A SIKES ACT

MANAGEMENT PLAN

FOR THE

SURPRISE CANYON

AREA OF CRITICAL ENVIRONMENTAL CONCERN

(CA-06-WHA-10)

AND

WESTERN PANAMINT MOUNTAINS CANYONS

WILDLIFE HABITAT MANAGEMENT AREA (WHMA)

(CA-06-WHA-10)

United States Department of the Interior
Bureau of Land Management
California Desert District
Ridgecrest Resource Area

APPROVED

Bureau of Land Management

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I. Introduction

A. Purpose: The Surprise Canyon ACEC was established to provide protection and enhancement of natural and cultural resource features on 13,168 acres of Public Land in the Surprise Canyon watershed in the Panamint Mountains. Surprise Canyon has high scenic quality, significant flora and fauna and both prehistoric and historic cultural resources. The ACEC status provides for early, intensive management of these important resources so that the environmental quality will be maintained indefinitely for the benefit of the public.

B. Objectives: The planned objectives of this ACEC are protection and enhancement of significant resources on Public Lands while providing for other resource uses to the extent they are compatible with the overall goal of protection and enhancement of key natural and cultural resources.

C. Relationship to the California Desert Conservation Area (CDCA) Plan: This ACEC was established under the CDCA Plan in 1980. Management prescriptions specific to this ACEC were identified in Volume C, Appendix II, on pages 6-7.

The Surprise Canyon ACEC is within the larger West Panamint Mountains Wildlife Habitat Management Plan (WHMA) area as identified in the CDCA Plan (Map No. 3-Planned Management Areas for Fish and Wildlife). These two areas are further targeted as Special Attention Areas - an area of unique and significant habitat and species which will be afforded special consideration in the environmental assessment process for other proposed land uses

A majority of the ACEC is within Wilderness Study Area 136-Surprise Canyon encompassing 54,000 acres. All proposed land uses affecting this area

must meet the non-impairment criteria as defined in the Interim Management Policy and Guidelines for Lands Under Wilderness Review. Basically, such actions must be "temporary", and the lands must be able to be reclaimed to a condition such that the results of the land use action are "substantially unnoticeable" as a whole by the time the Interior Secretary is scheduled to send his recommendations on the area to the President. Refer to Map I for the Wilderness Study Area. A detailed description of the area is in the CDCA Plan - Volume B, Appendix III - Wilderness, pp. 142-147.

D. Relationship to Other Plans:

The upper part of Surprise Canyon has been identified by Inyo County in their General Plan as an Environmental Resource Area (ERA No. 51) for bighorn sheep range. Refer to Inyo County General Plan pp. 29 ff.

II *MAJOR RECOMMENDATION SUMMARY:*

Prescription/Action	COMPONENT ACEC	WHMA	Comments
A. Designate parking & camping areas & roads	X	X	Items 1-12 from CDCA Plan - Vol. C, Appendix IV.
B. Construct interpretive displays & provide pamphlets describing area	X		Also refer to Table 2 of CDCA Plan for Item 1.
C. Regulate firewood collection & prohibit gathering of firewood in riparian areas	X		
D. Allow vehicle use on approved routes	X	X	
E. Remove burros	X	X	Also refer to Table 2 of CDCA Plan
F. Rehabilitate Limekiln, Jody & Sourdough Springs	X	X	
G. Eliminate exotic vegetation (tamarisk)	X	X	
H. Determine effects of mining & other manmade impacts on wildlife and reparian vegetation	X		
I. Investigate acquiring key private land & begin acquisition program if appropriate	X		
J. Protect scenic values through the BLM Visual Resource Management (VRM) system	X		
K. Increase visitor service/law enforcement/management presence	X		
L. Prohibit collection of plants & animals except by permit	X	X	
M. Protect water sources	X	X	From Table 2 of CDCA Plan. Also refer to Table 15 (monitor/limit water development).

