severity of impact and permanence of change: The complete lack of regeneration of cottonwood along with indiscriminate tree cutting will eventually eliminate this riparian habitat. The wildlife species, especially insectivorous birds which are dependent upon this deciduous habitat, will also be extirpated.
- C. Degree of protection: Presently, very few native riparian sites are completely protected in California. Several agencies are presently working toward this end, however, including the State Wildlife Conservation Board and The Nature Conservancy.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): This area is almost wholly given over to cattle grazing. This activity is currently being phased out by the Corps of Engineers on lower reaches of the river, a development that will definitely add to the defensibility of this ecosystem.

- B. Physical description (geology/soils, topography, climate): The soils are predominantly alluvial silt and sand loams. The climate is Mediterranean with some amelioration due to the increased elevation. Terrain is level to rocky, within a maturely dissected stream valley.
- C. Vegetation/Habitat and estimated acreage: The riparian corridor is mostly cottonwood and willow, while the hillsides grade into xerophytic species like Joshua tree and Mormon tea. Habitat acreage figures are unavailable.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	26	few if any	5,000

IV. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The National Audubon Society, Army Corps of Engineers, California Fish and Game Department, Sierra Club.
- B. Other available information (publications, reports, etc): Additional information available through the United States Fish and Wildlife Service, Sacramento Area Office.

VII. ADDITIONAL COMMENT

- A. Controversial aspects related to the site: No litigation is currently in progress.
- B. Availability: Although many owners will be amenable to property sale, others can be expected to be hostile.

- C. Possible alternatives to Federal Protection: Lack of regard by current owners for wildlife might make other forms of preservation (i.e. conservation easement) ineffective.
- D. Estimated annual operation/maintenance expenditures: Most of the land on the south-side of the river will need to be fenced to keep out cattle. This will cost upward of \$30,000. Management agreements can be worked out cooperatively with the Army Corps of Engineers, who have begun an enthusiastic program of non-game management on the lower reaches of the river above Isabella Lake.
- E. Development needs: None.
- F. Recreational and/or environmental education potential: River rafting, if controlled, could probably be tolerated, as could passive recreation such as birdwatching. Due to the sensitivity of the endangered species, hunting would have to be strictly regulated if allowed.
- G. History: Area was settled in the mid 1800's and has remained essentially agrarian to this day.
- H. Archaeological information: Indians once inhabited the site; their grinding holes may still be found in granite boulders.

South Fork of the Kern River

Kern Co., California

Scale 1 : 62500

R.36 E

R.35 E

Onyx

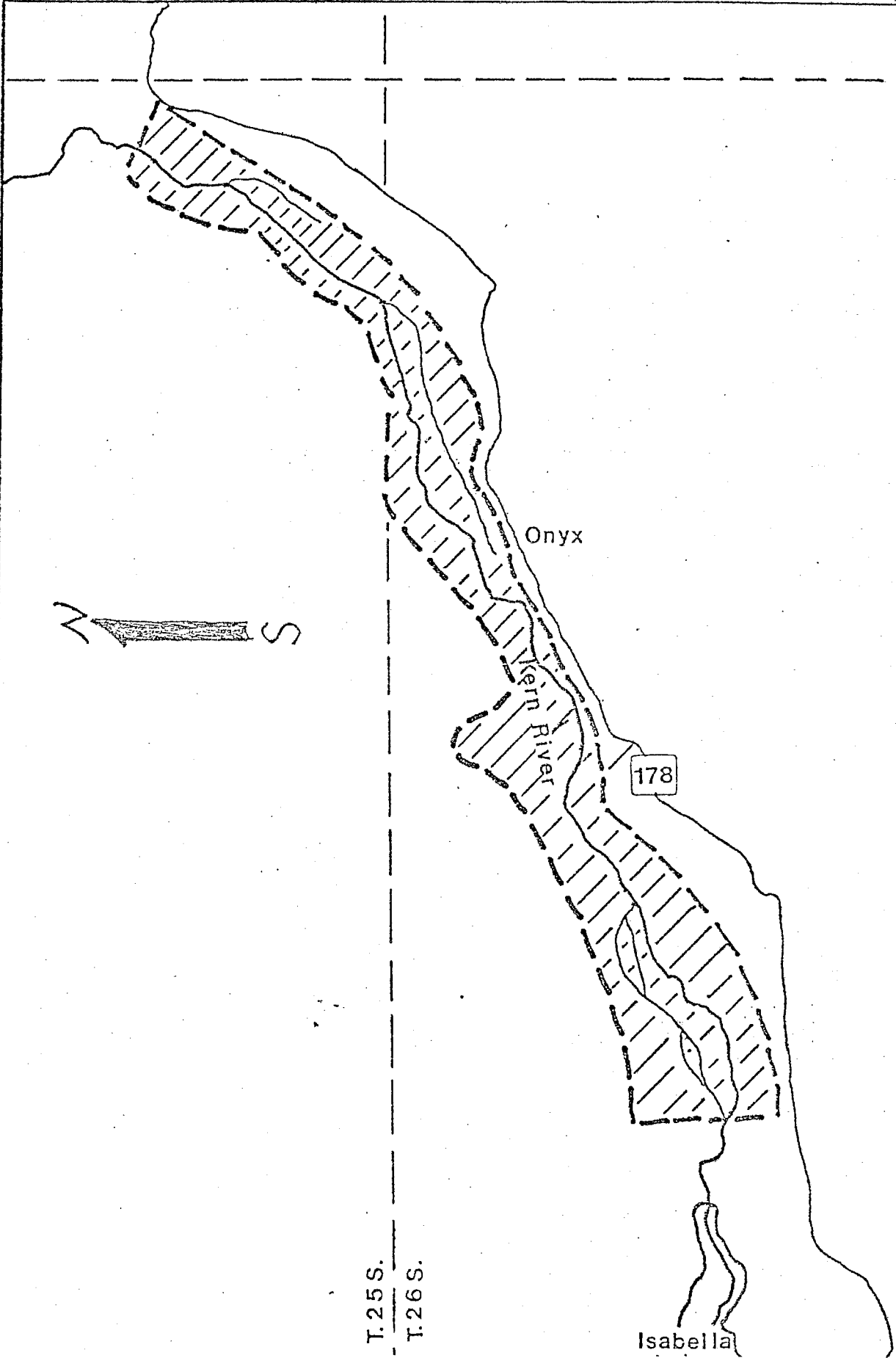
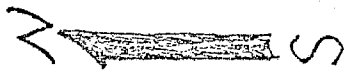
Kern River

178

T.25 S.

T.26 S.

Isabella



I. NAME: Nipomo Dunes

TOTAL ACRES: 3,000-10,000

STATE: California

COUNTY: San Luis Obispo

LEGAL DESCRIPTION: T12N, R35W; T32S, R13E.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The Nipomo Dunes and Wetlands possess among the highest aesthetic and ecological values remaining in California. Habitats vary between salt marsh, estuarine riparian, shifting dunes and fresh-water lakes and wetlands. This ecosystem contains high diversity and concentration of both common and rare species of animals and plants, including several Federally Endangered Species. Competing interests between wildlife requirements and the demands of off-road vehicle users requires immediate attention to this fragile and unique ecosystem.
- B. Endangered, threatened or endemic species (including plants and invertebrates): Several Federally Endangered animals inhabit this relatively pristine environment. The California Least Tern, a common feeder in the dunes area, has recently been noted breeding here. The California Brown Pelican is frequently seen feeding in the wetlands. Also, the Clapper Rail (unsure of sub-species) and the Black Rail have been observed in wetlands around the lakes. Several plants occurring at the site are proposed as threatened including Cirsium rothophilum (Bull Thistle),
- C. loncholepis (La Graciosa Thistle), Erigeron foliosus var. blochmanae (Blochman's Leafy Daisey) Lupinus niponensis

(Nipomo Lupine), Monardella crisper (Crisp monardella) and M. undulata var. frutescens (San Luis Obispo Curly-leaved Monardella).

- C. Species abundance and diversity: The diversity of wildlife in the Nipomo Dunes is exceptional. Over 200 species of birds have been recorded, 50 species of mammals and 32 species of reptiles and amphibians. The only fish represented are introduced mosquito fish in the lakes. Relative abundance of the different species is also quite high.
- D. Species of major concern and reason: Several resident species are in some danger locally. The Red-legged Frog, a quite common amphibian in the dunes-lakes area, has been replaced throughout much of its range by introduced bullfrogs. Golden Eagles, on the California "list of concern", are frequently seen feeding in the area during the winter. Other "species of concern" noted in some abundance in the dune-lake ecosystem include Long-billed Curlews, Common Loons, Cooper's Hawks and Ferruginous Hawks.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of over 70 species of shorebirds, many raptors, song birds, and several species of colonial nesters make this an invaluable wildlife ecosystem.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Most California coastal ecosystems with any degree of natural value are relictual. Nearly all dune ecosystems, the

home of many floral endemics, are threatened by dune buggy use. Riparian ecosystems, reduced to 15% of their historical extent, are noted as one of the three most threatened California habitats. And the lake wetlands, while not necessarily rare, represent one of the few wetlands not completely oriented towards water-fowl production.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: The current threat is predominantly from uncontrolled use by visitors. Off-road vehicle use is on the increase, and while private land owners are attempting to control this activity, progress is quite slow. Many agencies have recognized the extreme value of this ecosystem and are actively attempting to alleviate the threat through purchase and protection. However, recent budgetary cuts due to Proposition 13 may preclude these projects.
- B. Severity of impact and permanence of change: Dune buggies, which cause dune instability, would be somewhat acceptable if there was room for dune migration. However, new potential dune areas do not exist. Therefore, the off-road vehicle activity impact is realistically permanent. Also, the extreme noise from off-road vehicles is apparently deleterious to the more sensitive vertebrate species.
- C. Degree of protection: The types of habitats represented at the Nipomo Dunes-Oso Flaco Lake area are variously protected by resource agencies. No dune habitats are completely protected. Riparian habitats, while receiving considerable attention, are still protected in figures of under 1,000 acres state wide.

Coastal salt marsh, while protected by both resource agency refuges and land use regulation, exists in only 30% of its historical acreage. Freshwater marshes, while becoming increasingly protected, are most often used as waterfowl management areas. And oak woodlands, while still a very ubiquitous habitat, are protected at only 2 sites in California.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc): The land use is predominantly recreational; clamming, off-road vehicle use, wildlife observation and some light hunting around Oso Flaco Lake. The adjoining land use is either residential or agricultural.
- B. Physical description (geology/soils, topography, climate): The geology of the dunes area is of complex origin. The uppermost layers are stream deposited, wind shaped sand formations. The terrain is undulating and the climate is Mediterranean with a winter maximum of precipitation and an extreme summer drought.
- C. Vegetation/Habitat and estimated acreage: The habitat breakdown of the entire Nipomo Dunes-Wetlands (not all of which is unprotected) is as follows: Coastal dunes-9,400 acres; Woodland-25 acres; open water-770 acres; freshwater marsh-500 acres; riparian-300 acres; coastal salt marsh-35 acres and mudflats-100 acres. Tules and bulrush characterize the wetlands, cottonwood and willow inhabit the riparian area, a wide assortment of annuals and perennials inhabit the dunes microhabitats, eucalyptus and oak inhabit the woodlands, and pickleweed dominates the salt marsh habitat.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	many	0	3-10,000

VI. OTHER AVAILABLE INFORMATION

A. Identified by others as an area of concern: The Nipomo Dunes and Wetlands are currently being seriously looked at for acquisition by the California Department of Fish and Game and California Department of Parks and Recreation. If these purchases come to fruition, more than half of this ecosystem will be at least semi-protected. The aim of the United State Fish and Wildlife Service should be to protect the acreage not acquired by these other agencies. (Note that ramifications of Proposition 13 may stall state acquisition). Also involved in the preservation effort are the Morro Coast Audubon Society, San Luis Chapter of the Native Plant Society and the Sierra Club.

B. Other available information (publications, reports, etc.):

"The Natural Resources of the Nipomo Dunes and Wetlands" by the California Department of Fish and Game and the United States Fish and Wildlife Service, June 1976.

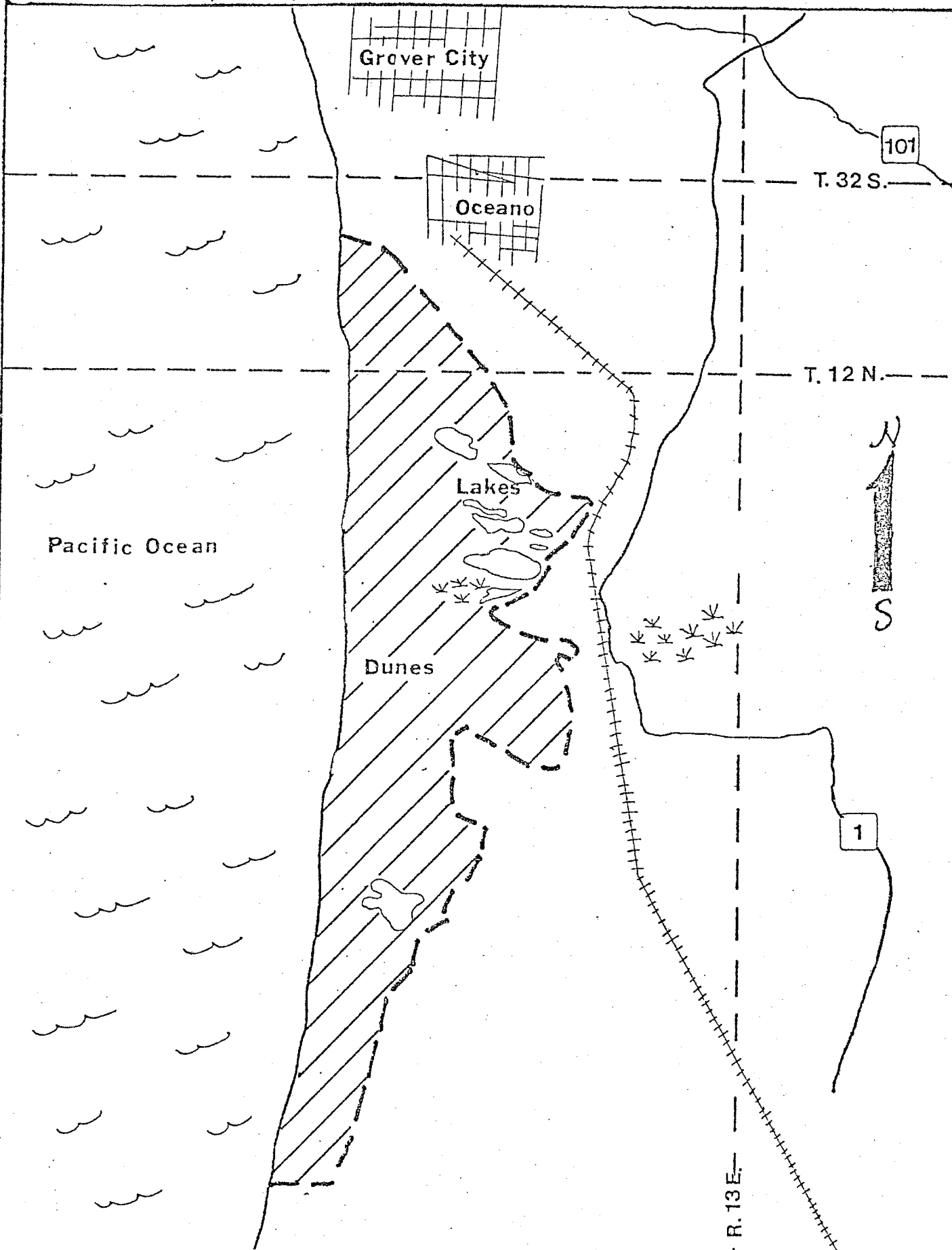
VII. ADDITIONAL COMMENTS

A. Controversial aspects related to the site: All of the other resource agencies and the populace as a whole would welcome our assistance in the preservation of this ecosystem. Controversy with off-road vehicle enthusiasts can be expected should any agency attempt to limit their use in the dunes.

Nipomo Dunes

San Luis Obispo Co., California

Scale 1: 62500



I. NAME: China Ranch

TOTAL ACRES: 320

STATE: California

COUNTY: Inyo

LEGAL DESCRIPTION: T20N, R7E, Sec. 25,26,35.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: China Ranch is an oasis in the midst of the Mojave Desert. Its reliable water source, Willow Spring, insures a constantly abundant and diverse island of biota. Many rare species of fish, birds and plants inhabit and are completely dependent upon the preservation of this unique ecosystem.
- B. Endangered, threatened or endemic species (including plants and invertebrates): While no federally endangered species have been noted at China Ranch, the Desert Tortoise, currently under review for Federal Endangered status, occurs at this site.
- C. Species abundance and diversity: This ecosystem parallels or exceeds any of its contemporaries in diversity of fauna. It is an oasis for migratory birds and microhabitat for many endemics. Eighteen species of mammals have been catalogued, two species of rare native fish, 104 species of birds, and a remarkable 42 species of amphibians and reptiles.
- D. Species of major concern and reasons: Many vertebrate species which inhabit this ecosystem are found on various "species of concern" lists. The Desert Tortoise, as noted, occurs here. The Chuckwalla Lizard is noted to be rare as is the Gila Monster. Among the birds, a breeding colony of Lucy's warblers has been documented here, this being well out of their expected range. Also, noted are Prairie Falcons which are on the "list of concern" for California.

The two native fishes, the desert pupfish (Cyprinodon nevadensis) and the speckled dace (Rhinichthys asculus) are both rare.

- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of native fishes, a high diversity of birds and mammals and an extreme diversity of reptiles and amphibians makes this ecosystem stand out as an island among a sea of less inhabitable environs. The combination of west coast avifauna plus Great Basin species adds up to a diverse biotic assemblage.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The habitat is quite disjunct and limited. The floral assemblage runs the gamut from sand dune to riparian vegetation. The rareness of this habitat among the vast desert expanses explains the high degree of endemism and diversity at this site.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: Las Vegas interests have negotiated with the owner for development of this site as a resort. The parcel is currently leased for 2 years by an ecologically sympathetic person with the hopes that some resource agency will purchase it before the developers do. Another threat of more immediate concern is the severe damage to this ecosystem being inflicted by off-road vehicles.

- B. Severity of impact and permanence of change: Any change in water quality or level would be disastrous to the 2 native fishes. The severity of impact on the rest of the biota would depend on how large a resort was built and how it was managed.
- C. Degree of protection: Desert springs are, with few exceptions, completely unprotected in California. Precise figures on number of acres remaining are unavailable.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The land around China Ranch is parched desert with no current use by man. The dominant income from the few isolated towns comes largely from tourism, which might be expected to increase incrementally if this area was to attain refuge status.
- B. Physical description (geology/soils, topography, climate): The geology of the area is somewhat complex. The antecedent Amargosa River has cut through many layers of lacustrine Pleistocene deposits to reach older volcanic tuffs and breccias. The terrain is quite hilly around the Amargosa River and Willow Spring. The climate is an arid desert type. The maximum precipitation occurs in winter but averages only 3-7 inches. Maximum temperatures exceed 120 degree F.
- C. Vegetation/Habitat and estimated acreage: The vegetation is quite varied. In the riparian sites, willow and cottonwood predominate. As you move away from the water, the vegetation progresses to buckwheats, pickleweed and many desert annuals. This floral ecotone adds greatly to the diversity of desert oasis ecosystems. Most of the proposed 320 acres is in riparian or wetland habitat.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	1	0	320

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: Many groups have recognized the importance of this ecosystem. Foremost among them is the Bureau of Land Management, which has set off much of the adjoining Amargosa River as a nature preserve. The driving force behind the effort to preserve this ecosystem is the Desert Fishes Council.
- B. Other available information (publication, reports, etc.): See the "Amargosa Canyon-Dumont Dunes Proposed Natural Area" prepared by the Pupfish Habitat Preservation Committee.

VII. ADDITIONAL COMMENTS

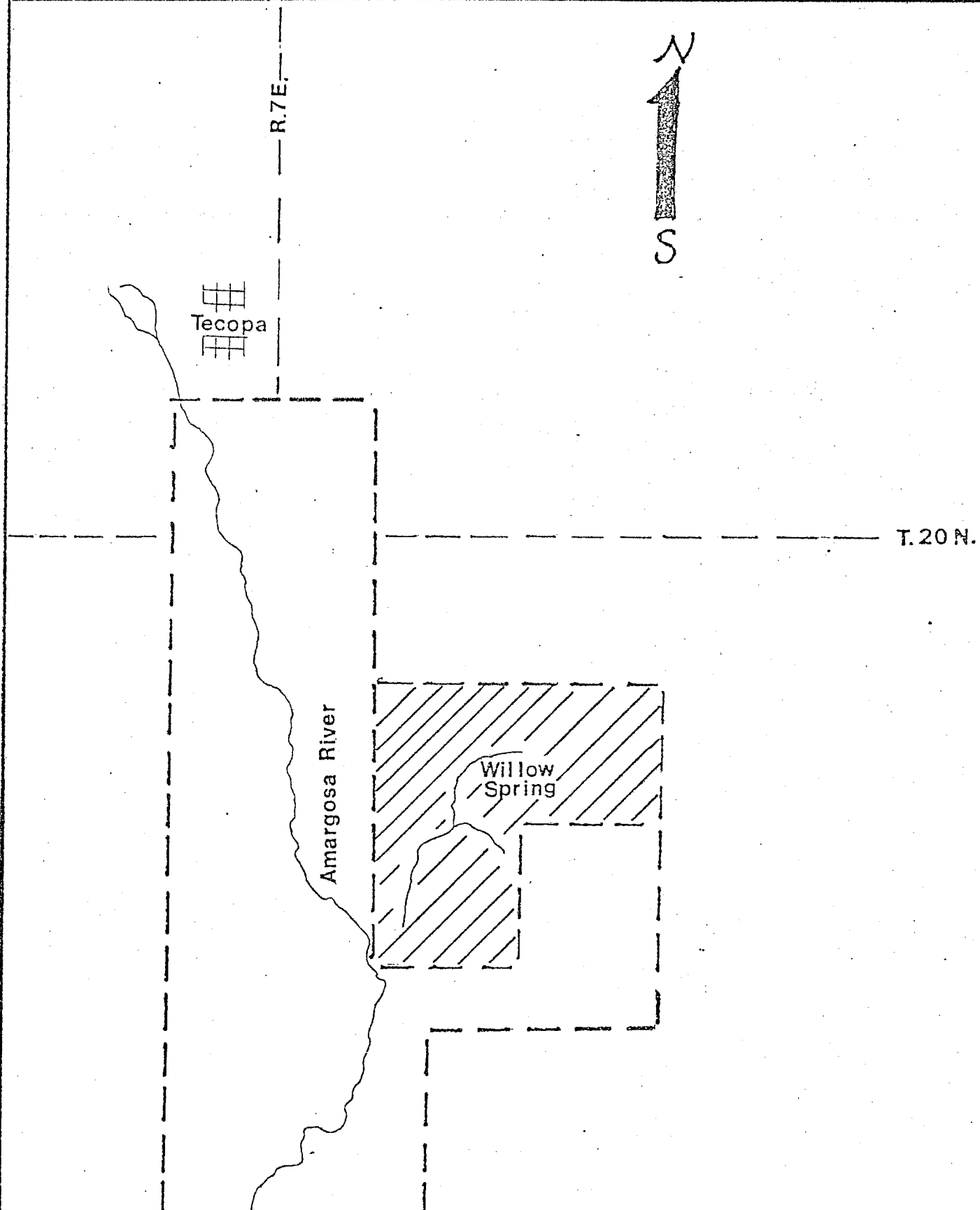
- A. Controversial aspects related to the site: There is some conflict with dune buggy enthusiasts. However, they are more interested in the Dumont Dunes to the south of China Ranch.
- B. Availability: The owner is anxious to sell; however only to the highest bidder.
- C. Possible alternatives to Federal protection: This area must be either preserved by a resource agency or it will become developed. Even if it were not immediately developed, overuse by dune buggies will eventually destroy the biological values.
- D. Estimated annual operation/maintenance expenditures: China Ranch could be cooperatively managed with the Bureau of Land Management, which has preserved much of the western part of this ecosystem.

- E. Development needs: The area will have to be fenced off and occasionally patrolled to keep out ORV users. Total cost will be approximately \$10,000.
- F. Recreational and/or environmental education potential: Due to the open character of this ecosystem and the extreme density of wildlife, photography and observation of wildlife will be easy and successful even for amateurs.
- G. History: Unknown.
- H. Archaeological information: Site is a hotbed of archaeological information. Cultures have been traced back as far as 10,000 years around the Amargosa River.

China Ranch

Inyo & San Bernardino Co., California

Scale 1:62500



I. NAME: Desert Tortoise Natural Area TOTAL ACRES: 8,320
STATE: California COUNTY: Kern
LEGAL DESCRIPTION: T30S, R38E, Sec. 24,25,26,36,35,34 and parts
of Sec. 13; T31S, R38E, Sec. 1,2,3,4,8,9,10,11,12,
13,14,15,16,17,18,19,20,21,22,23,24,26,27,28
29,30,32,31,33,34, and S½; T32S, R38E, Sec. 4,5,6.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The proposed natural area is an outstanding example of the Western Mojave Desert ecosystem. Its habitat consists of the most diverse Creosote Bush plant community known to exist. This protean community in turn supports the highest known densities of the Desert Tortoise, the California State Reptile.
- B. Endangered, threatened or endemic species (including plants and invertebrates): No species are currently on the federal endangered list; however the Desert Tortoise is being proposed for federal listing due to its declining densities and poor age structures. The Mojave Ground Squirrel is present and listed on the California "rare" list. Also, the Scaly-stemmed Sand Plant (Pholisma arenarium) is on the Smithsonian list and proposed as threatened.
- C. Species abundance and diversity: Besides having the highest density of Desert Tortoise, the site is also inhabited by twenty-seven other species of reptiles, twenty-three species of mammals, and over seventy species of birds, including twenty-nine breeding species.

- D. Species of major concern and reasons: The Desert Kit Fox is a resident and considered rare. The Burrowing Owl, Bell's Vireo and the Prairie Falcon have all been noted here and are on the California "species of concern" list.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: This wildlife association is quite rich relative to other ecosystems. The habitat is relatively undisturbed and its open character allows easy observation of many otherwise illusive species. The Desert Tortoise, for example, is easily observable during the spring.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The Creosote-Joshua Tree ecosystem is one easily overlooked as a "rare" classification due to its extensive range. However, the pristine quality of this particular site relative to the bulk of highly impacted desert land makes this site very valuable ecologically. Also, the aesthetic value of the myriad of colorful spring annuals is difficult to duplicate.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: Several potential and pressing threats exist. Agricultural expansion is taking place in many nearby areas where water can be pumped in. Many of the owners of parcels within the Desert Tortoise Natural Areas have indicated they will build homes on their property if not bought out. Grazing takes place around the periphery of the preserve and could be moved into the preserve on the private parcels. Finally, vandalism and ORV use is a very real threat to the habitat and the wildlife.

- B. Severity of impact and permanence of change: Construction of homes would be permanent and extremely deleterious to the tortoise population, especially due to unrestrained dogs which have little problem killing tortoises. Also, ORV use destroys the habitat and any wildlife which gets in the way. The effects of this threat are readily apparent at different points around the preserve.
- C. Degree of protection: Desert habitats are a poorly protected type. Their vast expanse in total area gives the illusion of a never ending resource, reminiscent of early American attitudes toward the coniferous forests. In actuality, heavy grazing pressure, the attractiveness of desert homes to retirees and the unrestrained use of off-road vehicles make undamaged desert environs quite rare.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Most adjoining land is grazed by sheep. Where irrigation is available alfalfa is grown or retirement communities are built. The area within the preserve is presently unused by man.
- B. Physical description (geology/soils, topography, climate): Most of the rolling terrain consists of Quaternary alluvium deposits with some volcanic intrusions. Soils are aridosols. The climate is quite arid, 0-7" precipitation per year, with extreme summer highs (over 110 degree F.).
- C. Vegetation/Habitat estimated acreage: The vegetation assemblage varies from Saltbush Scrub to Creosote Bush Scrub (Larrea tridentata) to Joshua Tree Woodland (Yucca brevifolia). The Joshua Tree Woodland is limited to the higher elevations; the

Saltbush Scrub to washes and lower alluvial fans; and the Creosote Bush, by far the most abundant, occupies the level middle to low elevations. The plant diversity (160 species) is surprisingly high.

V. OWNERHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	numerous	unknown	8,320

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: One of the most important aspects of this project is the cooperative attitude of other groups. The Desert Tortoise Natural Area project was initiated by the Bureau of Land Management. They have set aside 38 square miles for this purpose. Within this area are 16 square miles of private land of which The Nature Conservancy has recently purchased 2½ miles. The purchase of the remaining private land by the United States Fish and Wildlife Service would round out an ambitious and far sighted project.
- B. Other available information (publications, reports, etc.): Bureau of Land Management, 1977. Environmental Analysis of the Mojave Desert Tortoise Natural Area (proposed) Special Wildlife Habitat Management Plan. Bakersfield District Office, Bureau of Land Management Bakersfield, California.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The only potential controversy may arise from owners unwilling to sell or trade their land. This situation is unlikely in that there is almost no present access to these private parcels

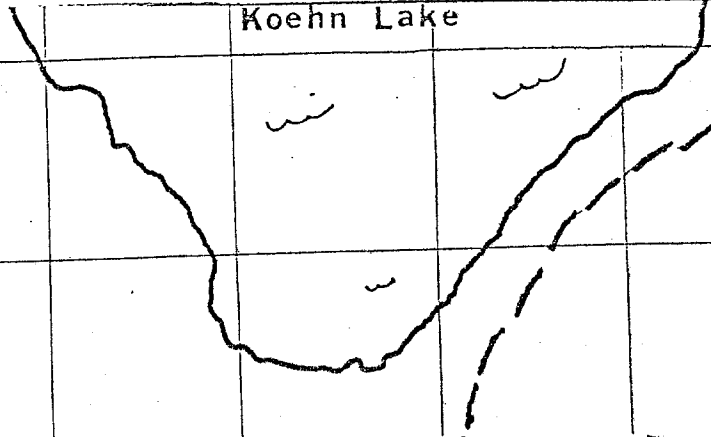
- B. Availability: Many of the owners have been contacted and are willing sellers. Some have purchased on speculation and hope to realize a profit.
- C. Possible alternatives to Federal acquisition: Anything other than complete protection of this area by acquisition would be harmful to this preservation effort. This site will represent the only large completely protected example of pristine desert ecosystem in California.
- D. Estimated annual operation/maintenance expenditures: There are only two miles of the preserve remaining to be fenced; this would cost approximately \$10,000. Management will be handled cooperatively with the BLM who are amenable and supportive to this cooperative effort.
- E. Development needs: None.
- F. Recreational and/or environmental education potential: Site has extreme potential for education. Dozens of school groups visit the site at this time, along with numerous professional biologists.
- G. History: Unknown.
- H. Archaeological information: Unknown.

Desert Tortoise Natural Area

Kern Co., California

Scale 1:62500

Koehn Lake



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Mojave Road

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T

I. NAME: Big River Estuary

TOTAL ACRES: 1,500

STATE: California

COUNTY: Mendocino

LEGAL DESCRIPTION: T17N, R17W, Secs. 26,27,28,29,32,34,35, T17N
R16W, Secs, 1; T16N, R16W, Sec. 6.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: Big River is one of the largest, relatively undisturbed estuaries in California, with a long, gradual transition from fresh water to marine ecosystems. Habitats vary from Redwood forest, to freshwater marsh, to coastal salt marsh. There are no towns or factories within the entire watershed. Wildlife values represent those unique to estuarine ecosystems.
- B. Endangered, threatened or endemic speices (including plants and invertebrates): Federally Endangered species have not been documented at the Big River Estuary.
- C. Species abundance and diversity: The species diversity is quite rich, with over 100 species of birds, 10 species of mammals, 12 species of amphibians and reptiles and 15 species of fish.
- D. Species of major concern and reasons: The estuary is a wintering area for many migratory waterfowl and raptors. Several osprey on the California "list of concern", are visibly nesting in the snags along the river. Also present and on the "list of concern" are Common Loons..
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The Big River also is a major nesting area for colonial nesters, such as Green and Great Blue Herons. Also occurring here are such species as Otters, mink, beaver,

Harbor Seals and Tiger Salamanders.

- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Estuaries throughout California are quickly being developed or logged. While several estuaries are protected as State Parks, the orientation of these areas toward recreation often precludes the protection of the wildlife. The combination of both salt and fresh water marsh on this meandering river with the surrounding Redwood forest, plus the relative pristine quality, mark this as a very unique habitat.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: The immediate marsh habitat has been designated a "Special Treatment Area" by the California Coastal Commission and can therefore not be clear cut. However, the threat immediately outside of the "special" area is critical; trees are reportedly being cut at this time.
- B. Severity of impact and permanence of change: The removal of the buffer around the river will seriously disturb the nesting species. Also, indications are that the increased siltation resulting from the logging will lead to the demise of the salt marsh habitat with concurrent reduction in wildlife value.
- C. Degree of protection: Estuaries and salt marsh ecosystems are partly protected through coastal zone management and State Parks protection. However, either the recreation orientation of these policies and/or the relict nature of the this ecosystem type demand that fully protected status be administered to the better remaining examples.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The river enters the ocean at the small community of Mendocino. The rest of the watershed is essentially in its natural state. The only land use of these forests is logging and tourism.
- B. Physical description (geology/soils, topography, climate): The climate is a Mediterranean type with a pronounced summer fog regime. The estuary represents a drowned Pleistocene river valley. Parent material is mostly river alluvium.
- C. Vegetation/Habitat and estimated acreage: A remarkable assemblage of habitat types occur here. Pickleweed salt marsh occurs at the lower reaches with cattail--willow wetlands at the upper reaches. The forest is mostly all second growth Redwood with Pygmy forest and relict chaparral growing on the ridges. Some excellent examples of California Nutmeg (Torreya Californica) are noted in the forest association. The habitat breakdown is approximately 150 acres of salt marsh, 200 acres of freshwater marsh and 1,150 acres of Redwood and Pygmy forest.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
PRIVATE	1	0	1,500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: Site has been identified as a high priority for preservation by Huey Johnson, director of the California Resources Agency. Also concerned are the Mendocino Audubon Society, California Coastal Commission, Institute for Tidal Studies, and The Nature Conservancy. Also,

the residents of the town of Mendocino are apparently supporting the preservation of this ecosystem.

- B. Other available information(publications, reports, etc.): Some information is available from the California Coastal Commission and the Institute for Tidal Studies.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The owners of the property, Georgia Pacific, are presently and hope to continue logging this site.
- B. Availability: Unknown.
- C. Possible alternatives to Federal protection: Reduction in State revenue due to Proposition 13 seems to have curtailed any plans for State acquisition. Federal protection seems one of the last remaining alternatives.
- D. Estimated annual operation/maintenance expenditures: The area will manage itself quite nicely. It may be worthwhile to limit human use to several days per week as constant interruption by canoeists may disrupt feeding by raptors and herons.
- E. Development needs: No fencing or other development will be necessary. A very small canoe concession operates at the mouth of the river; this seems fairly compatible with wildlife preservation on the Big River.
- F. Recreational and/or environmental education potential: The river is currently and should continue to be used by canoeists. Hunting should be restricted within the preserve, at least during sensitive nesting periods.

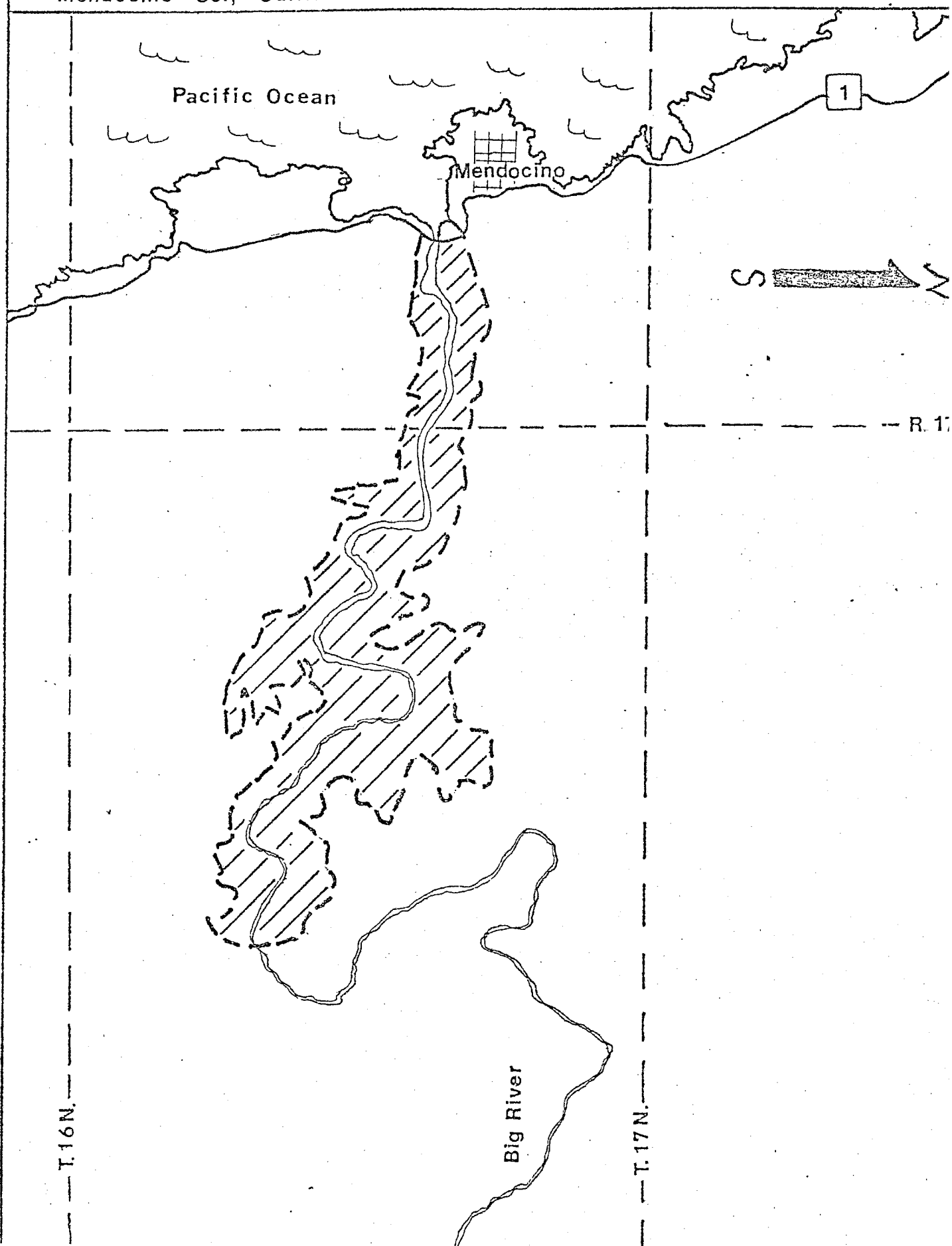
G. History: Area was logged in the 1850's and has remained relatively undisturbed to this time.

H. Archaeological information: A Pomo Indian Village was located on the north side of the river.

Big River Estuary

Mendocino Co., California

Scale 1:62500



I. NAME: Dozier Grasslands TOTAL ACRES: 2,800
STATE: California COUNTY: Solano
LEGAL DESCRIPTION: T5N, R1E, Secs. 13,14,24,25,26; T4N, R1E, Sec.
4,5,6,7,9,16,17.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM

- A. Reasons for uniqueness or national significance: The Dozier Grasslands represents one of the best examples of vernal pool communities found in California; vernal pools are well developed only in California and South Africa. Further, this site is one of the only two large remaining examples of native perennial bunchgrass in the Central Valley. One of the native grasses here has recently been listed on the Federal Endangered list while another is proposed as endangered. Added to this unique habitat is the full array of vertebrate wildlife indicative of native California grasslands.
- B. Endangered, threatened or endemic species (including plants and invertebrates): Orcuttia mucronata (Crampton's orcuttia grass) and Neostapfia colusana, both found at this site, are among the rarest grasses in California. The former has recently been listed on the Federal Endangered list while the latter is under Federal review. No federally endangered vertebrates occur on this site; however, it is the habitat type of the Federal Endangered San Joaquin Kit Fox.
- C. Species abundance and diversity: Site includes over 30 species of grasses and forbes on the drier sites; over 90% of the vernal pool plants are endemics. Vertebrate diversity is poorly known.

- D. Species of major concern and reasons: Stipa pulchra (purple needlegrass), the dominant bunchgrass is becoming rare as a habitat type.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The habitat varies from grassland to vernal pools to freshwater sloughs. The vertebrate fauna concomitant upon these habitats vary from American Bitterns, Long-Billed Marsh Wrens and Redwinged Blackbirds, to Red tailed Hawks, California Quail and Horned Larks.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: This habitat type is the rarest within California; it is now reduced to less than 1% of its original range. At present, only one other site of this quality exists in California. This site has been overlooked for cultivation due to its "island status" between 2 sloughs and the Southern Pacific Railroad.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: There was a recent unsuccessful attempt by Shell Oil Company to run an oil pipeline across the property. The parcel is now zoned for general manufacturing. However, the real threat is probably agricultural expansion; the land in the Central Valley is some of the best agricultural land in the United States and the pressure to put it all into production is intense.
- B. Severity of impact and permanence of change: Perennial grasslands have yet to reinvade any abandoned former grasslands; therefore the damage from plowing or construction would appear permanent.

Disturbed areas are recolonized quickly and effectively by imported annual grasses.

- C. Degree of protection: Absolutely no native grasslands are protected in California at this time. The California Department of Parks and Recreation is attempting to acquire the only other remaining grassland site of significance in California, apparently with little success.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Nearly all of the surrounding land is irrigated, raising such crops as beans and peas. Grazing usually takes place where water for irrigation is unavailable. The grassland is presently lightly grazed by domestic livestock.
- B. Physical description (geology/soils, topography, climate): The geology consists of deep Tertiary-Quaternary sediments of silt-sand-cobble. Clay pans in the soil profile cause ephemerally perched water tables and thus the vernal pools. The terrain is quite level and the climate is of a Mediterranean type with a winter precipitation maximum.
- C. Vegetation/Habitat and estimated acreage: The vegetation varies from vernal pool annuals, to grassland perennials and annuals, to riparian phreatophytes. The grassland and vernal pools cover 2,750 acres while the riparian and aquatic elements cover approximately 50 acres.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	5	0	2,800

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: California State Parks list this site as a high priority for preservation. Other concerned groups include the Davis Audubon Society, California Native Plant Society and the University of California Land and Water Reserve System.
- B. Other available information (publications, reports, etc.): "Jepson Prairie Project" by California State Parks and Recreation, March 1978.

VII. ADDITIONAL COMMENTS

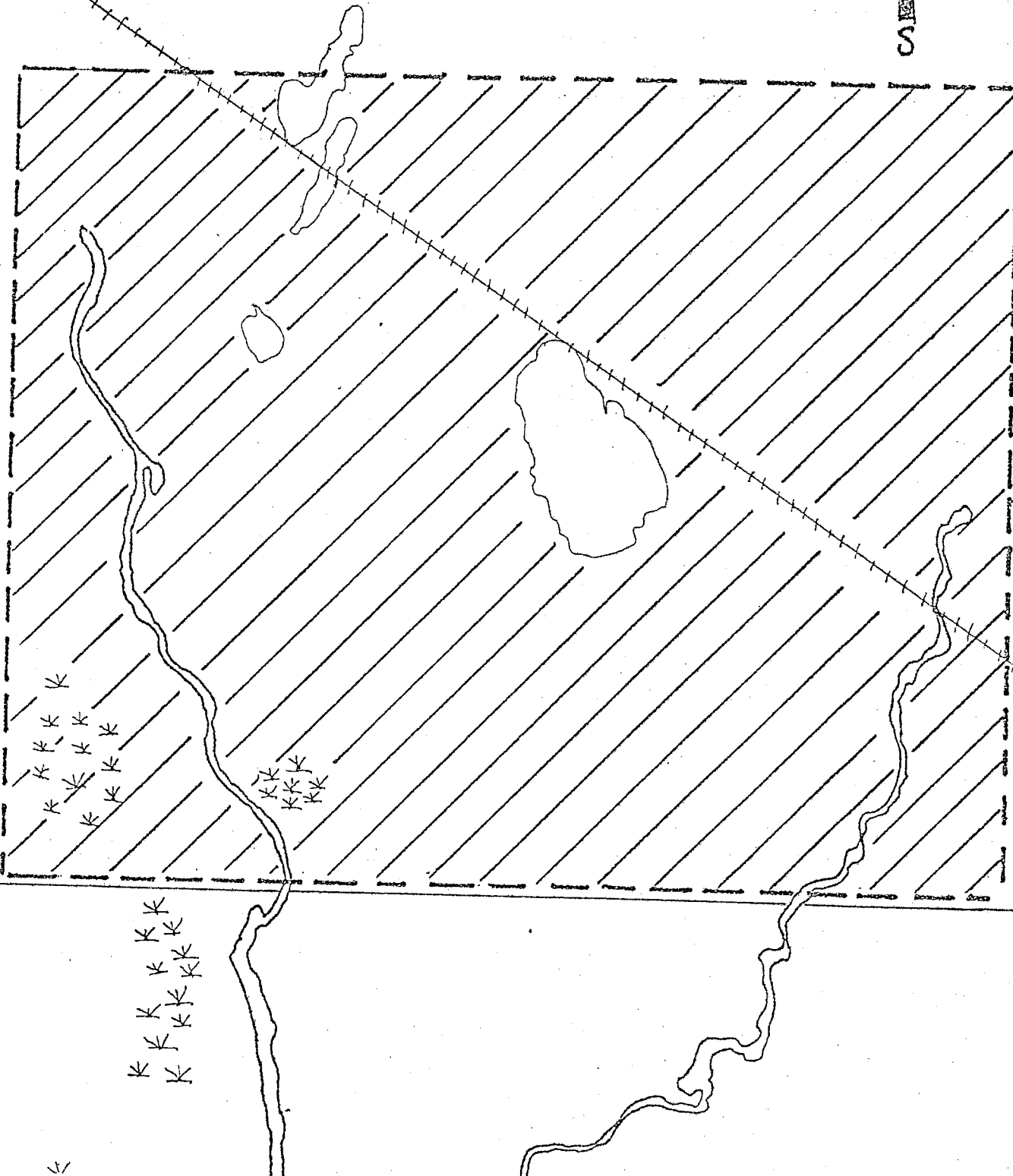
- A. Controversial aspects related to the site: No controversial issues have appeared; no loss of income to this area would occur since grazing would probably be continued.
- B. Availability: Owners attitudes are unknown.
- C. Possible alternatives to Federal protection: Considering the very few sites of this type left, Federal preservation seems the surest means to assured perpetuation. Other groups which may be in a position eventually to protect this ecosystem include the California Department of Parks and Recreation and the University of California Land and Water Reserve System. However, recent funding cutbacks, such as associated with Proposition 13 mandates, make these alternatives unreliable.

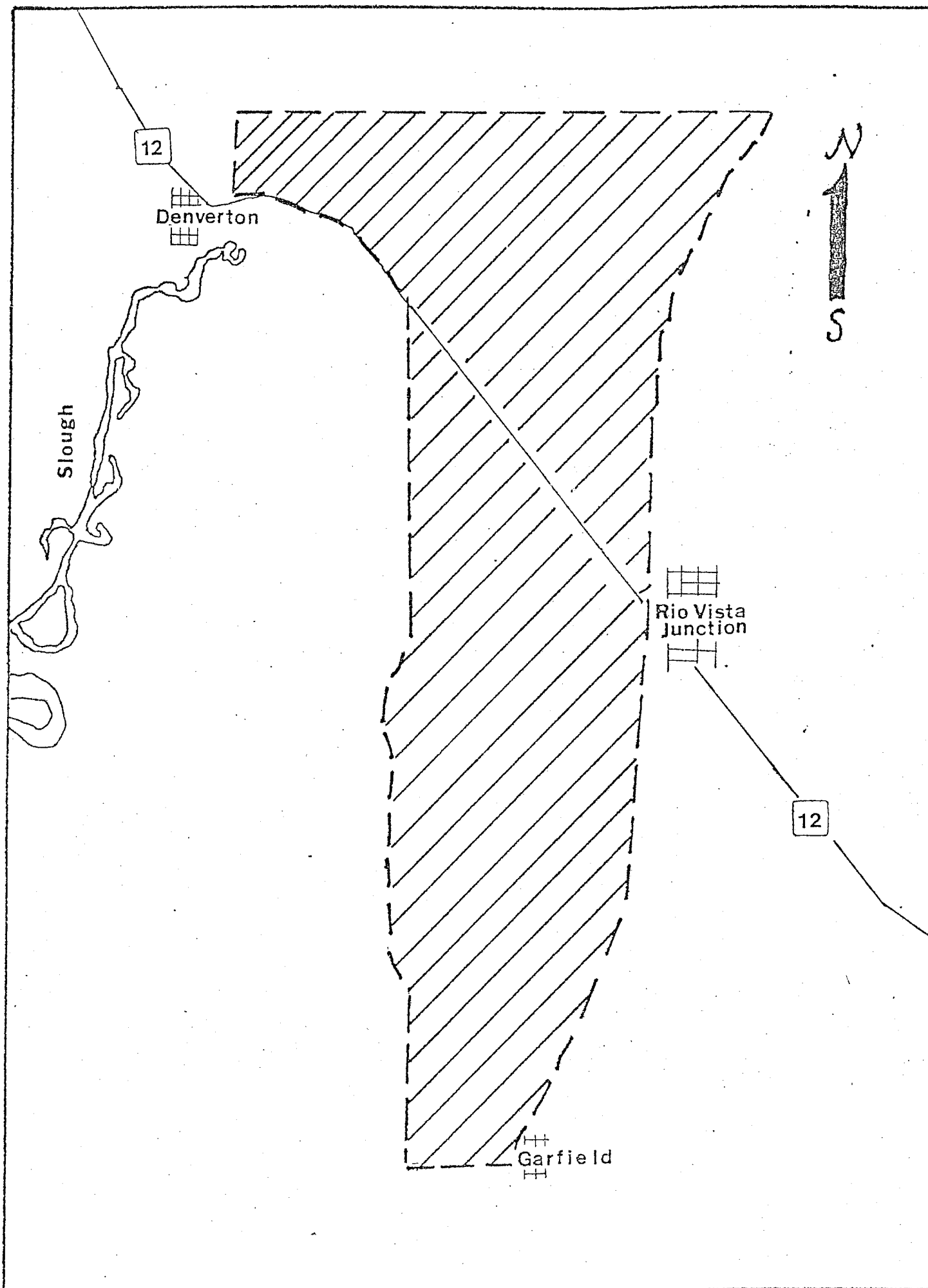
- D. Estimated annual operation/maintenance expenditures: Only maintenance would be the coordination of either grazing or burning on an annual basis. Local groups have shown an interest in helping coordinate the proper management of this grassland .
- E. Development needs: Most of the property is already fenced; that remaining will need to be fenced.
- F. Recreational and/or environmental education potential: Site is presently used intensively by botany classes from the University of California at Davis. Also, hunting may be allowed during times of animal non-sensitivity. Passive recreation at this site should be encouraged.
- G. History: Unknown.
- H. Archaeological information: Unknown.