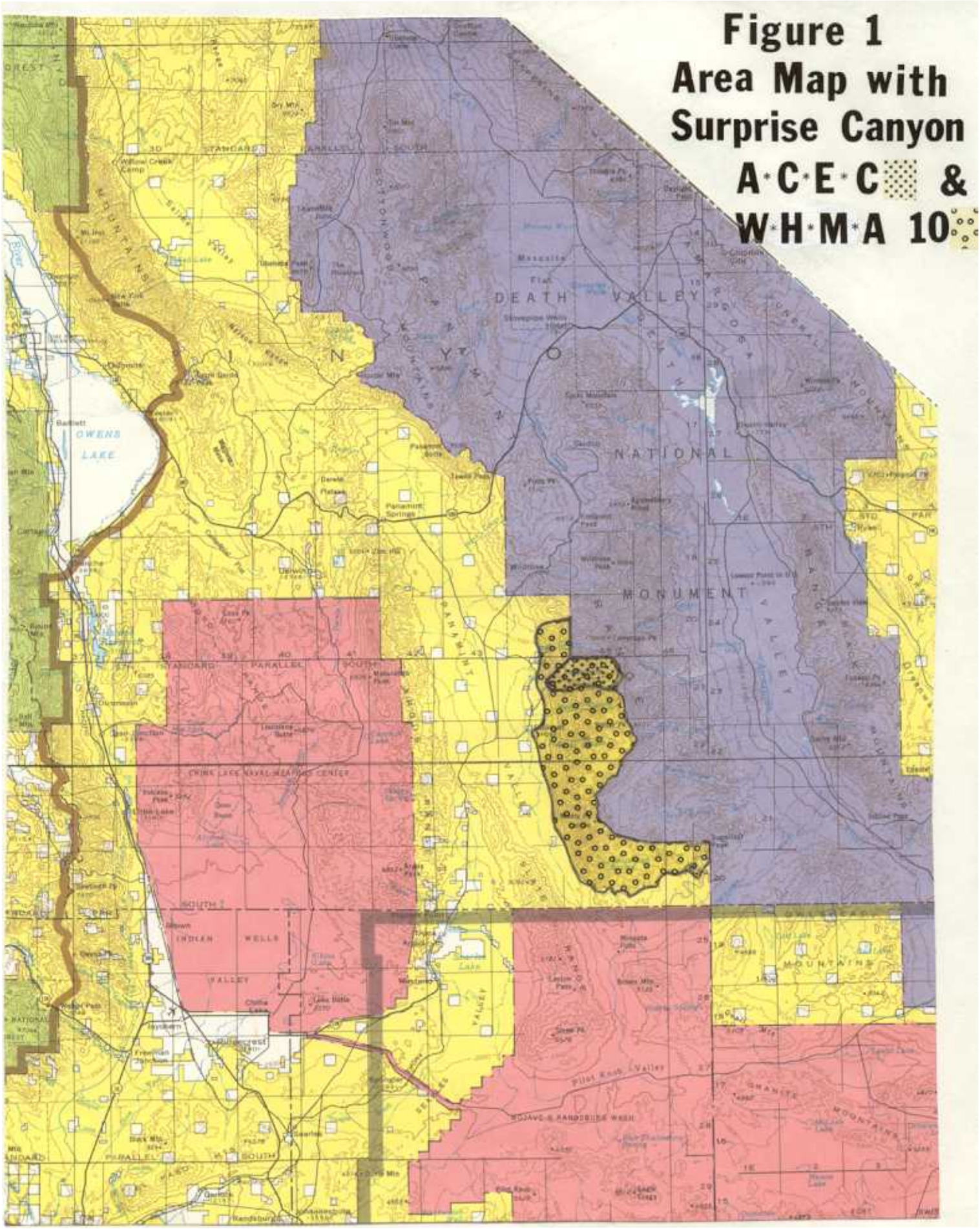
Prescription/Action	ACEC	WHMA	Comments
N. Prepare a water use management plan	X	X	
O. Establish cooperative agreement with private landowners	X	X	From Tables 2, 15, CDCA Plan
P. Conduct intensive resource inventory	X	X	From Table 15 of CDCA Plan
Q. Protect, stabilize and/or enhance wildlife	X	X	From Table 2 of CDCA Plan
R. Protect, stabilize and/or enhance vegetation	X	X	
S. Protect, stabilize and enhance cultural values	X		
T. Pending determination of eligibility, nominate the Panamint City ruins for inclusion in the National Register of Historic Places, National Historic Landmark, & the National Architectural & Engineering Record	X		
U. Comply with WSA Interim Management policy	X		
V. Establish monitoring program	X		
W. Prohibit indiscriminate discharge of firearms, (i.e., plinking) in the ACEC. Hunting according to California State Fish & Game Dept. regulations will be allowed.	X		

III. Background and Resource Summary of Physical Environment

A. Topography and Regional Features: The Panamint Mountains and Surprise Canyon are part of the Panamint Drainage basin which includes all of Panamint Valley and several hundred square miles of Pilot Knob Basin which lies to the south of Panamint Valley (Figure 1). The latter is almost a separate basin; however, drainage from it may reach Panamint Valley at times of heavy rains (Thompson, 1929). Panamint Valley is about 60 miles (=90km) long. The elevational range is large, from 1,000 ft (30m) on the valley floor to over 11,000 ft (3350m) on the top of Telescope Peak, in the Panamint Range. These mountains separate Panamint Valley from Death Valley. (Norris and Webb, 1976).