Dozier Grasslands

Solano Co., California

Scale 1:24000





I. NAME: Emeryville Crescent

TOTAL ACRES: 500

STATE: California

COUNTY: Alameda

LEGAL DESCRIPTION: 37° 50' N Lat; 122° 17' 30"W Long.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The combination of extensive tidal mudflats, well developed salt marsh, freshwater marsh and pond, open salt water and sandy beach is unique among California coastal salt marshes. This habitat mix supports a diversity of water bird species that is unmatched in San Francisco Bay. This importance is magnified by the Crescent's isolation from other major shorebird areas and the presence of several endangered species within its confines.
- B. Endangered, threatened or endemic species (including plants and invertebrates): The following 3 species are on the Federal Endangered List and present at the Crescent: the California Clapper Rail is a resident species and represents one of the few remaining breeding populations; California Least Terns utilize the site and might nest if human disturbance were minimized; California Brown Pelicans feed in the area from summer through late fall.
- C. Species abundance and diversity: Species diversity is highlighted by the presence of 48 species of Charadriiformes, (Shorebirds etc.) while overall bird diversity approaches 150 species. Also some pelagic species such as the Arctic Tern and Long-tailed Jaeger are infrequently sighted. Peak shorebird populations exceed 10,000 gulls, terns and ducks.

- D. Species of major concern and reasons: Snowy Plovers and Double-crested Cormorants, both on "species of concern" lists for California, are regularly found feeding at the Crescent. Both of these species are noted to be declining in number in California. Other bird species of importance include the White Pelican (list of concern) and the Long-billed Curlew (list of concern).
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The waters of the Emeryville Crescent are an important spawning ground for the game-fish Striped Bass. Also, many wading-birds feed along the tidal flats; among these Great Blue Herons, Common and Snowy Egrets and Black-crowned Night Herons.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystems: The Emeryville Crescent is characterized by coastal salt and freshwater marsh. This habitat type historically covered less than 1% of the California land surface, and, since 1900, has steadily declined due to diking and filling to one third of its original extent. The relict status of coastal salt marsh is manifested by the high number of federally endangered species endemic to coastal salt marsh.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: Recently, the Emeryville Crescent was the proposed site for a county park. This park, complete with bicycle trail, may well have increased the disturbance to an already fragile ecosystem. This project was recently shelved due to lack of funds.

- B. Severity of impact and permanence of change: Salt marsh as a habitat type seems to recover even from long-term degradation quite well. However, the sensitive species, such as the California Clapper Rail, have no available population surplus to repopulate new areas. Also, as relatively natural areas incrementally become degraded (i.e. trampled), resource agencies become less willing to commit funds to protect a "ruined" area. Thus, the long term impact to this ecosystem, both to the habitat and the sensitive species, must be considered permanent. Presently, the site is primarily impacted by the construction of driftwood sculptures by local residents. This activity has burgeoned to the point that an increasing amount of the vegetation is being trampled and killed. While the site's proximity adjacent to Highway 17 precludes heavy use, human and canine disturbance is on the increase.
- C. Degree of protection: Coastal salt marsh is protected to some degree of coastal zone management. Large tracts of this habitat are not sacrificed to development without compensative measures. Also, as a habitat type, salt marsh is afforded some protection in the form of California Department of Fish and Game Ecological Reserves, State Parks and Wildlife Refuges.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): Aside from use by bird watchers, fisherman and driftwood sculptists, this area is virtually unused by humans. Much adjacent habitat has been converted to port facilities and other commercial development.

- B. Physical description (geology/soils, topography, climate): The parent material of the tidal flats and stabilized dunes is silt and sand. The terrain is level and the climate is Mediterranean with frequent summer advective fog.
- C. Vegetation/Habitat and estimated acreage: The habitat is coastal salt and freshwater marsh with mostly halophytic vegetation. The plant species, mainly Cordgrass (Spartina), Pickleweed (Salicornia), and Salt Grass (Distichlis) are adapted to diurnal inundation by salt water. Habitat breakdown is approximately 60 acres of salt marsh, 35 acres of upland xerophytic species (many exotics), and the remaining in tidal mudflat and open water. Floral diversity is low making obligate animal-plant dependence high.

V. OWNERSHIP INFORMATION

<u>Type of ownership.</u>	<u>No. of owners</u>	<u>No. of residences</u>	<u>Acres</u>
private, state etc.	2	0	500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The University of California, Golden Gate Audubon Society, The Nature Conservancy, others.
- B. Other available information (publications, reports, etc.):
 "The Crescent; An Environmental Assessment of the Emeryville Crescent" prepared by the Bodega Bay Institute, 1978.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: Agreements must be enacted with the local artisans so that construction of a limited number of sculptures takes place during the non-breeding season. Since many people consider marshes as wasteland, there

may be some hesitancy by local artisans to discontinue this practise.

B. Availability: Unknown at this time.

C. Possible alternatives to Federal protection: University of California Land and Water Reserve System has made overtures toward acquiring the site. No serious commitments have been made, however.

D. Estimated annual operation/maintenance expenditures: Much of the Crescent is presently fenced; the remaining south west section will cost approximately \$20,000 to fence. Management could be either through weekly perusal by San Francisco Bay Refuge personnel or by a cooperative management program with the Golden Gate Audubon Society, who are extremely interested in the protection of the site.

E. Development needs: None.

F. Recreational and/or environmental education potential:

The close proximity of the site to several large universities (Stanford, U.C. Berkeley and San Francisco State University) and the huge urban complex make this a natural site for educational activities.

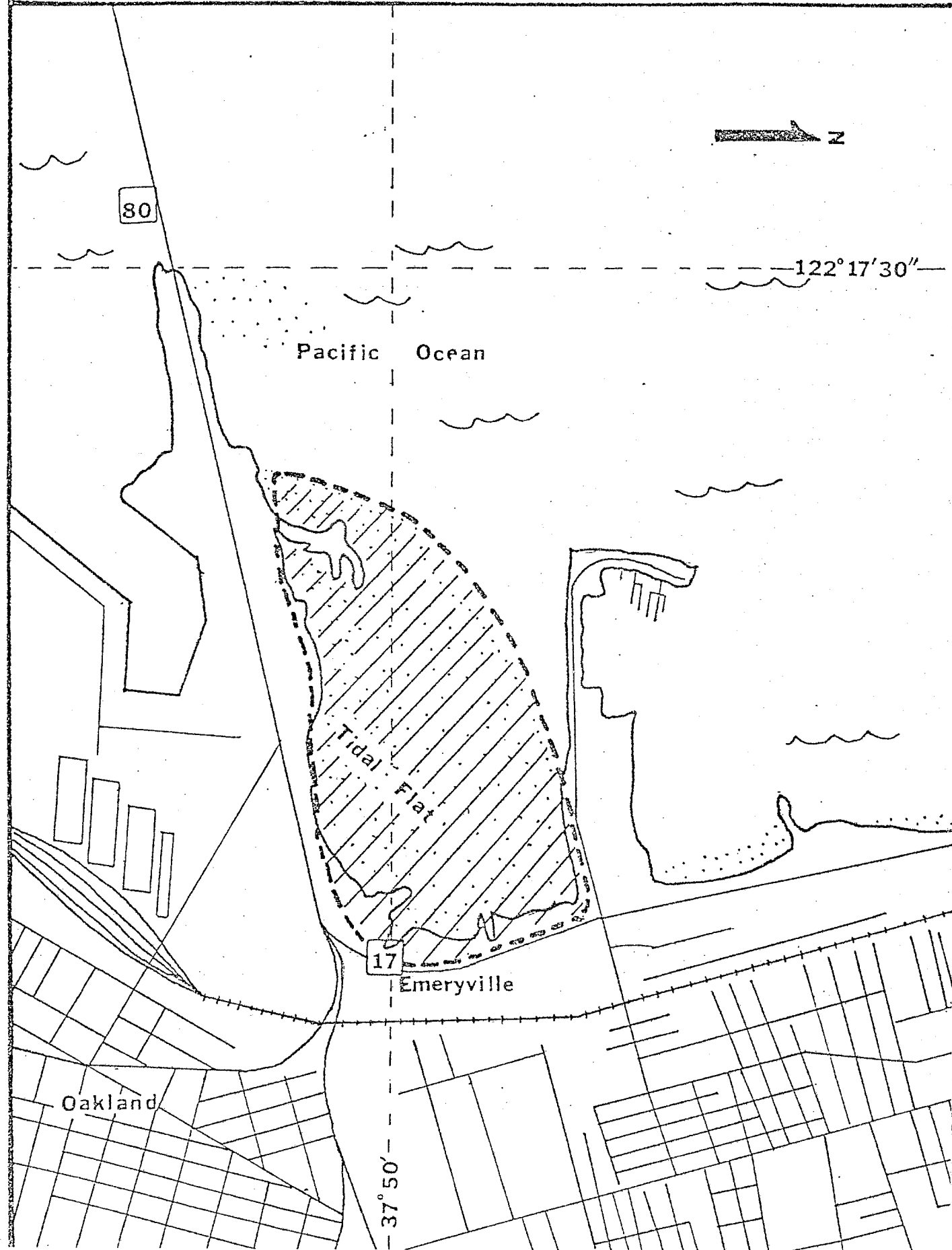
G. History: Unknown.

H. Archaeological information: Nearby shell-mound middens have yielded copious information about early avifauna.

Emeryville Crescent

Alameda Co., California

Scale 1:24000



I. NAME: Bolsa Chica Marsh

TOTAL ACRES: 900

STATE: California

COUNTY: Orange

LEGAL DESCRIPTION: T5S, R11W, T6S, R11W.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: At this time, only one-third of the historical coastal salt marsh of California remain undeveloped. The Bolsa Chica Marsh, while much degraded due to diking, represents one of the last few potentially large marshes in southern California. Several federally endangered species nest in the marsh as well as many other species of concern. This ecosystem, then represents an important link in the total California coastal environment.
- B. Endangered, threatened or endemic species (including plants and invertebrates): Belding's Savannah Sparrow, a species listed by California as endangered, was recently recorded to have 120 nesting pairs in Bolsa Chica Marsh. Also, the Federally Endangered Least Tern nests here. Also, until very recently, the Federally Endangered Light-footed Clapper Rail nested here. Finally, the Federally Endangered Brown Pelican is frequently sighted in the area.
- C. Species abundance and diversity: The following diversity has been recorded in the marsh; 10 invertebrates, 9 fish, 9 amphibians and reptiles, 18 mammals, 168 plants and 139 birds. Daily census figures range from 2000-5500 waterbirds and 171-1700 terrestrial birds.
- D. Species of major concern and reasons: Several "species of concern" utilize the marsh at different times, including the White Pelican. Snowy Plovers, on the California "list of concern" nest in Bolsa Chica

Marsh. Several vagrant species of birds have been recorded at this marsh, including the Louisiana Heron and the American Golden Plover.

- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of Federally Endangered species nesting at this site plus the relative paucity of coastal salt marsh environment in California mark the Bolsa Chica Marsh as an important candidate for preservation. Further, its position adjacent to a presently preserved salt marsh (California Department of Fish and Game Ecological Reserve) insures the defensibility of this total habitat.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Coastal salt marshes have been diked and filled throughout California, especially in southern California. The last remaining relicts, which comprise only 13,000 total acres in Southern California, are necessary for the maintenance and migration of many species of obligate shorebirds and salt marsh species.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: The complete destruction of this potential marsh environment may incur from residential development. Since most of the oil has been extracted, the land owners are attempting to annex this property to Huntington Beach and develop it. Public pressure has thus far thwarted the annexation attempts. Other threats involve the construction of a marina at the site. The threat to this prime development potential are multifarious; protective efforts will require long-term planning and coordination between all concerned parties.

- B. Severity of impact and permanence of change: Up to this point, the salt marsh degradation has been of a fairly temporary nature. Residential or marina development at the marsh will be quite permanent, both to the habitat and the endangered wildlife.
- C. Degree of protection: Coastal salt marsh has been reduced to approximately 25% of its former extent in Southern California. These habitats are of extreme monetary value as marinas and residential developments. Current efforts to protect other salt marshes are taking place, i.e. Tijuana Estuary. Also, regional land use regulations require compensation for lost habitat. However, as land values constantly escalate, the potential for resource agencies to protect these expensive ecosystems reciprocally drops.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The marsh land is currently an oil field. All of the surrounding property is in residential and commercial development, with the exception of the California Department of Fish and Game Ecological Reserve.
- B. Physical description (geology/soils, topography, climate): The hills around the marsh are part of the Huntington Beach anticline. The parent material of the area consists of alluvial and marine sediments. The climate of the area is Mediterranean, with hot, dry summers and cool, mild winters.
- C. Vegetation/Habitat and estimated acreage: The natural vegetation of the marsh includes Cordgrass (Spartina foliosa), and Pickleweed

(*Salicornia* spp) as dominats. However, the current degradation has led to the temporary displacement of most of this habitat by exotic weedy species.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
PRIVATE	1	0	900

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The California Coastal Commission has listed this as a priority of preservation. More importantly, Orange County has appropriated \$2 million for planning and acquisition of properties immediately above the marsh, this to be part of a planned regional wildlife park. This preservation program seems to have the support of the land citizenry and the political establishment.
- B. Other available information (publications, reports, etc.): "An Environmental Evaluation of the Bolsa Chica Area", prepared by the Dillingham Environmental Company P.O. Box 1560, La Jolla, California 92037.

VII. ADDITIONAL COMMENTS

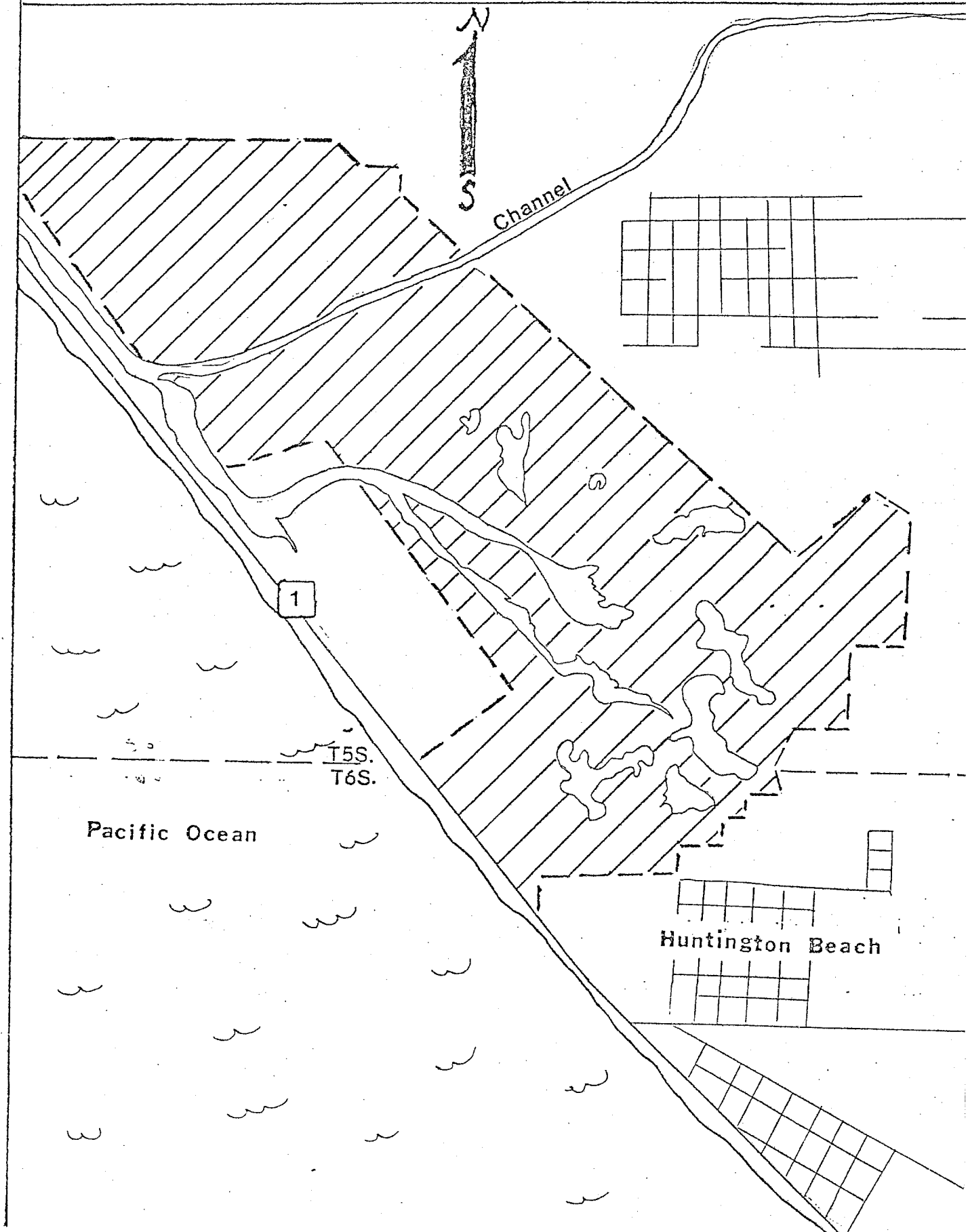
- A. Controversial aspects related to the site: The only controversy seems to come from the corporate ownership, who stand to make a huge profit from the development of this site.
- B. Availability: The owners, Signal Coporation, may be expected to be unwilling sellers. However, if Huntington Beach will not annex the property, the reduced property value may make Signal Corporation more amenable to sale for preservation purposes.

- C. Possible alternatives to Federal protection: No alternatives exist at this time. The other resource agencies have their monies committed to other projects.
- D. Estimated annual operation/maintenance expenditures: The area will have to be fenced at an expense of perhaps \$30,000. Removal of flood gates to return the natural tidal flow will also require some expenditure. It is anticipated that a cooperative management program will be enacted with the California Department of Fish and Game and Orange County.
- E. Development needs: It would be worthwhile to construct several bird observation structures at non-sensitive points in the marsh.
- F. Recreational and/or environmental education potential: The relation of this ecosystem to such a huge urban conurbation guarantees use of this area for observation and photography of wildlife. Also, nearby major universities, such as the University of California at Los Angeles, would benefit from the close proximity of this ecosystem.
- G. History: The marsh was originally part of a Spanish land grant in 1795. It changed hands several times until oil was discovered in 1926.
- H. Archaeological information: Apparently 13 archaeological sites are located in and around the marsh.

Bolsa Chica Marsh

Orange Co, California

Scale 1:24000



I. NAME: San Bruno Mountain

TOTAL ACRES: 3,500

STATE: California

COUNTY: San Mateo

LEGAL DESCRIPTION: T3S, R5W,; Sec. 4,5,6,7,8,9,15,16,17.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: The uniqueness of this ecosystem lies in the range of habitats it represents and the relative undisturbed state of these habitats. This coastal montane ecosystem runs the gamut from salt marsh, through coastal sage scrub to woodland. Defined within this isolated ecosystem are the entire ranges of several endangered plants and invertebrates.
- B. Endangered, threatened or endemic species (including plants and invertebrates): This site contains the only known population of 2 Federally Endangered Species: The San Bruno Elfin (Callophrys mossii bayensis) and the Mission Blue Butterfly (Icaricia icarioides missionensis).
- C. Species abundance and diversity : Species diversity is relatively high, with over 80 species of birds, including 10-12 raptors, 45 mammals, 13 amphibians and 20 species of reptiles. There also are over 1,000 documented invertebrate species and 560 species of plants.
- D. Species of major concern and reasons: This area is the only known habitat for the proposed endangered butterfly, Speyeria callippe callippe (Callippe Silverspot Butterfly). Also 2 threatened manzanitas are restricted to this site: Arctostaphylos imbricata (San Bruno Mt. Manzanita) and A. montaraensis (Montara Manzanita).
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The above noted species contribute

to making this an unusually rich wildlife ecosystem.

- F. Relict, localized, disjunct limited or otherwise significant ecosystem: The habitat values of this area are relatively high in that several threatened habitats are represented, including coastal montane forest, bunchgrass grassland, coastal scrub and some salt marsh. Both salt marsh and native grassland have been "red-flagged" as seriously threatened habitats.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: Recently, San Mateo County purchased 1200 acres of the total parcel for a park. They are aware of the habitat value and are currently preparing an Environmental Impact Assessment of their park project. The remaining 3,500 acres of this ecosystem are currently slated for residential development, this to take place within 5 years.
- B. Severity of impact and permanance of change: While it is unclear how responsive San Mateo County will be to habitat preservation on their property, the remaining land which is to be developed will be irreparably damaged. Since this is the only known location of the endangered butterflies, the impact to these species will be quite permanent.
- C. Degree of protection: Both coastal salt marsh and native grassland are quite underprotected in California. The dominant habitat, coastal chaparral, is only protected at a few small preserves in the state and certainly its location amid such an urban conurbation marks this habitat as at least locally under represented.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The land is presently in its natural undeveloped state with suburban development encroaching from several directions.
- B. Physical description (geology/soils, topography, climate): Site is made up of Franciscan soils with serpentine outcrops. Climate is Mediterranean with a coastal fog regime. Topography is hilly.
- C. Vegetation/Habitat and estimated acreage: The habitat mix makes for a diverse list of flora. Some of the main components include Baccharis, Aesculus, Artemesia, Salicornia and Spartina. The habitat breakdown is approximately 1,650 acres chaparral, 1,500 acres grassland, 300 acres woodland, 74 acres lagoon, and 5 acres of salt marsh.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private, state etc.	2	0	3,500

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: California Department of Fish and Game, Sierra Club, Xerces Society, California Coastal Commission.
- B. Other available information (publications, reports, etc.): "Status of Six Endangered California Butterflies", by Dr. Richard Arnold, University of California at Berkeley, 1977.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: Both of the corporations that own these properties are planning condominium construction. They are reportedly not especially concerned with the biotic values.

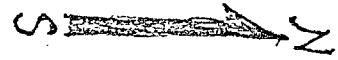
There has been local outcry to "Save San Bruno Mountain" by the surrounding community.

- B. Availability: Site is not for sale.
- C. Possible alternatives to Federal protection: The owners lack of interest in the biota of the site seem to preclude other strategies of preservation. However, other alternatives should be explored further.
- D. Estimated annual operation/maintenance expenditures: The area may or may not have to be fenced in the future. At this time it would probably serve no purpose. If the United States Fish and Wildlife Service protected part of this parcel, it would be logical to enter into a cooperative management program with San Mateo County to insure the preservation of the 2 endangered butterflies.
- E. Development needs: None.
- F. Recreational and/or environmental potential: San Bruno Mountain has excellent educational value due to its proximity to several major universities and the population of the San Francisco Bay area.
- G. History: Area was settled by the Spaniards during the Mission Days. It was purchased by a local family in the late 1800's and much of the site is owned by their decendents.
- H. Archaeological information: None available.

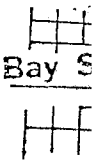
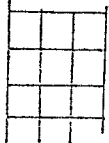
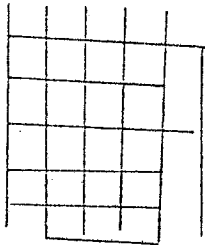
San Bruno Mountain

San Mateo Co., California

Scale 1 : 24000

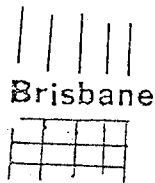


San Mateo Regional Park



Bay S

Guadalupe Valley



Brisbane

101

Pacific Ocean

I. NAME: Soda Lake (Carrizo Plain)

TOTAL ACRES: 2,360

STATE: California

COUNTY: San Luis Obispo

LEGAL DESCRIPTION: T31N, R19E, Sec. 16,17,20,21.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: Soda Lake and its surrounding habitat form an alkaline salt marsh ecosystem of pristine quality. The lake area hosts 10,000 wintering Sandhill Cranes and is the type local for several Federally Endangered Species. The interesting position of this lake between the Central Valley and the coast contribute to an interesting mix of biotic types. This site has 2 threatened species of plants. The acquisition of this section of the Lake will "round out" the preservation an ecosystem partly protected by the Bureau of Land Management.
- B. Endangered, threatened or endemic species (including plants and invertebrates): Soda Lake is the habitat type of 2 Federally Endangered Species: the San Joaquin Kit Fox and the Blunt-nosed Leopard Lizard. Peregrine Falcons, also federally endangered, are noted feeding along the lake. Also Atriplex vallicola, noted as threatened on the Smithsonian plant list, is located on the site.
- C. Species abundance and diversity: The abundance of wildlife at Soda Lake is highlighted by 7-10,000 wintering Sandhill Cranes. This habitat is critical to preservation of this species, currently on the California "list of concern". Also, large concentrations of other wintering birds have been noted, including 500 Mountain

Plovers and 12 Golden Eagles sighted in one afternoon. Both of these species are also on the California "list of concern".

- D. Species of major concern and reasons: "Species of concern" present at Soda Lake include Sandhill Cranes, Golden Eagles, Burrowing Owls, Short-eared Owls, Swainson's Hawks, Marsh Hawks, and Prairie Falcons. All of these species are noted to either nest or feed at Soda Lake.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The combination of extreme concentration of wintering wading birds, raptors, shorebirds and waterfowl along with the presence of rare plants within a pristine habitat add up to a unique and valuable ecosystem.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: This ecosystem type is very rare locally and is slowly being eliminated throughout California. Figures for number of remaining acres of this habitat are not available.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: Threat to this ecosystem is potential but not imminent. There was a plan by the San Joaquin Wastewater Disposal Unit to dump huge amounts of wastewater into the lake and surrounding area. This plan has been tabled. Also, some of the owners of the property apparently bought it speculatively; however lack of fresh water presently precludes any major development of this property.

- B. Severity of impact and permanence of change: Any type of development will adversely impact these sensitive species to a greater or lesser extent.
- C. Degree of protection: This habitat is quite rare and unprotected locally. The nearest protection for this type of habitat occurs in the Mojave Desert, hundreds of miles to the east, and there only in a few small areas.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The surrounding area is grazed by sheep. While some ORV use occurs around the periphery of the lake, the majority of the land is unused by man.
- B. Physical description (geology/soils, topography, climate): The soil is made up of anaerobic peat deposits on top of alkaline sediments. The terrain is level and the climate is Mediterranean with cool, wet winters and hot, dry summers.
- C. Vegetation/Habitat and estimated acreage: The vegetation of the Soda Lake area consists entirely of salt adapted plants and includes several species of Saltbush (Atriplex) and pickleweed (Allenrolfia). The remaining property is part of the Soda Lake proper.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of owners</u>	<u>No. of residences</u>	<u>Acres</u>
private	several	0	2,569

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The Bureau has shown great interest in transferring their land to the United States Fish and Wildlife Service if the remaining private land is purchased and preserved under this program. Also concerned are the Morro

Bay Audubon Chapter and the Tulare Audubon Chapter.

- B. Other available information (publications, reports, etc.): A Mr. Woods from California Polytechnic Institute is currently completing an environmental evaluation of the Carrizo Plain area.

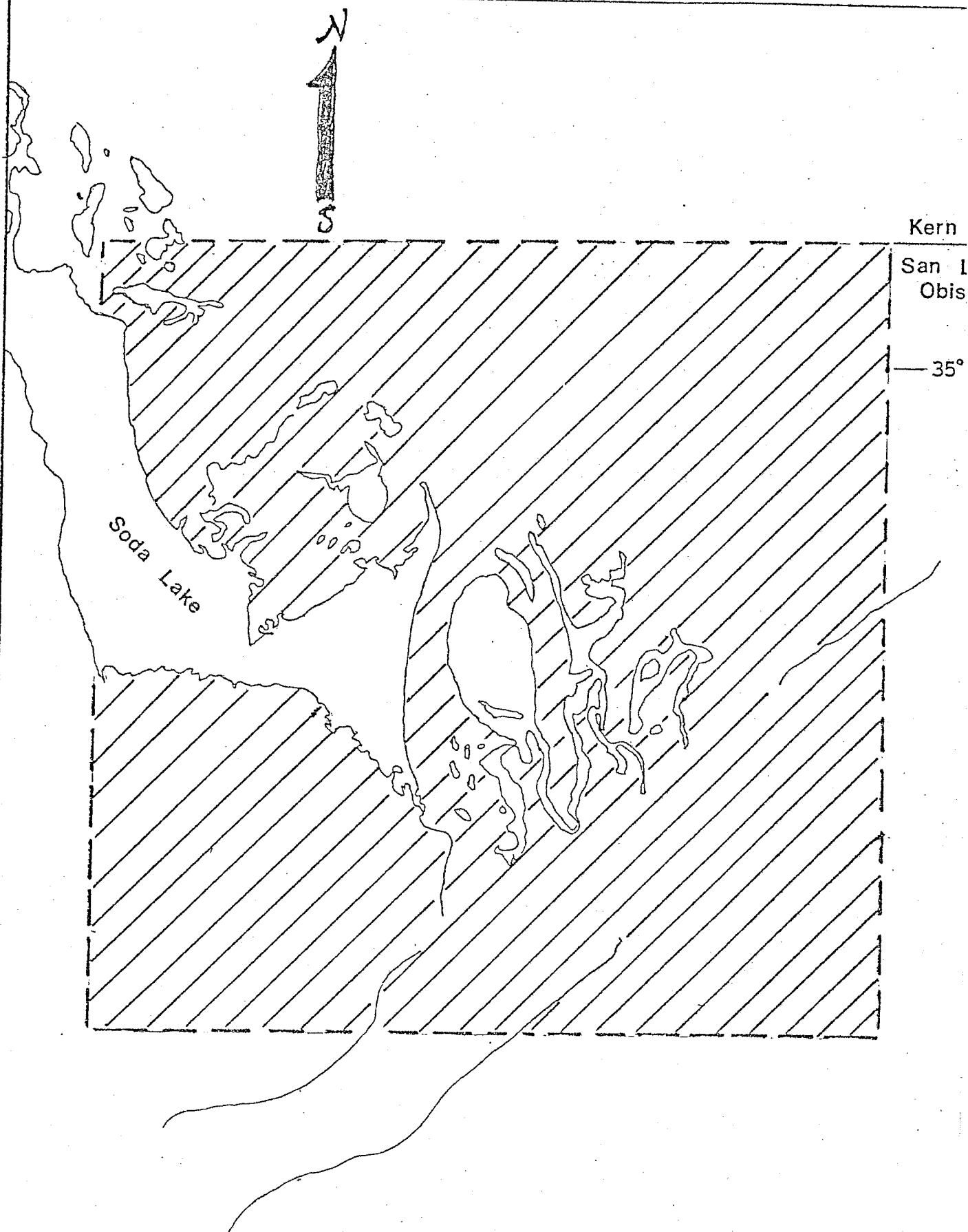
VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: All agencies concerned seem amenable to this project. Since the property is unused at the present time, no loss of revenue to local residents will incur.
- B. Availability: The owners have not been approached on this subject.
- C. Possible alternatives to Federal protection: Long-term preservation of this ecosystem would best be served by early action while land values are still quite low.
- D. Estimated annual operation/maintenance expenditures: It may be necessary to fence the area off from sheep grazing. This would cost in the area of \$15,000. It will be further necessary to implement regular perusal of the lake by either United States Fish and Wildlife Service or California Fish and Game personnel.
- E. Development needs: None.
- F. Recreational and/or environmental education potential: This site will be an excellent, albeit remote, area for both botanical and ornithological education. Easy access will insure good birding even for amateurs.
- G. History: Unknown.
- H. Archaeological information: Unknown.

Carrizo Plain

Kern & San Luis Obispo Co., California

Scale 1:24000



I. NAME: Hickman Vernal Pools

TOTAL ACRES: 2,000

STATE: California

COUNTY: Stanislaus

LEGAL DESCRIPTION: T4S, R12E, Sec. 2,3,10,11,14,15.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: This site represents the largest vernal pool/playa ecosystem in California. Vernal pools are a rare, ephemeral wetland ecosystem occurring only in California and South Africa. Endemism is extremely high, with many of the plant species being rare and endangered. The pools are surrounded by grasslands.
- B. Endangered, threatened or endemic species (including plants and invertebrates): This habitat is the type locality of the Federally Endangered San Joaquin Kit Fox. Also, the following endemic vernal pool plants are listed as proposed threatened: Orcuttia pilosa, Neostapfia colusana and Euphorbia hooverii.
- C. Species abundance and diversity: Thousands of waterfowl utilize these pools during the spring. As expected in an adverse environment, plant species abundance is high while diversity is low.
- D. Species of major concern and reasons: The open grasslands are inhabited by the "species of concern" Burrowing Owl. In the pools themselves, Tiger Salamanders and Western Spadefoot frogs breed.
- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The rare and endangered plants adapted and restricted to an ephemeral water source mark this as an important ecosystem.

- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: The vernal pools-grassland ecosystem, once so common in California, has been reduced to tiny remnants of its former occurrence. Agricultural expansion eliminates more of these relicts each year.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: All of the surrounding land is cultivated and the owners of the vernal pools have indicated that the present grazing practices are not profitable enough. Cultivation and destruction of the ecosystem is therefore an imminent possibility.
- B. Severity of impact and permanence of change: Vernal pools are currently grazed, which is conducive to vernal pool maintenance. If cultivation were to take place, the vernal pools would be destroyed.
- C. Degree of protection: Only two vernal pools are protected in California at this time, these of much lower quality.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): All of the surrounding property is either cultivated or grazed. This vernal pool grassland ecosystem is presently grazed by cattle.
- B. Physical description (geology/soils, topography, climate): The climate is a Mediterranean type with hot, dry summers and cool, wet winters. The soil contains a clay pan which accounts for the seasonally perched water table. The terrain is quite level.

- C. Vegetation/Habitat and estimated acreage: The vernal pools habitat is flooded during the spring. At that time, migratory waterfowl are active here. As summer proceeds, the pools dry up and a succession of rare plants bloom as they are exposed.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	1	0	2,000

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The Nature Conservancy, the California Native Plant Society and the California Natural Areas Coordinating Council.
- B. Other available information (publications, reports, etc.): Numerous articles in Fremontia and Madrono describe this ecosystem. Also, see "Vernal Pools Symposium " from University of California at Davis, Institute of Ecology.

VII. ADDITIONAL COMMENTS

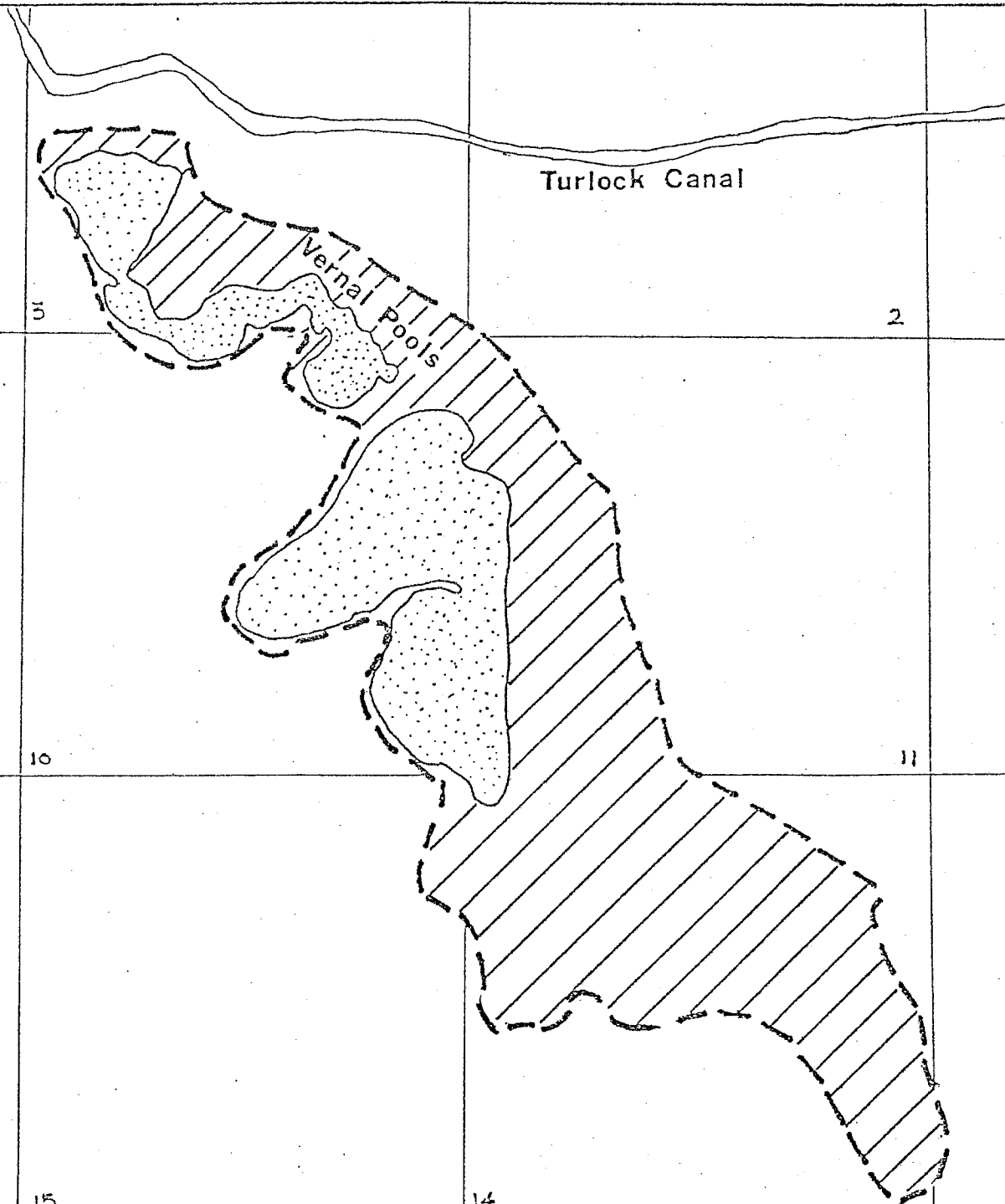
- A. Controversial aspects related to the site: Attitude of the owners (a trust) is unknown. However, they are known to favor the most profitable option. No other controversial aspects have appeared.
- B. Availability: Unknown.
- C. Possible alternatives to Federal protection: A conservation easement may be a viable alternative to outright title acquisition. The pools are adapted to either grazing or fire; therefore light grazing may indeed benefit the ecosystem. The real threat is cultivation rather than grazing.

- D. Estimated annual operation/maintenance expenditures: Maintenance would be unnecessary. All that would be necessary is that someone supervise the grazing rights to the site.
- E. Development needs: The site would have to be fenced at a cost of approximately \$20,000.
- F. Recreational and/or environmental education potential: Site has been intensively investigated by university people. The site is adjacent to a state park, thus making it a natural for environmental education.
- G. History: Unknown.
- H. Archaeological information: Area was once a game hunting area for California Yokuts and Miwoks.

Hickman Vernal Pools

Stanislaus Co., California

Scale 1:24000



I. NAME: Putah Creek Riparian Corridor TOTAL ACRES: 900
STATE: California COUNTY: Yolo and Solano
LEGAL DESCRIPTION: T8N, R2W, Sec. 26,27,28,29,35,36,; T8N, R1W,
Sec. 27,28,31,32.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: Putah Creek contains the best remaining example of deciduous riparian habitat remaining in Yolo and Solano Counties. The combination of high wildlife values and immediate threat mark this as a high priority for preservation.
- B. Endangered, threatened or endemic species (including plants and invertebrates): No Federally Endangered species are noted to reside here.
- C. Species abundance and diversity: The diversity of migratory waterfowl, as well as wintering song birds, raptors and woodpeckers is unparalleled in the area; a total of 147 species of birds, 28 mammals and 17 reptiles and amphibians have been observed here. This area also has an unusually large number of butterfly species (68) which represents 79% of the total number of butterfly species in the whole region. Site also contains an extreme concentration of beaver.
- D. Species of major concern and reasons: Putah Creek maintains many species noted on the California "species of concern" list, among these are the Double-crested Cormorant, Barrow's Goldeneye, Coopers Hawk, Long-eared Owl, Golden Eagle and Marsh Hawk.

- E. Wildlife values, including different and outstanding wildlife associations and habitat types: Several wading birds utilize this area for feeding and nesting including Green and Blue Herons, and Common and Snowy Egrets. The combination of high terrace tree canopy plus adjacent meadows provides especially good habitat for White-tailed Kites and Sora Rails.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: All riparian habitat is considered a relict due to continued encroachment by mining, agriculture and residential development. This habitat type has been noted by many authorities as in very serious decline, with only 15% of historical acreage still remaining.

III. THREAT OF DESTRUCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: The threat is quite imminent from gravel extraction. Apparently a gravel operation has been taking advantage of loose guidelines to extend its operation into the best riparian habitat. The operators are apparently unsympathetic to conservation of wildlife.
- B. Severity of impact and permanence of change: Extracting the gravel from this site enacts destruction of native habitat. There are so few remaining sites of this quality that elimination of the few will eventually mean extirpation of the wildlife themselves.
- C. Degree of protection: Riparian habitat has only recently been noted for its contribution to the wildlife resource. While few sites are presently protected, both the California Department of Fish and Game and The Nature Conservancy are actively attempting protective efforts in this direction. 88

IV. ECOSYSTEM DESCRIPTION

A. Land use (agriculture, tree farm, suburban lands, etc.):

Surrounding land is grazed, cultivated, mined or in multi-use parks.

B. Physical description (geology/soils, topography, climate):

The parent material is predominantly Tertiary-Quaternary alluvium sand and silt. The terrain is quite hilly down to the meandering river floodplain. The climate is a Mediterranean type with cool, wet winters and hot dry summers.

C. Vegetation/Habitat and estimated acreage: The upper canopy of the forest is cottonwood, the understory is mostly willow, Box Elder, blackberry and elderberry. On the hillsides, the vegetation grades into Black Walnut and Valley Oak with an herbaceous layer of annual grasses underneath.

V. OWNERSHIP INFORMATION

<u>Type of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private, state etc.	5	0	900

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The following groups have voiced support for this endangered ecosystem: the Davis Audubon Society, the Napa-Solano Audubon Society, the Riverlands Council, the Natural Areas Consortium and the University of California Land and Water Reserve System.
- B. Other available information (publications, reports, etc.): Bird lists are available from the California Department of Fish and Game and the Davis Audubon Society Christmas and Spring Bird Counts.

VII. ADDITIONAL COMMENTS

- A. Controversial aspects related to the site: The gravel operator will undoubtedly object to any restraint upon this operation.
- B. Availability: Apparently, the land owners are sympathetic to wildlife values and only lease the land to the gravel operator to offset ownership costs. Acquisition may thus be an easy matter.
- C. Possible alternatives to Federal protection: Obviously the present situation is unacceptable for the continuation of any wildlife habitat. Conservation easement may be an alternative, but long term protection through acquisition would insure perpetual preservation of this important site.
- D. Estimated annual operation/maintenance expenditures: The local conservation groups have indicated they would like to help manage and lead interpretive trips at the site on a volunteer basis. Other management could be enacted jointly with the adjoining state park.
- E. Development needs: Perhaps \$5,000 to fence particularly sensitive areas would be necessary.
- F. Recreational and/or environmental education potential: Area is presently and will continue to be used by fisherman, canoeists and bird watchers. Close proximity to a county park will add to passive recreational value of the site.
- G. History: Unknown.
- H. Archaeological information: Unknown.

Putah Creek

Solano Co., California

Scale 1 : 24000



Winters

Rd.

128

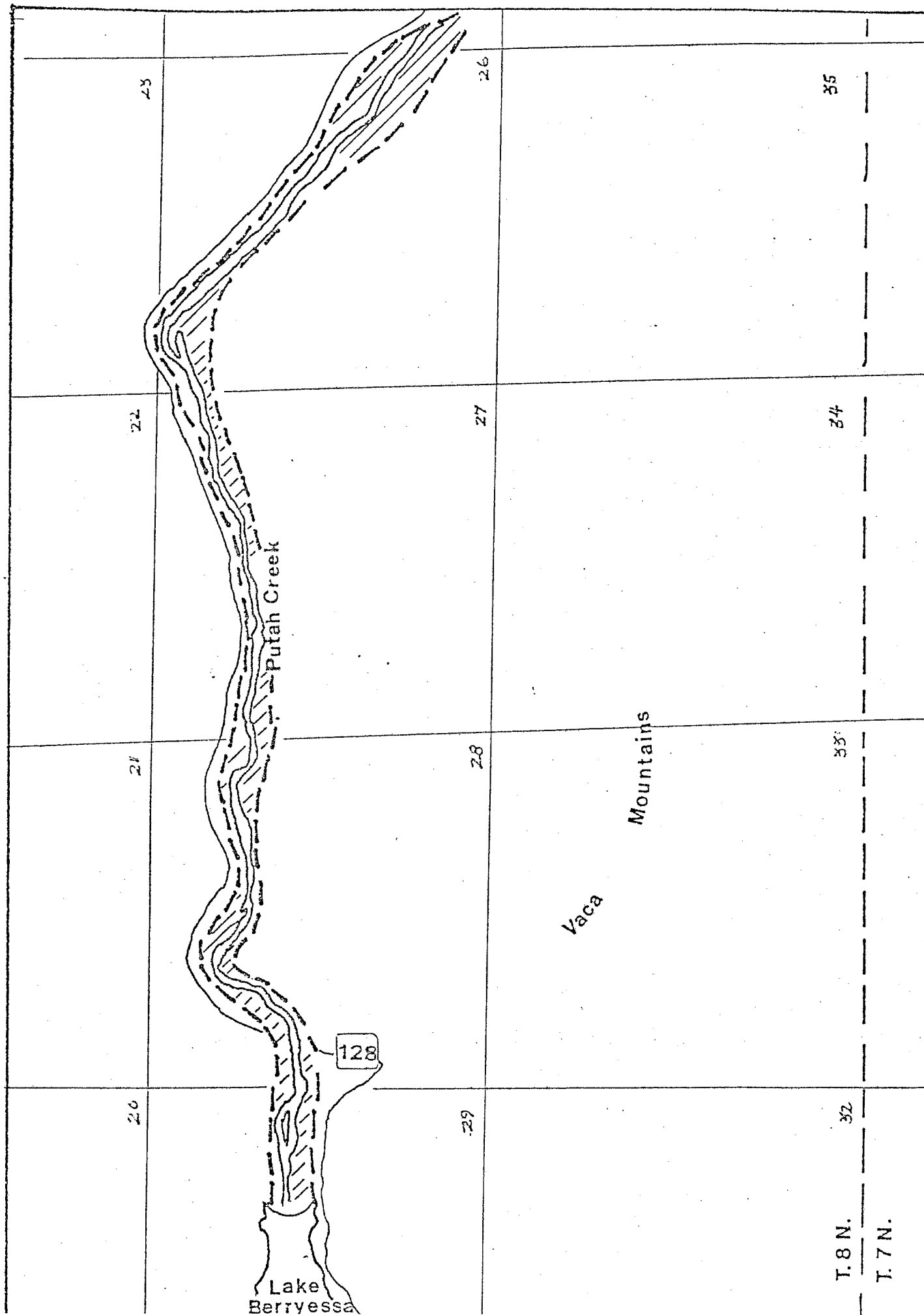
Putah Creek

R. 1 W.

R. 2 W.

T. 8 N.

T. 7 N.



I. NAME: Saline Valley Salt Marsh

TOTAL ACRES: 200

STATE: California

COUNTY: Inyo

LEGAL DESCRIPTION: T14S, R38E, NW $\frac{1}{4}$ Sec. 26, SW and NE $\frac{1}{4}$ Sec. 27.

II. WILDLIFE SPECIES, HABITAT AND SIGNIFICANT ECOSYSTEM VALUES

- A. Reasons for uniqueness or national significance: This site represents one of the most pristine desert salt marshes in the SW California desert. This oasis serves as a node for wildlife in an area devoid of other water sources. Both migratory and resident species depend upon the preservation of this ecosystem.
- B. Endangered, threatened or endemic species (including plants and invertebrates): No Federal or State endangered species occur at this site; however many of the species are on the California "list of concern".
- C. Species abundance and diversity: Species abundance is extremely high as one would expect at a desert oasis. In a recent short faunal inventory, 85 species of birds were observed, 10 species of mammals and 13 species of reptiles and amphibians. Many of the birds were noted to be breeding here.
- D. Species of major concern and reasons: Prairie Falcons, Bank Swallows and Common Yellowthroats, all on the "list of concern" for California, are members of this community. Also, at least one nesting pair of Least Bitterns occur here; this species is a first priority "species of concern" in California.

- E. Wildlife values, including different and outstanding wildlife associations and habitat types: The occurrence of a marsh in the desert necessitates a diverse and abundant array of vertebrate wildlife. Many types of birds occur here, including colonial nesters, ducks, gulls, terns, raptors and numerous genera of songbirds.
- F. Relict, localized, disjunct, limited or otherwise significant ecosystem: Desert salt marshes have always been a rare occurrence. As their water sources are diverted for other purposes, their number will steadily decline. Estimates of remaining acreages of this habitat are unavailable.

III. THREAT OF DESTURCTION/DEGREE OF PROTECTION

- A. Nature of threat and probability of occurrence within 2, 5 or 10 years: These desert oasis make charming vacation resorts. The property is currently for sale and the probability of the site being developed in the near future is a distinct possibility.
- B. Severity of impact and permanence of change: This depends upon how the site is developed. Undoubtedly, much or all of the water would be diverted away from a "useless" marsh, thus destroying the natural habitat and its faunal association.
- C. Degree of protection: Very little of this habitat type is protected in California; less than 1,000 acres are in nature preserves.

IV. ECOSYSTEM DESCRIPTION

- A. Land use (agriculture, tree farm, suburban lands, etc.): The surrounding land is largely unused. Cultivation takes place where fresh water is made available.

- B. Physical description(geology/soils, topography, climate): The desert landscape consists of a hot, arid desert with sand and alkali soils. Much of the parent material is Pleistocene alluvium.
- C. Vegetation/Habitat and estimated acreage: Vegetation of the area consists of three basic communities: Marshland, Screwbean mesquite (Prosopis) and Iodine bush (Allenrolfia). This proposal covers only the 200 acres of actual salt marsh.

V. OWNERSHIP INFORMATION

<u>Types of ownership</u>	<u>No. of ownerships</u>	<u>No. of residences</u>	<u>Acres</u>
private	1	0	200

VI. OTHER AVAILABLE INFORMATION

- A. Identified by others as an area of concern: The California Department of Fish and Game has purchased the other portions of this salt marsh. However, they lack the funding to purchase the key water source. Also involved in the preservation effort are the Desert Fishes Council, the Bureau of Land Management and the University of California Natural Land and Water Reserve System.
- B. Other available information (publications, reports, etc.): Unpublished California Fish and Game inventory, dated June 5, 1975.

VII. ADDITIONAL COMMENTS

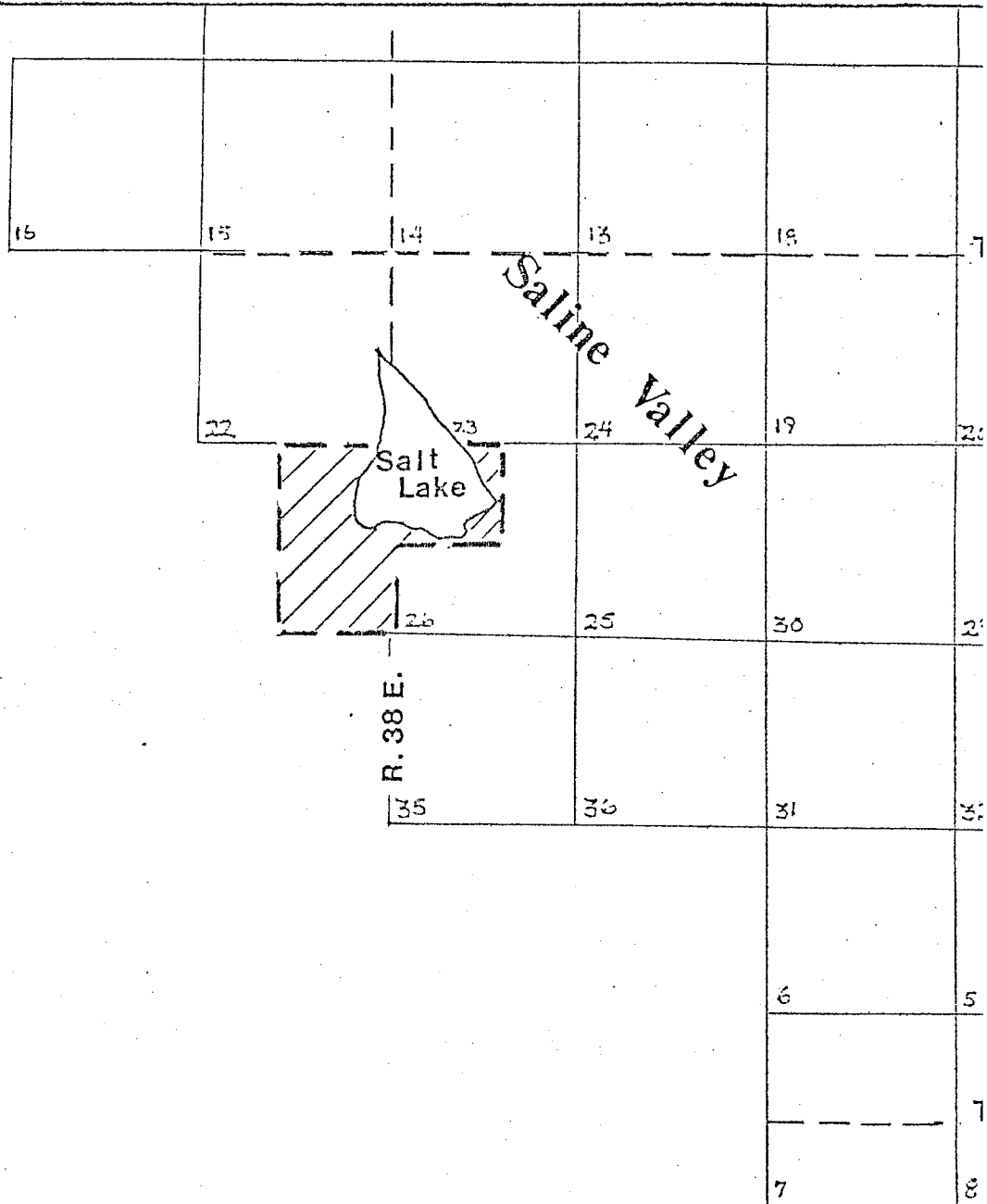
- A. Controversial aspects related to the site: No controversial aspects have been noted; on the contrary, many agencies and groups are working toward the protection of this unique site.

- B. Availability: Owner is amenable to sale of the property.
- C. Possible alternatives to Federal protection: If some agency does not preserve the land, it will probably be developed.
- D. Estimated annual operation/maintenance expenditures: Cooperative management program could be enacted with the California Department of Fish and Game. No maintenance by United States Fish and Wildlife personnel would be necessary.
- E. Development needs: None.
- F. Recreational and/or environmental education potential: This ecosystem concentrates copious numbers of wildlife into a small area, thus making observation and photography easy and rewarding.
- G. History: Unknown.
- H. Archaeological information: Unknown.

Saline Valley Salt Marsh

Inyo Co., California

Scale 1:62500



LEVEL II SITES

I. NAME: West Marin Island

TOTAL ACRES: 160

STATE: California

COUNTY: Marin

LEGAL DESCRIPTION: 37 degree 58' lat, 122 degree 28' W. Long.

II. Summary of the Biological Values and Threat Factors: West Marin

Island is an isolated 3 acre island in San Francisco Bay. It maintains an extreme concentration of colonial nesting birds, including 200-400 nesting Snowy Egrets, 50 nesting Common Egrets, and many nesting Great Blue Herons and Black-crowned Night Herons. Many of these individuals feed in a nearby tidal mudflat area, so this feeding area is included in the nomination.

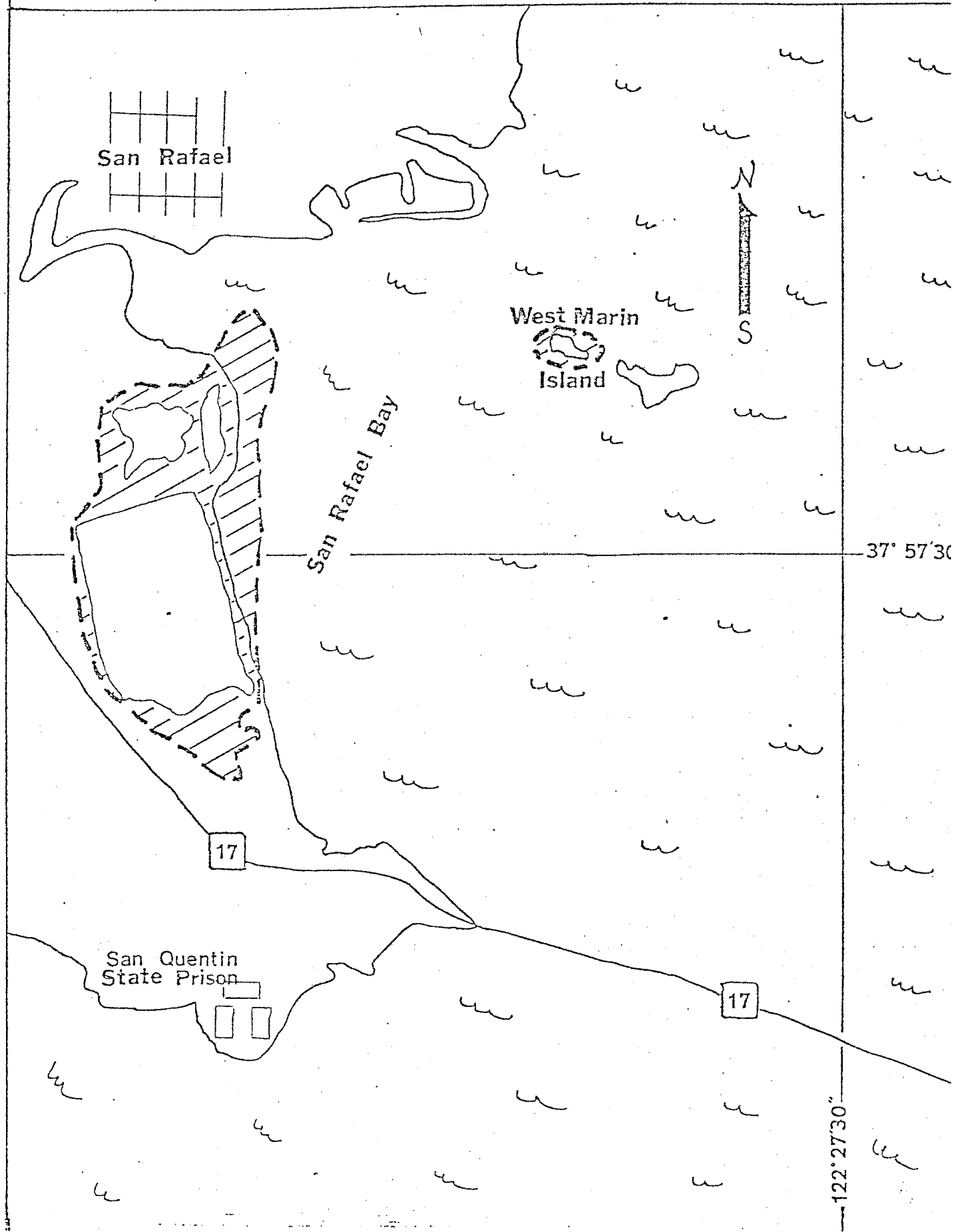
This particular ecosystem is quite unique and difficult to categorize into a protected or unprotected type. While many of the islands in San Francisco Bay are publicly owned, only a few are protected for their biological value. For additional information of this site contact the Marin Audubon Society. The location of this site in the middle of the bay makes it an unlikely educational resource.

The threat is mainly from diking of many of the available feeding areas around San Rafael. Also, scattered incidents of vandalism on the island have occurred. It is recommended, then, that the Unique Ecosystem Program look seriously at the protection of this valuable and easily defensible ecosystem.

West Marin Island

Marin Co., California

Scale 1:24000



I. NAME: Watsonville Slough

TOTAL ACRES: 1,800

STATE: California

COUNTY: Santa Cruz

LEGAL DESCRIPTION: T12S, R2E.

- II. Summary of Biological Values and Threat Factors: This freshwater marsh is one of the last remaining marshes along the Central California coast. Its habitat transition from tules to riparian vegetation to old growth live oaks help to sustain a diverse biotic community. There have been over 120 species of birds, 30 species of mammals and 14 species of reptiles recorded here. Many of the birds are on the California "list of concern" including Burrowing Owls, Golden Eagles, Cooper's Hawks, Snowy Plovers and others.

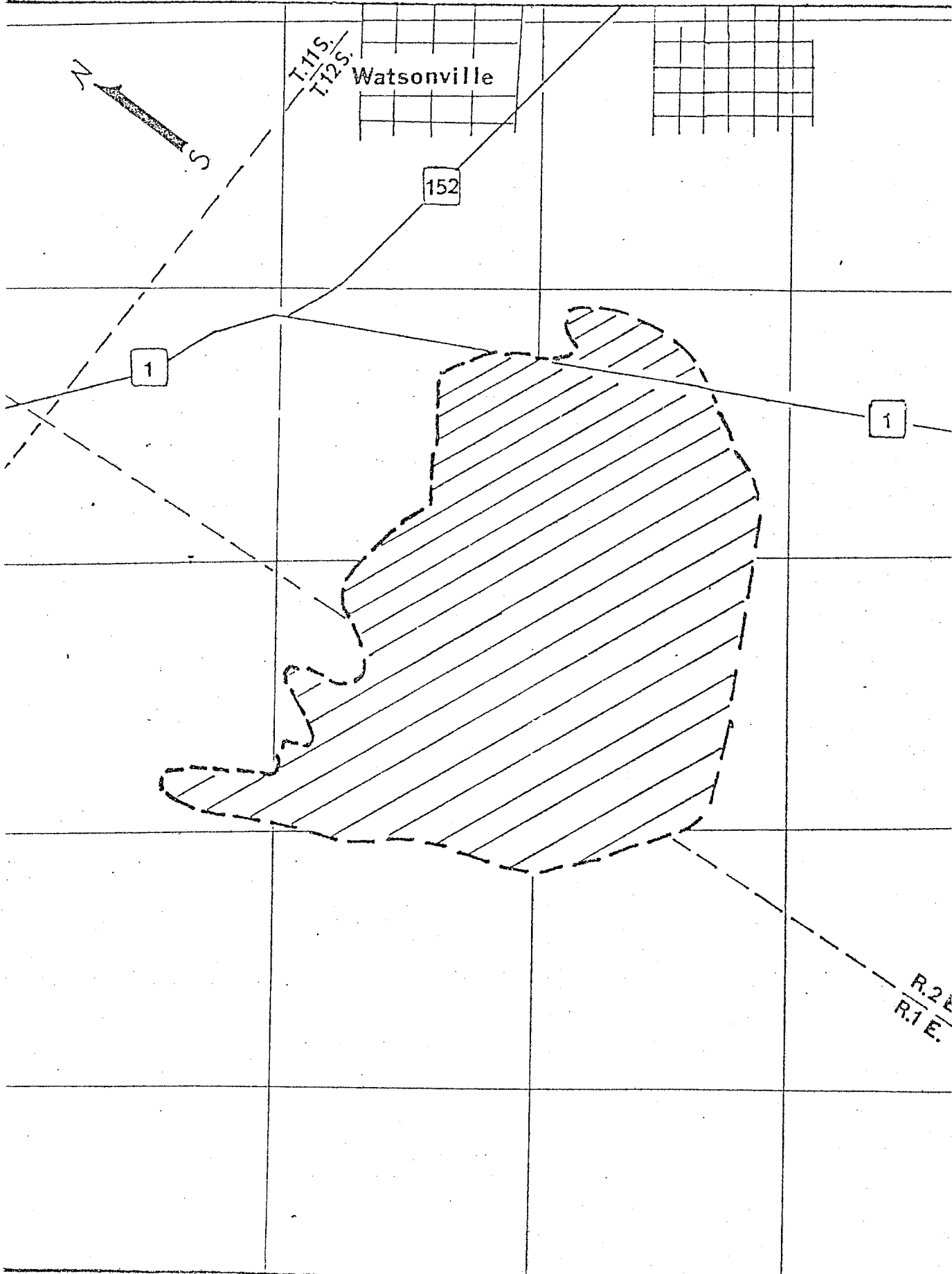
The Watsonville Slough habitats are variously protected in California. Riparian is noted to be very underprotected; oak woodland is degenerating through lack of regeneration; and freshwater wetland, while receiving considerable attention due to its waterfowl values, have considerably declined from their historical coverage. Additional biological information is available from the California Department of Fish and Game. The educational value of this site is relatively high due to its open nature and easy access to a large urban population.

The threat to this site is two-fold: continued reclamation for agriculture production, and the proposed annexation of this site to the city of Watsonville, thus increasing the probability of residential development. While it is not clear as to how imminent either of these threats are, the fact that the Santa Cruz County Resource Agency nominated the site demonstrates local concern for this ecosystem. It is recommended that this site be considered in its rank order for protection through this program.

Watsonville Slough

Santa Cruz Co., California

Scale. 1 : 24000



I. NAME: Valley Vernal Pools

TOTAL ACRES: 311

STATE: California

COUNTY: Placer

LEGAL DESCRIPTION: T. 11 N, R. 6 E., Sec. 4; T. 12 N., R. 6 E.
Sec. 33.

- II. Summary of Biological Values and Threat Factors: This site contains a rare and isolated group of vernal pools with an unusually diverse invertebrate fauna. Vernal pools, edaphically maintained wetland ecosystems are endemic to only South Africa and California. These particular vernal pools are the home of various rare annual plants (such as Downingia bella and Mimulus kelloggii) and presently unidentified Copepods. Two "species of concern" in California, Prairie Falcons and Merlins, are noted to regularly winter at these ephemeral pools.

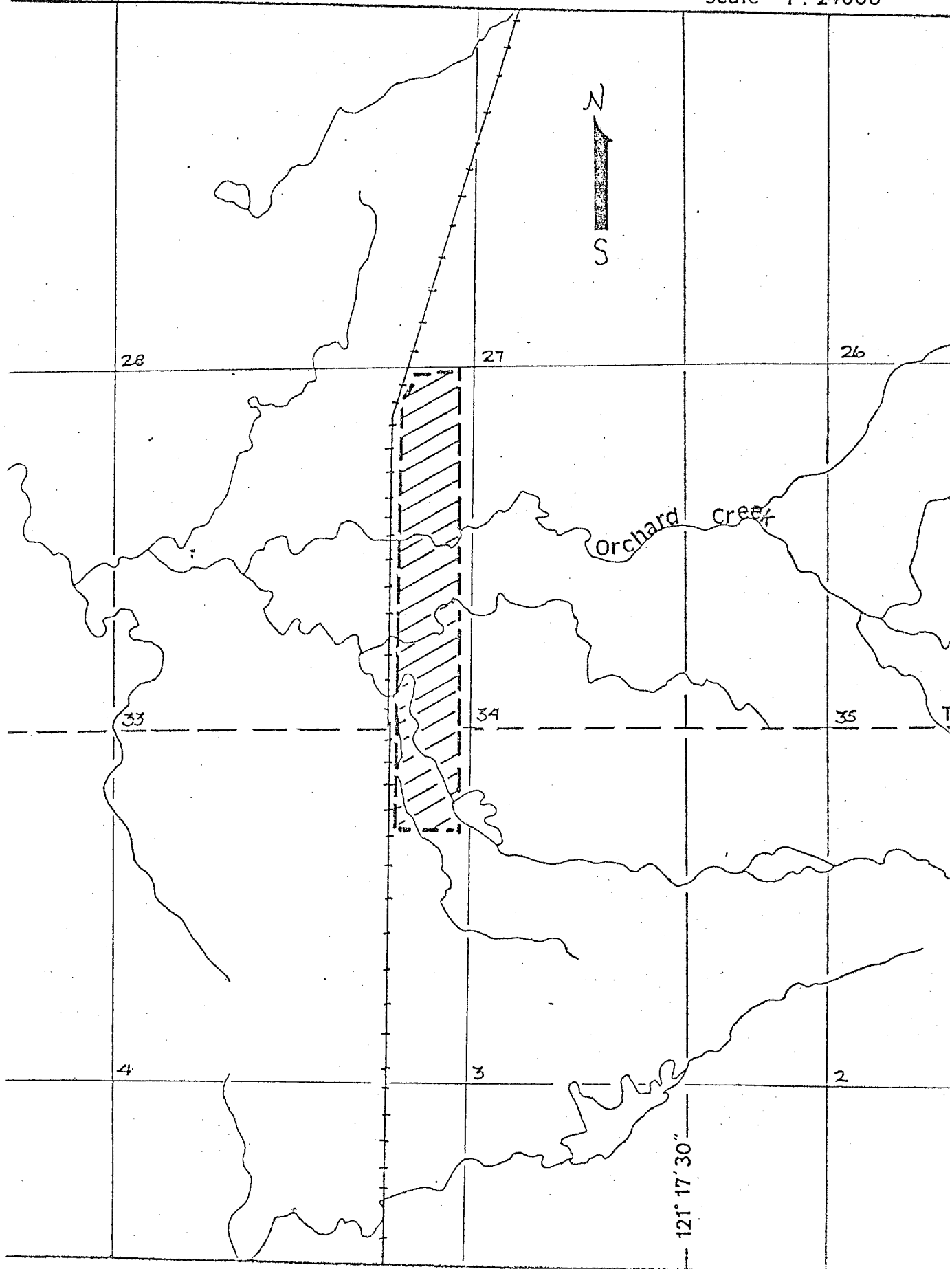
At present, only two vernal pools are protected in California. For further biological information, consult "Vernal Pools Symposium" prepared by the University of California at Davis, Institute of Ecology. Protection of this site is supported by the California Department Fish and Game and the California Academy of Sciences. These pools would make excellent living laboratories for botany classes.

These pools are imminently threatened by the construction of a factory on the site. Vernal pools are very sensitive to change in land use and this particular construction will permanently eliminate these isolated ecosystem. The corporation constructing the factory is known for their interest in open space, so it may be possible to have certain of these pools left in their present state. Otherwise immediate federal action is the only potential for halting the destruction of this ecosystem.

Valley Vernal Pools

Placer Co., California

Scale 1 : 24000



I. NAME: Las Tunas Grasslands

TOTAL ACRES: 12

STATE: California

COUNTY: Santa Barbara

LEGAL DESCRIPTION: assessors parcel #19-072-4 and 19-081-1,2.

II. Summary of Biological Values and Threat Factors: Las Tunas rep-

resents one of the best examples of native bunchgrass grassland remaining in California. Although surrounded by residential development, the site has maintained a 90% coverage of native grasses and annuals. Native grassland is noted as extirpated from 99.5% of its natural range in California. Due, however, to the seclusion of this site from other biotic sources, the vertebrate fauna is neither diverse nor abundant.

At this time, there are no good examples of native grassland preserved in California. This particular site is used extensively by botanists from nearby universities, providing a natural laboratory for study. Protection of this site is supported by a host of groups, including the Santa Barbara Botanical Garden and the California Native Plant Society. For further information on the biological and economic aspects of this site, see the "Draft Environmental Impact Report on Santiago Hills 8 Unit Planned Residential Development", prepared by Community Land Use Associates, Santa Barbara, California.

This parcel is the most immediately threatened of any candidate area surveyed; the owner plans to "turn dirt" at the time of this writing. There is a small possibility that a court action may block this development, but the outlook is bleak. Unless a government resource agency steps in immediately, native California grassland will be one step closer to extinction.

Las Tunas Grasslands

Santa Barbara Co., California

Scale 1 : 24000



I. NAME: Whitewater River Marsh

TOTAL ACRES: 150

STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T8S, R9E, Sec. 5,32,33.

II. Summary of Biological Values and Threat Factors: The Whitewater

River Marsh is an artificially maintained wetland ecosystem in the midst of the desert. It possesses an amazing diversity of bird life, including many "list of concern" and Federally Endangered species, such as Black Rail, Peregrine Falcon, Bald Eagle, Sandhill Crane and Cooper's Hawk. Also, an unusual assortment of vagrants have been observed here, including Wood Storks, Roseate Spoonbills and Blue-footed Boobies.

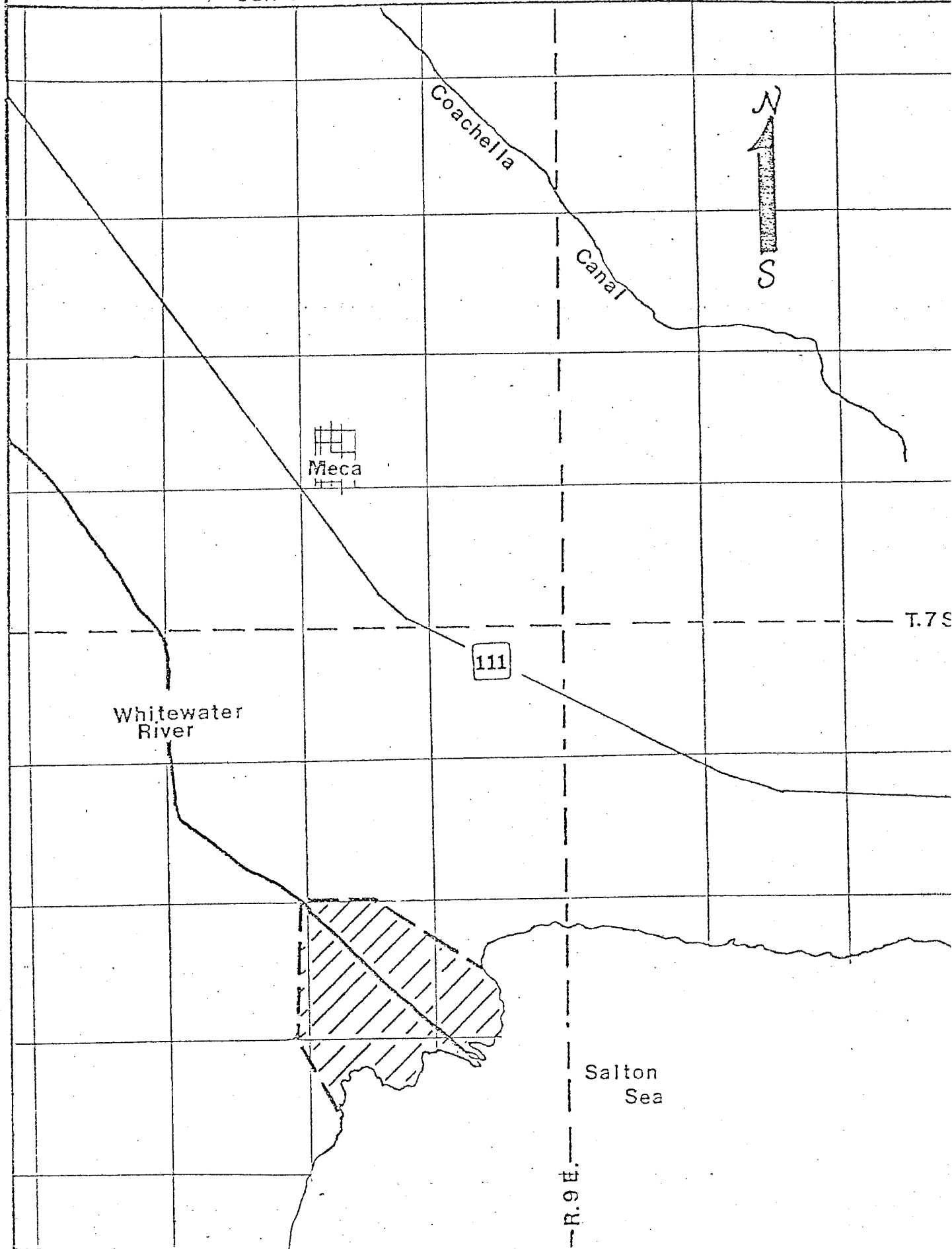
Desert oasis marshes are extremely rare and disparate in California. Only 2 or 3 are protected at this time. This site has very high educational value, even though it is remote, and is well known by noted ornithologists. Numerous groups, including the Los Angeles Audubon Chapter and United States Fish and Wildlife Service are supportive of the protection of this ecosystem. Bird lists are available from the Los Angeles Audubon Chapter.

The very imminent threat to this oasis results from the possible loss of its water to a local water district. No logical reason exists for removing this small amount of water. Ecological Services are currently negotiating with the water district. Due to the complexity of ownership (BIA, Coachella Valley Water District, private) outright acquisition is not recommended at this time. However, the United States Fish and Wildlife Service must strongly emphasize the importance of this key desert habitat to local regulatory agencies, and if the threat continues, stronger action is recommended.

Whitewater River

Riverside Co., California

Scale 1:62500



I. NAME: Kelso Creek

TOTAL ACRES: 700

STATE: California

COUNTY: Kern

LEGAL DESCRIPTION: T. 28 S., R. 35 E.

II. Summary of Biological Values and Threat Factors: Kelso Creek

represents an excellent example of relatively undisturbed high desert riparian habitat. Its location midway between the Great Basin and the Pacific flyway has created an interesting and diverse mix of birds. Among the California "list of concern" species known to nest at Kelso Creek are Cooper's Hawks, Screech Owls and Pygmy Owls. Migratory species include Yellow-billed Cuckoo, Flammulated Owl and Summer Tanager, all considered "species of concern" in California.

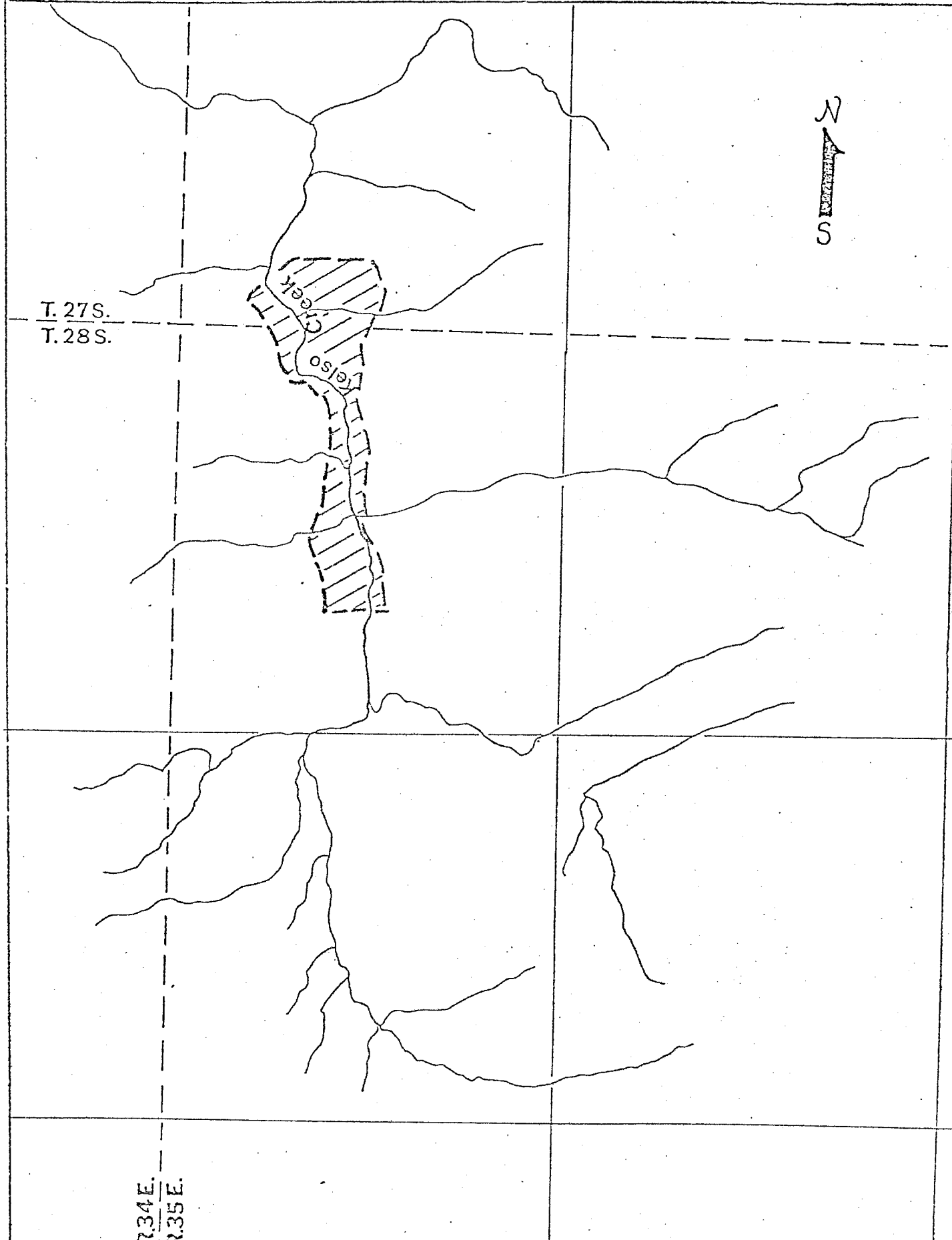
Riparian habitats are extremely threatened in California; presently less than 15% of the original habitat remains. At this time, less than 1,000 acres of this habitat type are protected. The protection of this particular site is supported by the Santa Monica Bay Audubon Chapter. Further biological data is available through that organization.

Kelso Creek is currently threatened by unsanctioned motorcycle races through the center of this fragile ecosystem. Besides habitat degradation, the noise of ORV's have been shown to be detrimental to sensitive bird species. It is recommended that this site be seriously considered for preservation after the nearby superior habitat of the South Fork of the Kern River is preserved. The protection of these 2 convergent riparian habitats would greatly assist in the maintenance of several threatened and potentially endangered avian species.

Kelso Creek

Kern Co., California

Scale 1 : 62500



I. NAME: Scorpion Rock

TOTAL ACRES: 1

STATE: California

COUNTY: Ventura

LEGAL DESCRIPTION: 119° 32'45 "W Long., 34° 02' 50"N Lat.

II. Summary of Biological Values and Threat Factors: Scorpion Rock

is an offshore island as yet unprotected. It is the nesting area for several pelagic bird species including Black Oystercatchers, Guillemots and Western Gulls. More importantly, it is one of the few remaining nesting colonies of the Federally Endangered California Brown Pelican. Vegetation and great faunal diversity are lacking at this important offshore bird.

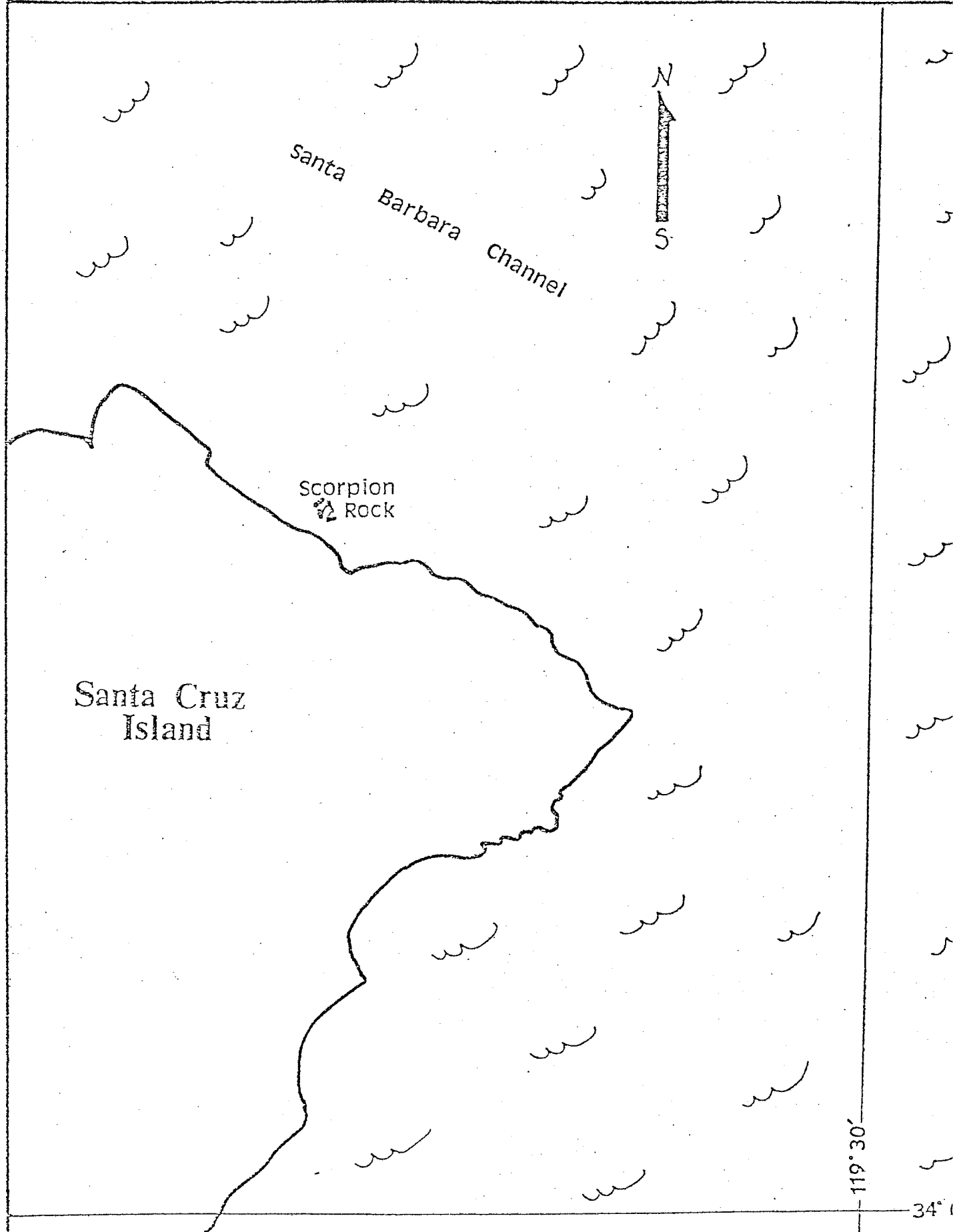
Many of California's offshore islands are protected or in the process of being protected. The recent protection of Santa Cruz Island by The Nature Conservancy is an example of the interest in The educational value of inaccessible offshore rock is low. The protection of this site is supported by the California Department of Fish and Game, the Nature Conservancy and the University of California at Davis.

The threat to Scorpion Rock comes from tourists and nearby curiosity seekers. While the affect on the habitat is not severe, the potential for disturbing or even eliminating one of the last Pelican rookeries is unsettling. The owner is noted to be a willing seller. It is recommended that even though this area did not score high in the point rating, that its availability, low price and importance should warrant acquisition.

Scorpion Rock

Santa Barbara Co., California

Scale 1:40000



I. NAME: Brea-Olinda

TOTAL ACRES: 1,100

STATE: California

COUNTY: Orange

LEGAL DESCRIPTION: T3S, Long. 117⁰ 50'

- II. Summary of Biological Values and Threat Factors: This site represents a good example of undisturbed oak woodland and chaparral. Chaparral habitat has been largely overlooked in preservation efforts due to its ubiquitous distribution. This site, very near the sprawling southern California urban complex, is noted for a high diversity of song birds and raptors, including the protected White-tailed Kite.

The area has very high educational value, given its proximity to both a large population and several major universities. The site has been nominated by Hills For Everyone, Brea, California and additional information on the site is available through that group.

The threat to this ecosystem is through residential development which is smothering all nearby native habitat. The city of Brea has been applying for Land and Water Conservation Fund money to develop this area into a regional wildlife park. It is recommended that the United States Fish and Wildlife Service actively support this means of protection for this ecosystem.

Brea-Olinda Wilderness

Orange Co., California

Scale 1:24000

San Bernardino Co.

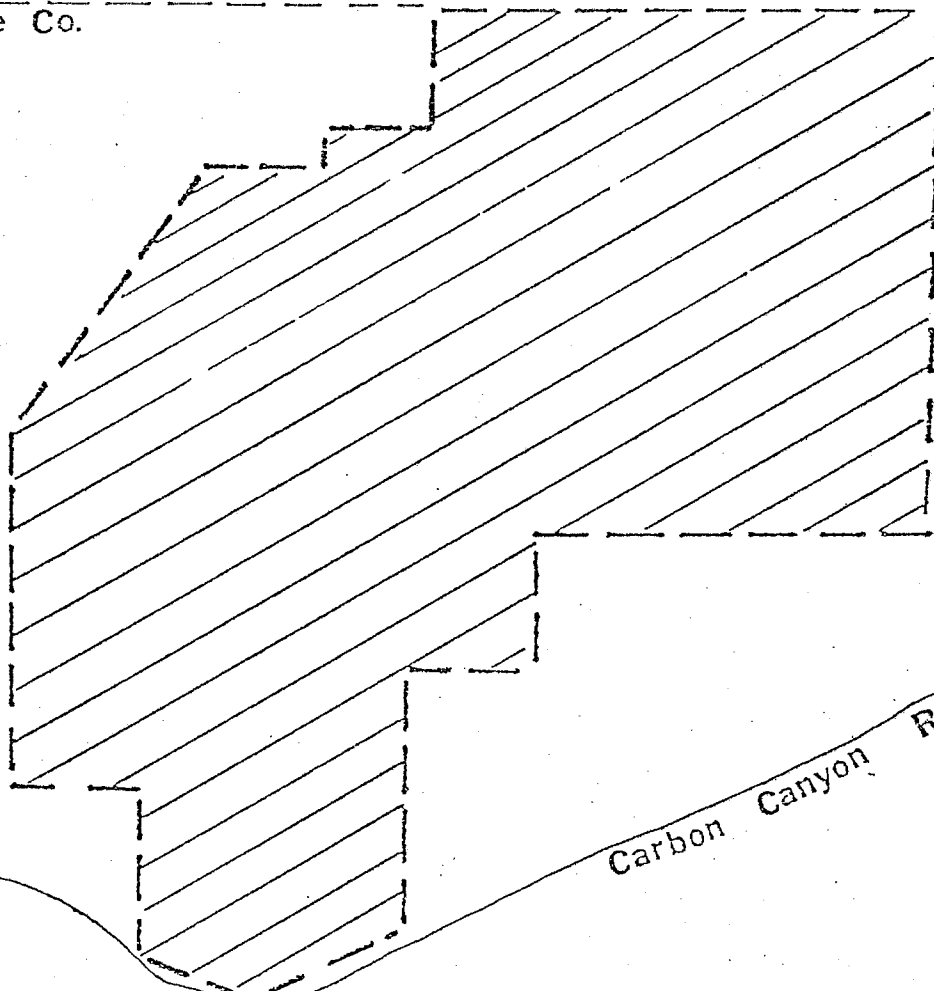


Los Angeles Co.
Orange Co.

T.2S.
T.3S.

117° 50'

Carbon Canyon Road



I. NAME: Santa Ana Foothills

TOTAL ACRES: 30,000

STATE: California

COUNTY: Orange

LEGAL DESCRIPTION: T. 4 S., R. 8 W.

- II. Summary of Biological Values and Threat Factors: This site represents a nearly pristine example of chaparral, grassland, riparian and coast live oak woodland habitats. The area has a particularly high density and diversity (14 species) of nesting raptors. Among these are California "list of concern" species such as Prairie Falcons and Cooper's Hawk. Also present are wilderness indicators such as mountain lion and badger.

Chaparral is a poorly protected, although still extensive, habitat type in California. The protection of this site is supported by the Sea and Sage Chapter of the Audubon Society. It has particularly high educational value due to its location near several major universities, a large urban population, and a presently protected parcel (Starr Ranch) which entertains educational groups. Further information is available through the Sea and Sage Audubon Chapter, Santa Ana, California.

The threat to this relict ecosystem seems imminent. The county is planning a road through the area in order to open the site up to housing. The occurrence of a pristine habitat so near the Orange County urban area is remarkable and deserves serious consideration for preservation.

Santa Ana Foothills

Orange Co., California

Scale 1:100000

San Bernardino Co.
Orange Co.

River

Cleveland Nat

Villa Park Res.

Santiago Res.

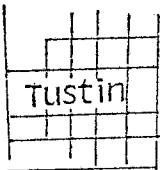
Tustin



91

55

5



I. NAME: McNamee's Cave

TOTAL ACRES: 3

STATE: California

COUNTY: Tuolumne

LEGAL DESCRIPTION: T3N, R14E, Sec. 34.

II. Summary of Biological Values and Threat Factors: McNamee's Cave

is one of a small number of closed ecosystems occurring in isolated sites in this general area. The cave is inhabited by the proposed Federally Endangered Melones Harvestman (Banksula melones). It is also the habitat of one of California's largest bat colonies.

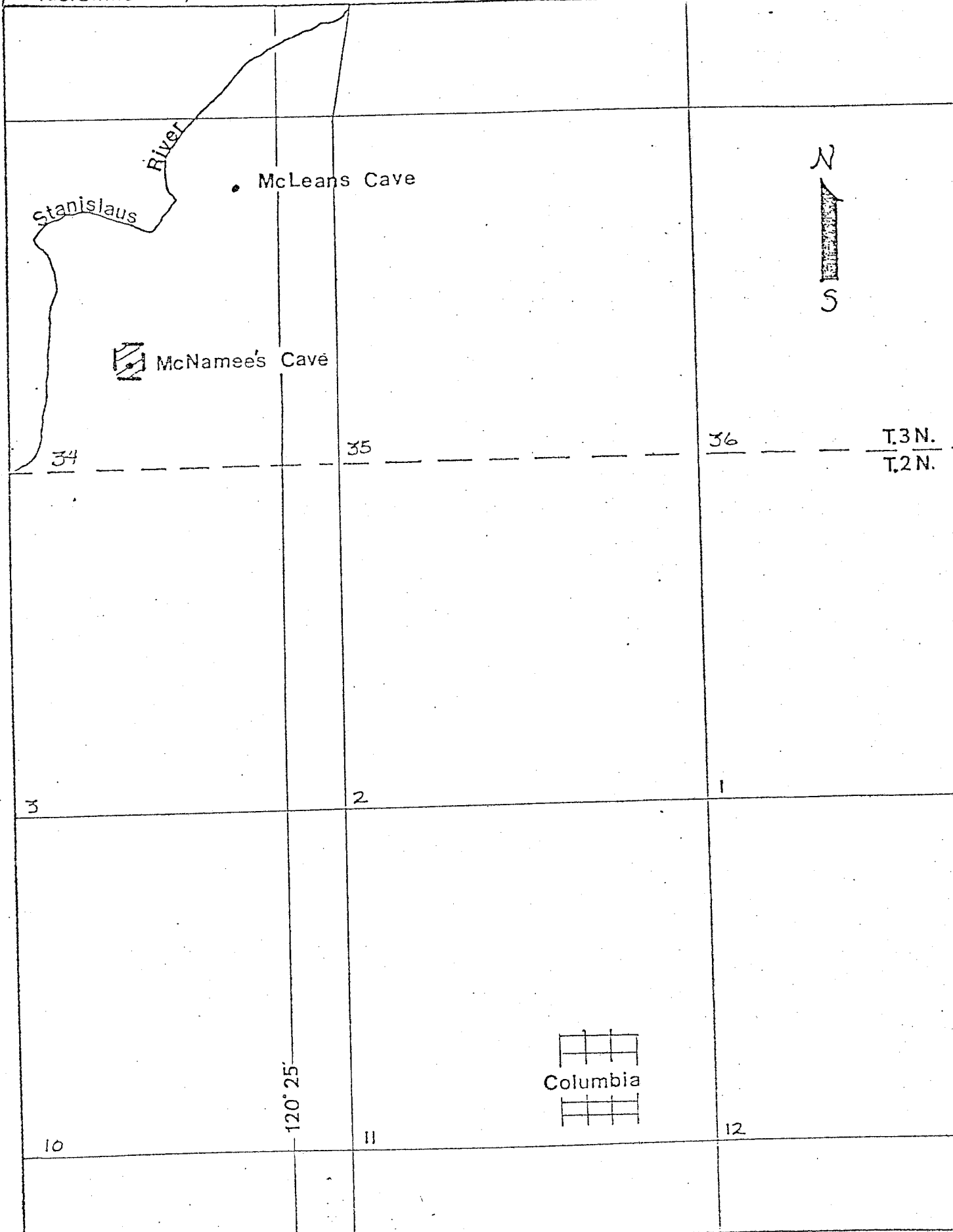
The site has been nominated by the National Speliological Society which considers McNamee's Cave to be perhaps the best candidate for preservation in California. It is presently unknown how many, if any, caves are protected for their biological values. For further information on the site, contact the National Speliological Society.

This limestone cave is owned by a mining company which is presently quarrying dolomite 500 feet from the cave entrance. It is unknown whether this cave is to be mined in the near future, but the distinct possibility exists. It is recommended that the immediacy of threat to this ecosystem be actively investigated and, if imminent, that this cave be acquired as a refuge.

McNamee's Cave

Tuolumne Co., California

Scale 1:24000



I. NAME: Rancho Dos Palmos

TOTAL ACRES: 1,371

STATE: California

COUNTY: Riverside

LEGAL DESCRIPTION: T. 8 S., R. 11 E., Sec. 3,4,9,10,14.

- II. Summary of Biological Values and Threat Factors: The Rancho Dos Palmos is an outstanding example of rare desert riparian habitat which supports a unique combination of wildlife and vegetation. The Mojave Chub, an endangered species, has been introduced into these springs. Also present is the rare Desert Pupfish. In addition, several "species of concern" in California are known to either nest or migrate through this area, including Least Bitterns, Golden Eagles, Prairie Falcons and Marsh Hawks. Also noted are 25 species of reptiles and amphibians.

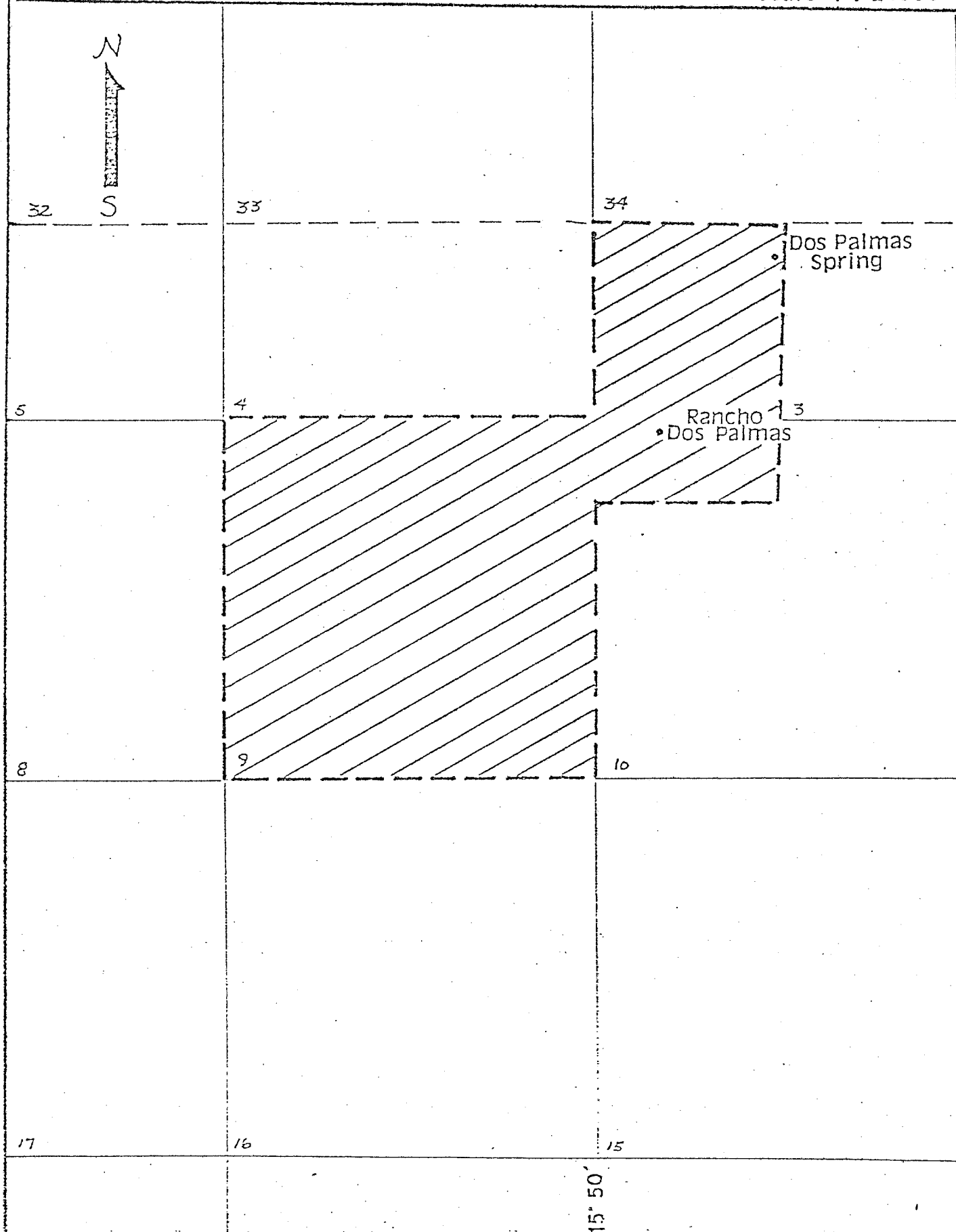
Desert springs are a nearly unprotected ecosystem type in California; only 2 sites are presently protected for their biological values. This ecosystem has fairly high educational values. The protection of this ecosystem is supported by the California Department of Fish and Game and the Bureau of Land Management. Further information is available through the Long Beach Office of the California Department of Fish and Game.

The threat factor is not imminent but will be in the future. The land is currently for sale to the highest bidder. Possible development here includes vacation resorts and cultivation through irrigation. It is recommended that this site be further investigated concerning its potential threat, and the threat to the Mojave Chub.

Rancho Dos Palmas

Riverside Co., California

Scale 1 : 24000



I. NAME: Fiscalini Ranch

TOTAL ACRES: 380

STATE: California

COUNTY: San Luis Obispo

LEGAL DESCRIPTION: T. 28 S., R. 8 E.

II. Summary of Biological Values and Threat Factors: The Fiscalini

Ranch represents the only remaining Monterey Pine, coastal grassland, rocky tidepool transect in California. The site is an oasis for native fauna and flora (being surrounded by development) and the Federally Endangered Sea Otter and Brown Pelican feed immediately offshore. Monterey Pine, the dominant tree, is found at only 2 other native locations in California.

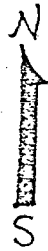
The protection of the ecosystem is supported by The Nature Conservancy, the California Coastal Commission, the California Natural Areas Coordinating Council and the California Coastal Conservancy. The site has local value for environmental education activities.

The property is presently slated for residential development. The Nature Conservancy reports that while the owners are receptive to the idea of acquisition for preservation, financial obligations require that they sell to the highest bidder. If preservation does not proceed immediately, this last remaining Monterey Pine ecosystem will be lost.

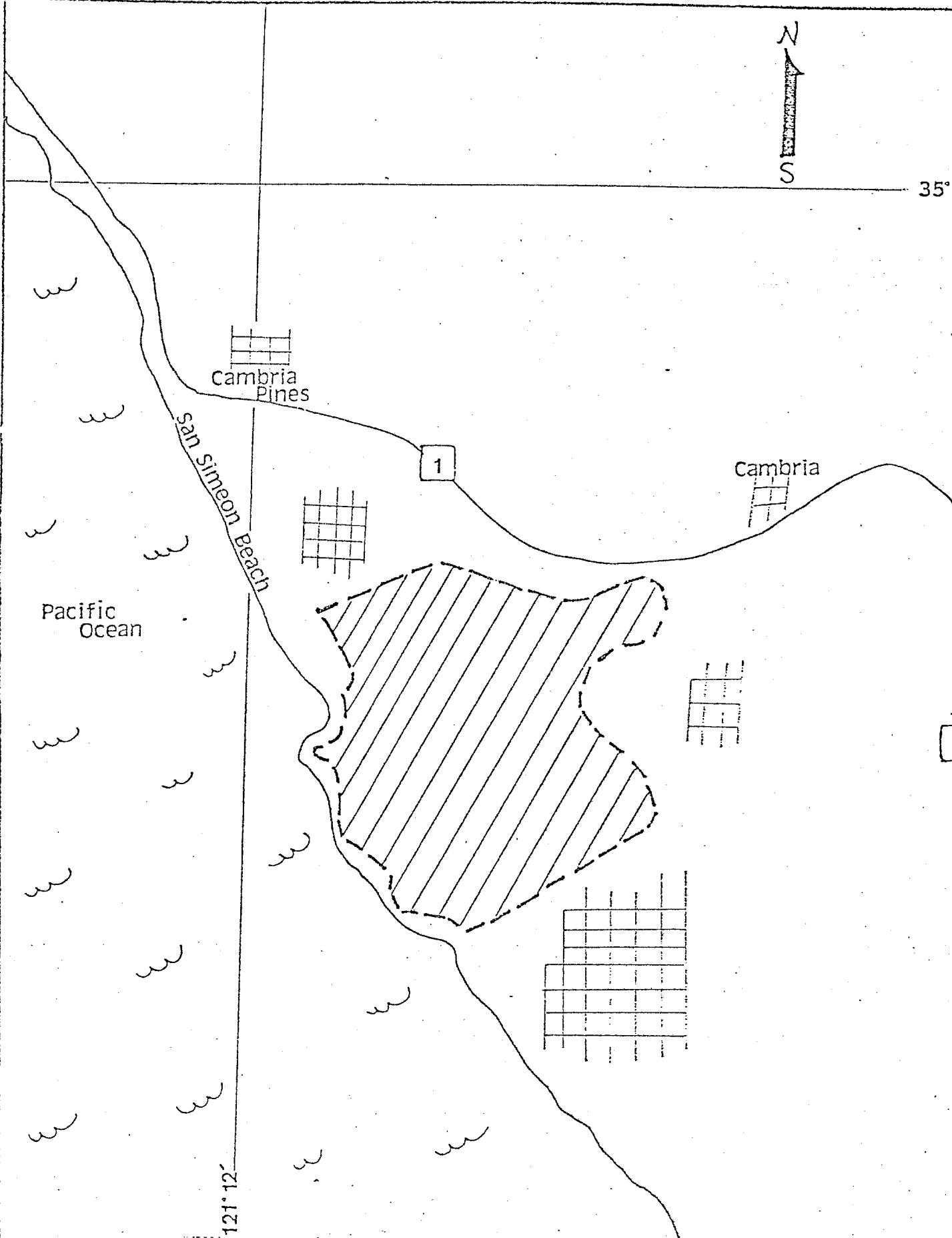
Fiscalini Property

San Luis Obispo Co., California

Scale 1:24000



35°



I. NAME: Pine Creek

TOTAL ACRES: 6,000

STATE: California

COUNTY: San Diego

LEGAL DESCRIPTION: T15,16,17S; R3,4,5E.

II. Summary of Biological Values and Threat Factors: Pine Creek is an undisturbed freshwater coastal stream within a National Forest. The corridor is known for its high abundance and diversity of native fauna. This includes approximately 116 species of birds, 3 species of fish, 61 species of mammals and 50 species of reptiles and amphibians. While none of the resident species are on the Federal Endangered list, several are on the California "list of concern". For example, this stretch of river contains possibly the only population of Armoured Threespine Stickleback in San Diego County. The creek area is also the habitat of several birds of concern, including Osprey, Marsh Hawks, Golden Eagles and Long-eared Owls. The habitat varies from coastal scrub to riparian vegetation.

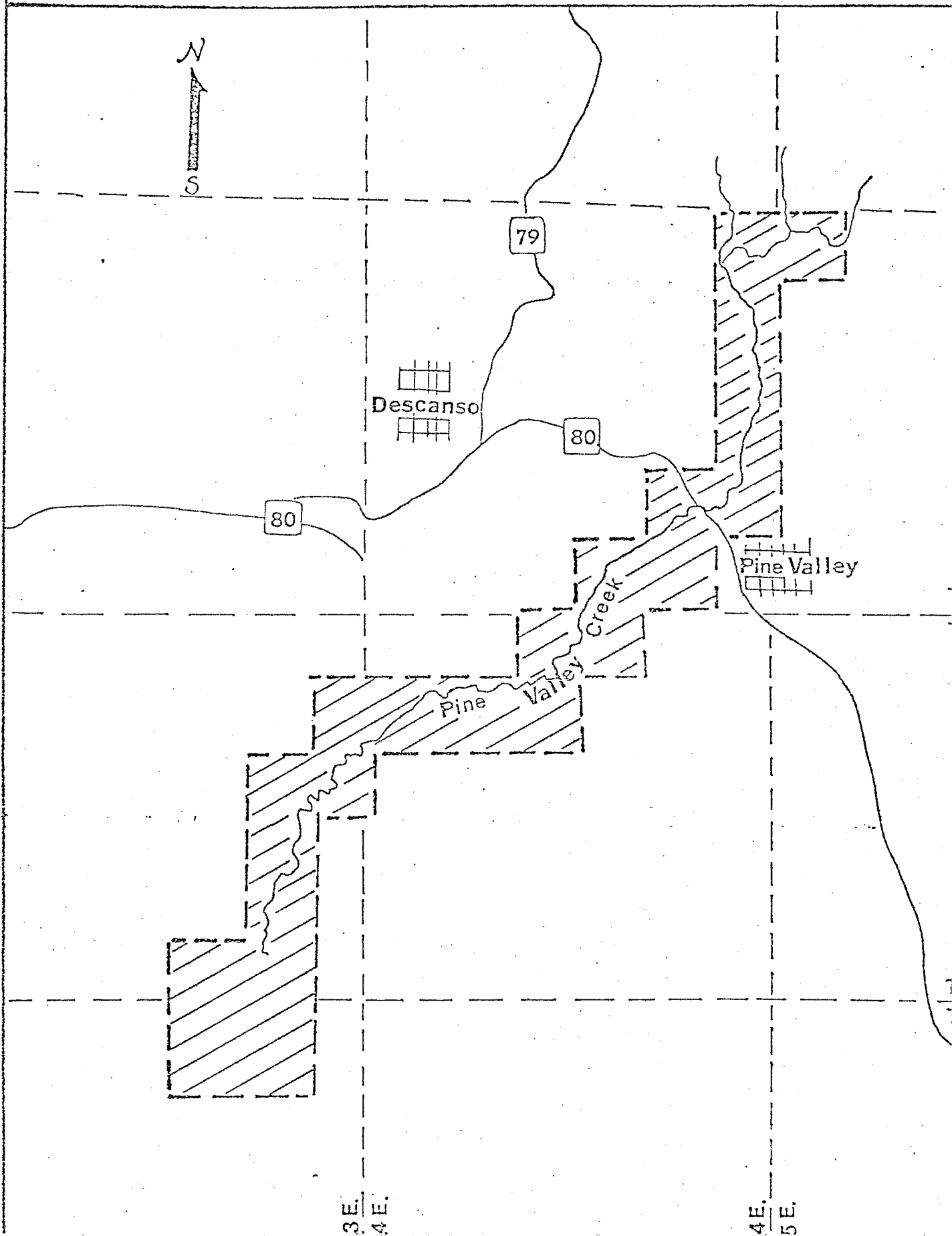
This habitat type is relatively unprotected, although not yet severely threatened. The site was identified and inventoried by the California Department Fish and Game. The relative seclusion of this site precludes heavy use for environmental education.

This ecosystem is divided between Federal and private ownership. The present threat is from grazing and subsequent erosion. Also, there is increasing development pressure on the private lands. Some form of preservation effort will be necessary in this area to insure the continuance of this unique biotic assemblage.

Pine Creek

San Diego Co., California

Scale 1 : 125000



I. NAME: Kite Hill

TOTAL ACRES: 20

STATE: California

COUNTY: San Mateo

LEGAL DESCRIPTION: T6S, R4W.

- II. Summary of Biological Values and Threat Factors: This site represents one of the few remaining examples of serpentine grasslands with a host of endemic plants (19). Three of these plants are listed as rare or endangered on the Smithsonian list, including Marin Dwarf Flax, Bitterroot and Bowl Clover. This parcel is also inhabited by the rare Checkerspot Butterfly.

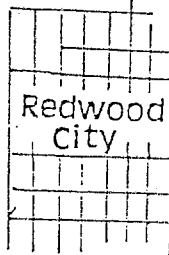
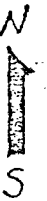
The protection of this site is supported by several groups, including the Serpentine Protection League and the California Native Plant Society. Environmental education potential is quite high due to nearby urban population and major universities. For further information, consult the Environmental Impact Report on the area prepared by Donald E. Wolfe and Associates, Belmont, California. Serpentine is an unusual geologic information, noted for its geographic disparity and high degree of floral endemism. It represents a poorly protected habitat type in California.

This serpentine site is threatened by a planned residential development. It is suggested that the developers may leave this site as open space if the surrounding area were allowed to be developed. Considering the non-defensibility of an urban 20 acre ecosystem, it is recommended that the protection of this ecosystem be left to local planning regulation.

Kite Hill

San Mateo Co., California

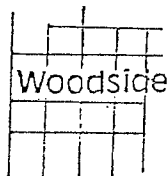
Scale 1:24000



Redwood
City

T.5
T.6

Woodside
Glens



Woodside

Junipero
Serra
Freeway

4W.
3W.

I. NAME: Fish Slough

TOTAL ACRES: 200

STATE: California

COUNTY: Mono

LEGAL DESCRIPTION: T5S, R32E, Sec. 23,25,26.

II. Summary of the Biological Values and Threat Factors: Fish Slough

is a private inholding adjoining the Owens Valley Native Fish Sanctuary.

This desert oasis, home of the federally endangered Owens Pupfish

(Cyprinodon radiosus) is completely protected except for this small

tract of private inholding. The habitat consists of sedges and

grasses with a few scattered trees. Bird and mammal data is largely lacking.

Support for the protection of this ecosystem has been voiced by the

Desert Fishes Council, the California Department Fish and Game and

the University of California Land and Water Reserves System. For

further information on the endangered pupfish see: Pister, Phil.

1974. "Desert Fishes and Their Habitats." Trans. American Fish Soc.

103: 531-40.

The threats to this ecosystem are manifold but not imminent. Ground

water pumping, introduction of exotic fishes and accidental dis-

charge of pollutants into the water source are all potential hazards

as long as this key habitat is privately owned. Although this site

did not rank particularly high, it is recommended that the United

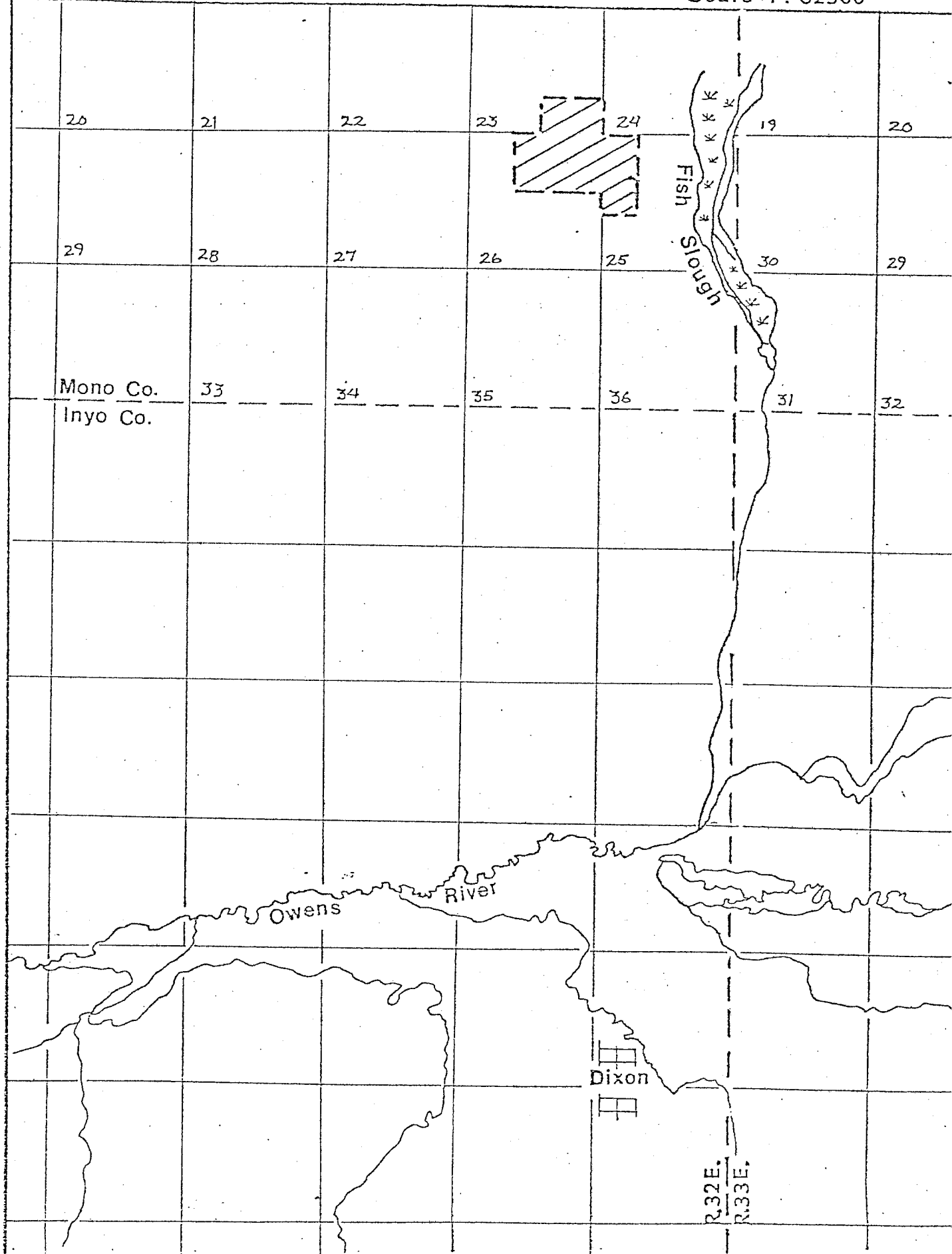
States Fish and Wildlife Service seriously consider "rounding out"

this sensitive ecosystem.

Fish Slough

Inyo & Mono Counties, California

Scale 1: 62500



I. NAME: Sierra Valley Marsh

TOTAL ACRES: 1,600

STATE: California

COUNTY: Plumas

LEGAL DESCRIPTION: T22N, R14E.

- II. Summary of Biological Values and Threat Factors: The Sierra Valley Marsh is an isolated wetland sustained by both snow melt runoff and artesian wells. Both southern Bald Eagles and Peregrine Falcons are noted to migrate through the marsh. The diversity of biota includes over 100 species of birds, 12 species of mammals and 8 species of fish. Several California "list of concern" birds are recorded at the marsh including breeding Sandhill Cranes, feeding White-faced Ibis, Golden Eagles and White Pelicans.

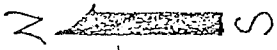
Freshwater wetland is dwindling in acreage, although there are several programs addressing the protection of this resource type, i.e. Migratory Bird Program. This site has a broad base of support, including the California Department of Fish and Game, San Francisco State University and the United States Fish and Wildlife Service, Sacramento Ecological Services. The site is presently used as a field station for natural history classes through San Francisco State University; it thus possesses very high educational potential. For a complete biological survey, consult: "A Biological Baseline Study of the Sierra Valley Marsh, California," 1976, prepared by the Department of Biology, San Francisco State University.

The threat to Sierra Marsh is a result overgrazing and possible development into second homes or a vacation resort. It's difficult to estimate when the development threat will be critical; it is therefore recommended that this marsh be seriously looked at for either federal acquisition or conservation easement to protect this important ecosystem.

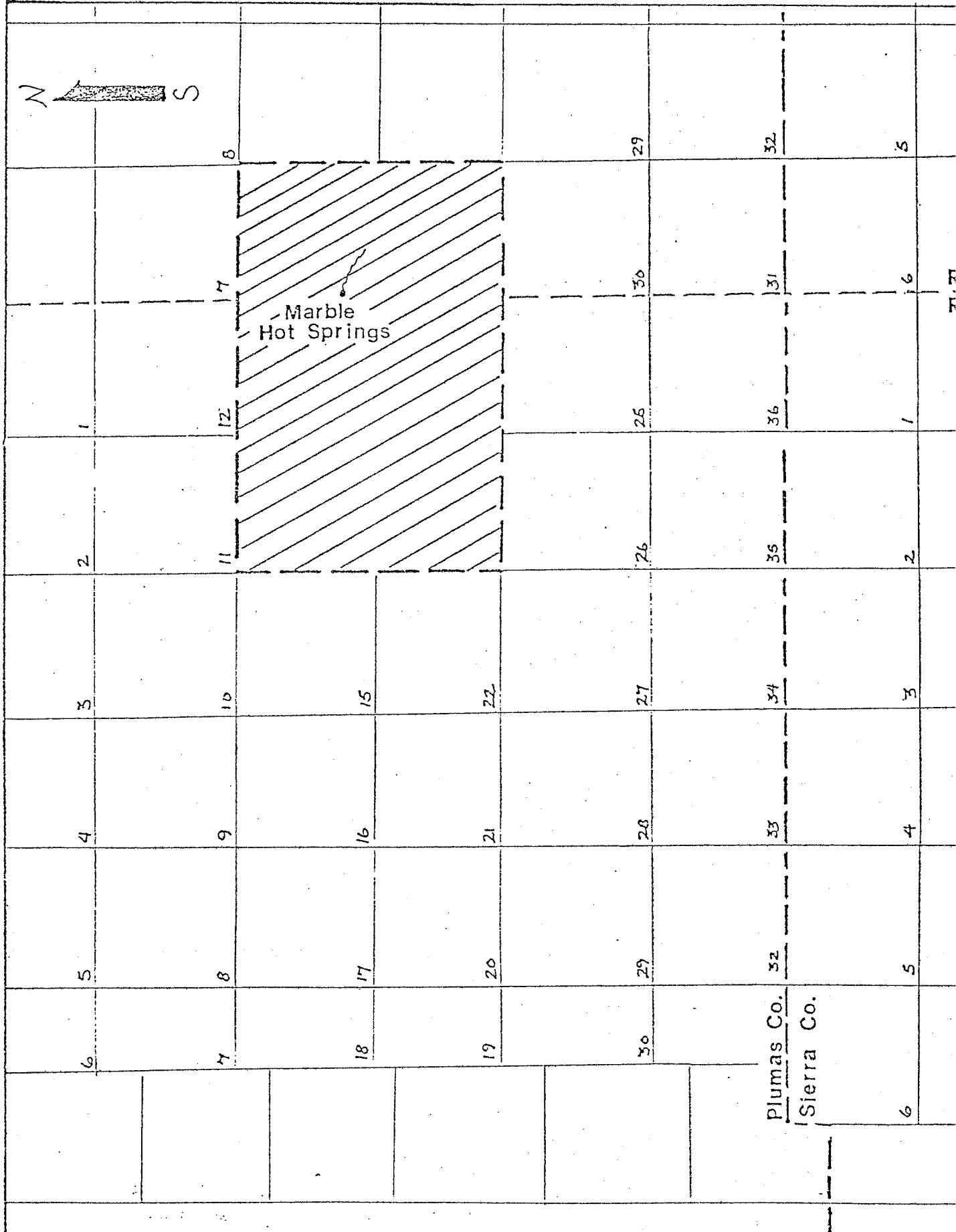
Sierra Valley Marsh

Plumas Co., California

Scale 1:62500



Marble
Hot Springs



Plumas Co.

Sierra Co.

6

I. NAME: Humboldt Lagoons

TOTAL ACRES: 4,221

STATE: California

COUNTY: Humboldt

LEGAL DESCRIPTION: T9, 10, 11N, R1E.

- II. Summary of Biological Values and Threat Factors: The lagoon and marsh areas provide habitat for an abundance of fish and wildlife. Wildlife values, while poorly inventoried, include such species as Steelhead Trout, Roosevelt Elk and Black Brandt. While much of the vegetation is in alder associations, there are some stands of old growth Redwood forest. This area adjoins a state park.

This site has been nominated by the Save-the-Redwoods League. For more comprehensive information, consult "Humboldt Lagoons State Park Project", available through the Save-the-Redwoods League, San Francisco, California.

The threat to this site is through logging of the old growth Redwoods within the potential preserve. Also, development pressure is apparently mounting. Old growth Redwoods are certainly worth preservation; however, considering the greater threat to other California habitats and their lack of protection relative to Redwood habitat, it is recommended that preservation efforts through this program be directed toward other less represented habitat types.

Humboldt Lagoon

Humboldt Co., California

Scale 1:24000

Orick

N
↑
S

Pacific Ocean

Stone Lagoon

101

Big Lagoon

Big Lagoon

W
E

16

15

14

21

22

23

28

27

26

33

34

35

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T.10
T.9 N

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23

LEVEL III SITES

Afton Canyon

The Mojave River surfaces in Afton Canyon and provides an oasis in this desert environ of Riverside County. While Bighorn Sheep are noted to use the site, other wildlife information is lacking. Additional information will undoubtedly increase the ranking of this ecosystem.

Anza-Borrega Desert

This site represents the private inholdings within the Anza-Borrega Desert State Park in San Diego County. The entire area is protected for the estimated 450 Peninsular Bighorn Sheep. Also present are many proposed endangered plants. This nomination was submitted late; the protection of this site will be more seriously considered in the next Concept Plan.

Blue Mountain Preserve

This site, located in Los Angeles County, represents a relatively undisturbed example of oak woodland-chaparral habitats. The wildlife are those typical to these environs. The site is apparently under extreme threat; it is thus recommended that local planning agencies be made aware of the site's habitat value.

Coachella Valley

This isolated dune ecosystem in Riverside County is inhabited by 2 proposed Federally Endangered species: the Coachella Valley Fringe-toed Lizard (*Uma inornata*) and the Flat-tailed Horned Lizard (*Phrynosoma m'callii*). The site was submitted after the deadline for submissions, but will be more seriously considered for the next Concept Plan. Preliminary information indicates that the site is a very good candidate for long term protection.

Cowhead Lake Slough

This isolated slough in Modoc County is the habitat of an endemic Tui Chub (*Gila bicolor* sp) as well as several other native fishes. The habitat is largely wetland and the threat is from potential dredging or river diversion. Additional information is necessary for a better evaluation of this site.

Deer Creek

This riparian habitat occurs on a tributary to the Sacramento River in Tehama County. Bald eagles have been noted, and the fish population, including Chimook Salmon, are largely native. This site is also of high cultural value as the home of Ishi, California's last "wild" Indian. It is anticipated that this site will elevate in rank as more detailed information is submitted.

Dr. Davies Ranch

This is a small (52 acres) parcel of oak bottomland habitat in Fresno County. The site is noted to have a high density of nesting wood ducks, although detailed biological information is lacking.

El Segundo Dunes

These dunes are a remnant of the once extensive El Segundo Dunes in Los Angeles County. These 245 acres are perhaps the only remaining habitat of the Federally Endangered El Segundo Blue Butterfly (Shijimiaeioide buttoides allyni). Negotiations to protect part of this habitat are under way with the owners: Los Angeles International Airport and Chevron, U.S.A., Inc.

Farm Hill

This site represents an example of California Serpentine Grassland with several rare plant species, including: Hesperolinon congestum, Fritillaria liliacea and Lewisia redivivia. The combination of late submission and lack of vertebrate data have kept the site from serious consideration under this program. The site should be "red-flagged" for local planning agency scrutiny and reevaluated for the Unique Ecosystems Program as more detailed information is supplied.

Garner Valley

This upland-pine grassland habitat in Riverside County is inhabited by several Federally Endangered Species, including Bald Eagles, Peregrine Falcons and several rare plants. Due to lack of specific vertebrate information, and the great size of this nomination (7,000 acres+), serious consideration for the protection of this apparently valuable ecosystem was delayed until the next Concept Plan. Local planning agencies should seriously consider the high biological value of this site.

Goose Lake

Goose Lake is the habitat of an endemic fish, the Goose Lake Sucker, and plays last to thousands of wintering waterfowl. The site of this nomination (194 sq. mi.) must be reduced to a more workable unit for serious consideration under this program.

Gorman Hills

This site in Kern County is one of the few remaining San Joaquin Valley Wildflower areas. No endangered plants or animals are noted of the site, although the native wildflower habitat is disappearing. The site seems of local value and should be considered for its habitat value by local planning agencies.

Liskey Estate

This pine-oak woodland in Siskiyou County is noted for its density of game species. The owners are amenable to sale of the land to a resource agency so that the wildlife might be protected. Lack of detailed biological information has precluded serious consideration of this nomination.

Pit River Canyon

This 26 mile stretch of the Pit River in Modoc County is inhabited by the State listed "rare" Modoc Sucker. The site is potentially threatened by the proposed Allen Camp Dam. This site will be more seriously considered when more detailed information on the other wildlife components are submitted. For the present, the Corps of Engineers should be made aware of the presence of this rare fish.

Rubber Boa Habitat

This vast tract of mostly public land in Riverside County is the habitat of the state listed "rare" Southern Rubber Boa. While the wildlife list for the area is impressive, the inclusion of both state and federal lands will require reevaluation of this nomination for nodes of wildlife. The area should be "red-flagged" by this program until a more realistic nomination can be submitted.

San Luis Island Grassland

This native grassland and riparian habitat in Merced County is noted as one of the two best examples of Stipa grassland remaining in California. It is also the historic habitat of the San Joaquin Kit Fox. Only late submission has kept this threatened site from high ranking in the state. Hopefully, the California Department of Parks and Recreation will acquire and protect this site before further federal action is necessary.

Santa Rosa Mountains

This large area in Riverside County is inhabited by the Peninsula Bighorn Sheep and the Desert Slender Salamander, both state listed species. The nomination covered a very expansive area and will have to be reduced in size for serious consideration by this program.

San Sebastian Marsh

This desert marsh in Imperial County is inhabited by the Federally Endangered Bald Eagle and Peregrine Falcon, and the springs are noted to contain a population of Desert Pupfish. Desert wetland habitats are extremely rare. It is anticipated that this ecosystem will rank considerably higher when more biological data is submitted. For the present, the site should be completely protected by whatever local means are available.

Upper Sacramento River

This general nomination of the important riparian habitats along the Sacramento River has led to the identification of several "critical areas" which are presently being evaluated.

Upper Santa Clara River

This site in Los Angeles County is the home of the state listed "threatened" Unarmoured Threespine Stickleback. The habitat is southern riparian and chaparral. It is anticipated that with more detailed biological information, this site will be ranked higher for the next Concept Plan. Local planning agencies should be made aware of the presence of the endangered fish at this site until further protection efforts can be made.

Volcan Mountain

This site is in San Diego County and runs the gamut from southern oak woodland to chaparral to riparian habitats. The site is noted for the presence of rare Spotted Owls. More biological information is necessary for an accurate evaluation of the site. It should not, however, be impacted by any means until the biological values are assessed.

Willow Lake

This site represents an example of an alpine bog within a coniferous montane habitat. Species present include Martin and Pileated Woodpeckers. Both a more detailed species list and a complete evaluation of the threats and ownership will be necessary before this nomination can be seriously considered. For the present, the U.S. Forest Service and the State Board of Forestry should be made aware of the presence of this bog ecosystem.

APPENDIX I

Contributing Resource Agencies and Conservation Groups: California

1. Name: Afton Canyon
Nominated by: Frank Hoover
Representing: California Department of Fish and Game.
Other interested groups: United States Bureau of Land Management.
2. Name: Big River Corridor
Nominated by: Robert & Theresa Sholars and Jim McMillan
Representing: College of Redwoods and the Institute for Tidal Studies.
3. Name: Blue Mountain Preserve
Nominated by: Gilbert M. Dominguez, Ed.D.
Representing: Mount San Antonio College
Other interested groups: Los Angeles County Plannin Commission,
and Friends of Buzzard's Peak/San Jose Hills.
4. Name: Bolsa-Chica Marsh and Uplands
Nominated by: Peter Green, Ph.D.
Representing: Golden West College
Other interested groups: The State of California Resources Agency
and Amigos de Bolsa-Chica.
5. Name: Brea-Olinda
Nominated by: David Meyers
Representing: Hills For Everyone.
6. Name: China Ranch
Nominated by: Edwin P. Pister
Representing: Department of Fish and Game
Other interested groups: Sierra Club, Desert Fishes Council, Department
of Fish and Game and the Audubon Society.
7. Name: Coachella Valley
Nominated by: Wilbur W. Mayhem
Representing: Department of Biology, University of California
Other interested groups: California Department of Fish and Game,
Nature Conservancy and Desert Protective Council.
8. Name: Cowhead Lake Slough
Nominated by: Peter B. Moyle
Representing: Department of Wildlife and Fisheries Biology
Other interested groups: California Natural Areas Coordinating Council
and University of California at Davis.

9. Name: Cuckoo Island
 Nominated by: Charles Brown, Tom Stone and Bob Voeks.
 Representing: California Department of Fish and Game and United States Fish and Wildlife Service.
 Other interested groups: California Fish and Game, Audubon Society and the Nature Conservancy.
10. Name: Deer Creek (Ishi)
 Nominated by: Peter B. Moyle
 Representing: University of California of Davis
 Other interested groups: California Natural Areas Coordinating Council and United States Forest Service.
11. Name: Dozier Grasslands and Vernal Pools
 Nominated by: Bob Voeks
 Representing: United States Fish and Wildlife Service
 Other interested groups: California State Parks and California Native Plant Society.
12. Name: El Segundo Dunes
 Nominated by: Richard A. Arnold
 Representing: University of California
 Other interested groups: Los Angeles Co. Museum of Natural History Xerces Society, California Coastal Commission and California Department of Fish and Game.
13. Name: Dr. Davis Ranch
 Nominated by: L.E. Hair
 Representing: Reedley College
14. Name: Emeryville Crescent
 Nominated by: Stephen F. Bailey and Shirely A. Taylor
 Representing: Golden Gate Audubon Society.
 Others interested groups: The National Audubon Society; the San Francisco Bay Chapter Sierra Club Conservation and Wildlife Committees; University of California, Berkeley, Department of Zoology; and the Museum of Vertebrate Zoology; the Bay Conservation and Development Commission; International Bird Rescue; the Nature Conservancy Citizens for Urban Wilderness Areas; the Endangered Species Committee of California; the National Wildlife Federation; the Fund for Animals and the California Natural Resources Federation.
15. Name: Garner Valley
 Nominated by: B.R. Burrage
 Representing: College of Desert
16. Name: Fiscalini Property
 Nominated by: Steve McCormick
 Representing: The Nature Conservancy
 Other interested groups: Audubon Society, California Coastal Commission and California Coastal Conservancy.

17. Name: Gorman Post Hills Road
Nominated by: Ray E. Williams
Representing: Rio Honda College
Other interested groups: California Native Plant Society
18. Name: Goose Lake
Nominated by: Peter B. Moyle
Representing: Department of Wildlife and Fisheries Bioogy
Other interested groups: California Natural Areas Coordinating Council
19. Name: Humboldt Lagoons
Nominated by: John B. Dewitt
Representing: Save-the-Redwoods League
20. Name: Las Tunas Grassland
Nominated by: Owen Eugene Dell
Representing: California Native Plant Society
Other interested groups: Santa Barbara Botanic Garden, Santa Barbara City College, Assemblyman Gary Hart, Committee for Preservation of Santa Barbara Grassland, Santa Barbara Museum National History, California Native Plant Society, Parks Commission of Santa Barbara and Historical Society.
21. Name: Liskey Estate
Nominated by: Garrison Mitchell
Representing: An heir to the Liskey Estate
22. Name: Meadow Creek
Nominated by: Lisa Paradise
Representing: Planner, City of Grover City
Other interested groups: California Department of Fish and Game.
23. Name: McNamee's Cave
Nominated by: James Fiack, Conservation Chairman
Representing: Western Region, National Speleological Society.
24. Name: Nipomo Dunes and Wetlands
Nominated by: Michael R. Miller and H.W. Meyer
Representing: United States Fish and Wildlife Service and Morro Coast Audubon Society.
Other interested groups: Sierra Club.
25. Name: Watsonville Slough
Nominated by: James R. Marston and Ron Johansen
Representing: Santa Cruz Fish and Game Advisory Commission
Other interested groups: Nature Conservancy, California Department of Fish and Game, California Natural Areas Coordinating Council, Santa Cruz County and Land Trust of Santa Cruz.
26. Name: Pine Creek
Nominated by: Lawrence J. Bott
Representing: California Department of Fish and Game.

27. Name: Pit River Canyon
Nominated by: Peter B. Moyle
Representing: Department of Wildlife and Fisheries Biology
Other interested groups: California Natural Areas Coordinating Council.
28. Name: Putah Creek
Nominated by: Barbara Hill, Sally Jue and Jan White.
Representing: University of California Davis Committee of the University of California Natural Land and Water Reserve System.
Other interested groups: Davis Audubon Society, Napa-Solano Audubon Society, Riverlands Council, Natural Areas Consortium and California Natural Areas Coordinating Council.
29. Name: Ranchos Dos Palmos
Nominated by: James A. St. Amant
Representing: California Department of Fish and Game
Other interested groups: Bureau of Land Management
30. Name: San Bruno Mountain
Nominated by: Richard A. Arnold
Representing: University of California, Berkeley
Other interested groups: Sierra Club, The Nature Conservancy, California Department of Fish and Game, California Native Plant Society, Xerces Society and California Coastal Commission.
31. Name: San Luis Island
Nominated by: W. James Barry
Representing: California Department of Parks and Recreation.
Other interested groups: Committee for the Preservation of the Tule E Environmental Center of San Luis Obispo County, National Audubon Society, Sierra Club, Desomount Club, Committee to Preserve the Ecology of Inyo and Mono, Californians for Parks, Beaches and Wildlife, California Wildlife Trust, Help the Tule Elk, Las Trampas Wilderness Committee, Committee to Save Elysian Park Delta Advisory Planning Council, California Native Plant Society.
32. Name: San Joaquin River
Nominated by: Michael R. Miller
Representing: United States Fish and Wildlife Service
Other interested groups: California Department of Fish and Game.
33. Name: San Sebastian Marsh
Nominated by: Glenn Black
Representing: California Department of Fish and Game.
Other interested groups: Bureau of Land Management
34. Name: Santa Ana Foothills
Nominated by: Peter H. Bloom
Representing: Sea and Sage Audubon Society
Other interested groups: National Audubon Society.
35. Name: Upper Santa Clara River
Nominated by: Shoken Sasaki
Representing: California Department of Fish and Game
Other interested groups: United States Forest Service (Angeles National Forest).

36. Name: Santa Rosa Mountain
Nominated by: B.R. Burrage
Representing: College of Desert
37. Name: Saline Valley Mars..
Nominated by: Edwin P. Pister
Representing: California Department of Fish and Game
Other interested groups: Bureau of Land Management, Desert Fishes Council, University of California, Natural Land and Water Reserves System Committee.
38. Name: Scorpion Rock
Nominated by: Daniel W. Anderson
Representing: University of California
Other interested groups: The Nature Conservancy
39. Name: Sierra Valley Marsh
Nominated by: Joe Tieger, John E. Hummel and Henry L. Chapot, Jr.
Representing: Ecological Services, United States Fish and Wildlife Service, Sierra Valley Conservation Club and Sierra Valley Marsh Study Groups.
Other interested groups: California Department of Fish and Game, San Francisco State University, National Audubon Society, United States Fish and Wildlife.
40. Name: Soda Lake
Nominated by: B. G. Bowen
Representing: Morro Coast Audubon
Other interested groups: Tulare County Audubon Society and Bureau of Land Management.
41. Name: South Fork of the Kern River
Nominated by: William L. Goodlee
Representing: Kern Audubon Society
Other interested groups: Audubon Chapters, Sierra Club, Army Corps of Engineers, Bureau of Land Management, United States Forest Service and California Department of Fish and Game.
42. Name: Upper Sacramento River
Nominated by: Michael Miller
Representing: United States Fish and Wildlife Service
Other interested groups: California Department of Fish and Game.
43. Name: Valley Vernal Pools
Nominated by: Sterling Bunnell M.D.
Representing: Biological Field and Studies Associate
Other interested groups: California Academy of Sciences, California Department of Fish and Game and University of California at Davis, Department of Zoology.

44. Name: West Marin Island
Nominated by: Jean Starkweather
Representing: Marin Audubon Society
Other interested groups: National Audubon Society
45. Name: Whitewater River Marsh
Nominated by: Richard A. Spoots Esq.
Representing: Attorney Representing Los Angeles Audubon Society
Other interested groups: United States Fish and Wildlife Service and California Department of Fish and Game.
46. Name: Willow Lake
Nominated by: James H. McMiken
Representing: Lassen Community College
Other interested groups: California Natural Area Coordinating Council
47. Name: Volcan Mountain
Nominated by: Clint Powell
Representing: The Nature Conservancy

<u>BIOLOGICAL VALUES</u>	<u>POINTS</u>	<u>SCORE</u>	<u>CONSIDERATIONS</u>
<u>Category I Unique Wildlife Areas</u>			
A. Species of local concern	0-2	_____	A) No state critical listing localized wildlife values
B. Endemic or critically list- ed species (3 pt. ea.-12 pt. max)	3-12	_____	B) Endemic or State restrict species (e.g., State, Auc or Heritage lists; reflect declining species, etc.)
C. Endangered/Threatened species	3-12	_____	C) Federally listed endan-ger or threatened species and those species being consi for listing.
<u>Category II Significant Ecosystem</u>			
A. Presence of 2 or more plant associations	0-3	_____	A) A distinct plant communit type but not of the compl magnitude, or diversity o ecosystem.
B. Significant ecosystem; with limited protection	3-9	_____	B) An ecosystem limited in e significant for primary p tivity, diversity, etc., minimal degree of protec
C. Limited, disjunct, relict, rare or restricted ecosystem not presently or poorly protected	9-18	_____	C) Ecosystems which were on extensive and are now li rare or one of a kind, r few remaining acres; doc in the literature.
<u>Category III Secondary Biological Values</u>			
A. Wildlife abundance	0-4	_____	A) Wildlife abundance of a icular site is thought t high (2-4 pts.) or low (0
B. Wildlife diversity	0-5	_____	B) Wildlife diversity, rela to an ecosystem type, to of a rare/unusual specie position is weighed.
C. Importance of habitat type	0-5	_____	C) Breeding, feeding roosti staging, rearing, or spa areas are considered in- subcategory.

<u>BIOLOGICAL VALUES</u>	<u>POINTS</u>	<u>SCORE</u>	<u>CONSIDERATIONS</u>
D. Rare floral species (2 pt. ea.-5 pt. max.)	2-6	_____	D) Smithsonian, rare plant society, Federally listed plants, or plants considered for listing will receive
E. Invertebrates (2 pt. ea.-6 pt. max.)	2-6	_____	E) Invertebrates listed as a species of concern or end will receive points accor

NON-BIOLOGICAL VALUES

Category IV Degree of Threat

A. Severity of impact	0-5	_____	A) The ecosystem fragility or ability to withstand damage and regenerate itself is considered.
B. Permanence of habitat change	0-5	_____	B) Permanent types of ecosystem alteration (e.g., dams, re-filling, etc.) score higher than more temporary changes (e.g., grazing, farming, logging, etc.)
C. Defensibility of site	0-5	_____	C) Defensibility of the idea of designing/planning the protection of a site will be considered. Sites having a high degree of natural protection or sites easily defended could receive more points than sites which are hard or impossible to protect.
D. Probability of action occurring within 1, 5 or 10 years	3-11	_____	D) Sites which are threatened destruction within 1, 5 or 10 years are allocated 11, 5 or 3 points respectively.

TOTAL _____

<u>BIOLOGICAL VALUES</u>	<u>POINTS</u>	<u>SCORE</u>	<u>CONSIDERATIONS</u>
<u>Category V Socio, Economic, Political Considerations</u>			
A. Educational value			a) Educational groups (universities--other schools) and the degree of use or its potential will be weighed
b. Availability			b) Wildlife habitat which is available to but will be ranked higher than habitat which is not available for acquisition
c. Adversity			c) The lack of adverse conditions as related to acquisition will be weighed against more adverse acquisition mate
d. Development costs			d) High development costs (diking, pumping, fencing) influence site consideration
e. Management costs			e) Minimum management (no site coop agreement) costs will be compared to more intensive or costly management schemes
1. Directions for Scoring: Score all applicable in Categories I, III, and IV. Select one sub-category in category II. The first four categories total 100 pts. maximum and category five has no pts.			
2. In this category there are no points allocated and the primary purpose is to have the evaluator make a decision on site eligibility after the sites are ranked according to their biological value and degree of threat. For example, 3 sites are ranked using the biological and threat categories and they score 85 (out of 100 max.) but one site is more available, defensible, has no adversity, low management development costs, and has good educational value.			

APPENDIX III

CALIFORNIA'S ENDANGERED and RARE FISH AND WILDLIFE

ENDANGERED WILDLIFE

Mammals

Morro Bay Kangaroo Rat
Salt Marsh Harvest Mouse

Birds

California Condor
American Peregrine Falcon
Southern Bald Eagle
California Brown Pelican
California Least Tern
California Clapper Rail
Yuma Clapper Rail
Light-Footed Clapper Rail
Belding's Savannah Sparrow

Reptiles

Blunt-Nosed Leopard Lizard
San Francisco Garter Snake

Amphibians

Santa Cruz Long Toed Salamander
Desert Slender Salamander

Fishes

Colorado Squawfish
Thicktail Chub
Tecopa Pupfish (extinct)
Bonytail
Humpback Sucker
Lost River Sucker
Unarmoured Threespine Stickleback
Owens Tui Chub
Owens Pupfish
Mohave Chub

RARE WILDLIFE

Mammals

- San Joaquin Kit Fox
- Island Fox
- Wolverine
- California Bighorn Sheep
- Peninsular Bighorn Sheep
- Guadalupe Fur Seal
- Mohave Ground Squirrel
- Fresno Kangaroo Rat
- Stephens Kangaroo Rat

Birds

- California Black Rail
- California Yellow-billed Cuckoo

Reptiles

- Giant Garter Snake
- Alameda Striped Racer
- Southern Rubber Boa

Amphibians

- Black Toad
- Siskiyou Mountain Salamander
- Limestone Salamander
- Tehachapi Slender Salamander

Fishes

- Modoc Sucker
- Rough Sculpin
- Cottonball Marsh Pupfish

APPENDIX IV

Species on Federal Register from California and Nevada

E-Endangered
T-Threatened

<u>NAME</u>	<u>STATUS</u>
1. Black Footed Ferret	E
2. San Joaquin Kit Fox	E
3. Salt Marsh Harvest Mouse	E
4. Southern Sea Otter	T
5. Morro Bay Kangaroo Rat	E
6. Claifornia Condor	E
7. Southern Bald Eagle	E
8. American Peregrine Falcon	E
9. California Clapper Rail	E
10. Light Footed Clapper Rail	E
11. Santa Barbara Song Sparrow	E
12. California Least Tern	E
13. Blunt Nosed Leopard Lizard	E
14. San Francisco Garter Snake	E
15. Desert Slender Salamander	E
16. Santa Cruz Long Toed Salamander	E
17. Pahrnagat Bonytail	E
18. Mohave Chub	E
19. Cui-ui	E
20. Moapa Dace	E
21. Pahrump Killifish	E
22. Devils Hole Pupfish	E
23. Owens River Pupfish	E
24. Tecopa Pupfish -----EXTINCT	
25. Warm Springs Pupfish	E
26. Colorado River Squawfish	E
27. Unarmoured Threespine Stickleback	E
28. Lahontan Cutthroat Trout	T
29. Paiute Cutthroat Trout	T
30. Woundfin	E
32. El Segundo Blue Butterfly	E
33. Lotis Blue Butterfly	E
34. Mission Blue Butterfly	E
35. San Bruno Elfin Butterfly	E
36. Smiths Blue Butterfly	E
37. San Clemente Sage Sparrow	E
38. San Clemente Loggerhead	T
39. Island Night Lizard	T

<u>NAME</u>	<u>STATUS</u>
40. San Clemente Broom <u>Lotus scoparius</u> <u>ssp. traskiae</u>	E
41. San Clemente bushmallow <u>Malacothamnus clementinus</u>	E
42. San Clemente Island larkspur <u>Delphinium kinkiense</u>	E
43. San Clemente Island Indian paintbrush <u>Castilleja grisea</u>	E

APPENDIX V

Endangered Animals and Plants
(Federal, State or "list of concern")
not addressed by the
California Unique Ecosystem Concept Plan

1. Salt Marsh Harvest Mouse
2. Morro Bay Kangaroo Rat
3. American Peregrine Falcon
4. Light Footed Clapper Rail
5. Santa Barbara Song Sparrow
6. Blunt-Nosed Leopard Lizard
7. San Francisco Garter Snake
8. Desert Slender Salamander
9. Santa Cruz Long Toed Salamander
10. Langes Metalmark Butterfly
11. Lotis Blue Butterfly
12. Smiths Blue Butterfly
13. San Clemente Loggerhead
14. San Clemente Sage Sparrow
15. Island Night Lizard
16. San Clemente Broom
17. San Clemente bush mallow
18. San Clemente Island larkspur
19. San Clemente Island Indian paintbrush
20. Yuma Clapper Rail
21. Thicktail Chub
22. Tecopa Pupfish (extinct)
23. Bonytail
24. Humpback Sucker
25. Shortnose Sucker
26. Lost River Sucker
27. Unarmored Threespine Stickleback
28. Island Fox
29. Owens Tui Chub
30. California Bighorn Sheep
31. Guadalupe Fur Seal
32. Fresno Kangaroo Rat
33. Stephens Kangaroo Rat
34. Giant Garter Snake
35. Alameda Striped Racer
36. Southern Rubber Boa
37. Black Toad
38. Siskiyou Mountain Salamander
39. Limestone Salamander
40. Tehachapi Slender Salamander
41. Modoc Sucker
42. Rough Sculpin
43. Cottonball Marsh Pupfish

44. Fulvous Whistling Duck
45. Harlequin Duck
46. Bay-winged Hawk
47. Sharp-tailed Grouse
48. Yellow Rail
49. Elf Owl
50. Great Gray Owl
51. Common Flicker (Gilded)
52. Vermilion Flycatcher
53. Summer Tanager
54. Fork-tailed Storm Petrel
55. Ruffed Grouse
56. Gull-billed Tern
57. Tufted Puffin
58. Willow Flycatcher
59. Black-tailed Gnatcatcher
60. Gray Vireo
61. Black Storm Petrel
62. Ashy Storm Petrel
63. Elegant Tern
64. Black Skimmer
65. Marbled Murrelet
66. Black Swift
67. Gila Woodpecker
68. Purple Martin
69. Black-capped Chickadee
70. Bendire's Thrasher
71. Virginia's Warbler
72. Hepatic Tanager
73. Gray-headed Junco
74. Brown-crested Flycatcher

PHOTO CREDITS

- 1) (Cuckoo Island Corridor) Robert Voeks
- 2) (South Fork of the Kern River) Robert Voeks
- 3) (Nipomo Dunes) Robert Voeks
- 4) (China Ranch) Phil Pister
- 5) (Desert Tortoise Natural Area) Robert Voeks
- 6) (Big River Estuary) Warner Chabot
- 7) (Dozier Grasslands) Robert Voeks
- 8) (Emeryville Crescent) Golden Gate Audubon
- 9) (Bolsa-Chica Marsh) Amigos de Bolsa Chica
- 10) (San Bruno Mountain) Dr. Richard Arnold
- 11) (Carrizo Plains) Morro Coast Audubon
- 12) (Hickman Vernal Pools) B. Holland
- 13) (Putah Creek) Robert Voeks
- 14) (Saline Valley Salt Marsh) Robert Voeks

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