The Panamint Mountains are demarcated on the west by the Panamint Fault-Scarp. The activities of the active fault have formed enormous escarpments. In Panamint Valley, the escarpment rises as a very large sloping surface. Wide valleys have been eroded back into an earlier uplifted scarp. Subsequently the activity of the fault uplifted the mountains again, displacing the earlier formed valleys high upslope. The present drainage of these older valleys is through narrow, deep gorges cut into the newly uplifted material below them. Small alluvial fans are present at the base creating a so-called "Goblet Valley" of which Surprise Canyon is a good example. (Jaeger, 1965; Thompson, 1929). The Panamint Range was elevated very late in geologic time. Evidence of recent movement along the fault zone is the Wildrose Graben at the mouth of Wildrose Canyon, a 200ft (80m) deep (below the two bounding faults) trench in the old alluvium. (Oakeshott, 1971).

Figure 1
Area Map with Surprise Canyon A·C·E·C & W·H·M·A



SCALE = 1:750,000

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

The Panamint Mountains form the eastern border of Panamint Valley. They are very steep on their western face and are mostly over 5,000 ft. (=1500m) high. Telescope (11,045 ft.), Sentinel (9,634 ft.), Rogers (9,994 ft.) and Porter Peaks (9,000 ft.) are the highest points of the Panamint Range. Sentinel Peak is situated at the extreme southeastern margin of the Surprise Canyon ACEC (Map 1). Telescope Peak is the highest of any in California that drains exclusively into the Mojave Desert basins. Within the Mojave Desert of California it is most certainly the highest point of any of the included desert mountain ranges.

B. Climate of the Panamint Range

The regional climate of the northern Mojave Desert has been described in Rowlands et al (1982), Rowlands (1978), Huning (1978), and Major (1977). We know of no studies which have described the climate of the Panamint Range, including Surprise Canyon as a specific unit. However, the climate can be accurately assessed by using nearby weather stations and precipitation and temperature trends described in the literature mentioned above.

1. Precipitation

Because of the great range of elevation in the Surprise Canyon ACEC (approx. 2,000 - 9,600 ft.; 610 - 2,930 m), amounts of precipitation vary considerably along the elevational gradient. Although no U.S. Weather Bureau stations are located in Panamint Valley, the weather records for Trona at an elevation of 1,660 ft (517 m) and some 22 mi. 36 km) south of Ballarat should approximate the precipitation in the Panamint Valley at the base of the Panamint Range. The average annual precipitation

at Trona is about 82 mm/ year (U.S. Dept. Commerce Weather Bureau, 1964) of which only 8.4% falls during the summer (June - September inclusive). The weather recording station at Wildrose Canyon Ranger Station at 1,250 m gives an average annual precipitation of 185.2 mm, 19.8% of which falls during the summer. This increase in summer precipitation is no doubt due to the greater frequency of local summer thunderstorms at the higher elevations in the Panamint Range. At the higher elevations in the ACEC (above 9,000 ft.;2,700m), mean annual precipitation, as estimated from lapse rates, may exceed 320 mm per year, much of it in the form of snowfall, which may be heavy at this altitude during the winter months (Rowlands, 1982).

2. Temperature

Winter mean maximum temperature at Trona is just below freezing (-0.6C or approx. 31^{O} F), whereas the summer mean maximum is 41.3^{O}C (approx. 108^{O}F). This is probably a pretty close approximation of the temperature regime at the base of the Panamint Mountains near Surprise Canyon. Actually, mean minimum winter temperatures near the ground are probably somewhat lower on the southern Panamint Playa due to cold air inversions (Rowlands 1982, Huning, 1978). Temperature, like precipitation, lapses with elevation, except that the relationship is inverse; that is, there is a drop in temperature over elevational increases. In this part of the Mojave Desert, the drop in mean minimum winter temperature is about 5^{O}C (9^{O}F) for every 1,000 meters of elevation, whereas the mean summer

maximum drops 9°C (16°F) for every 1,000 meters elevational increase. The mean summer maximum at Wildrose Ranger Station is 35.1°C (approximately 95°F) and at the higher elevations (above 9,000 ft., 2,700 m) of the Surprise Canyon ACEC this value is probably around 26°C (79°F). Likewise, the mean winter minimum at Wildrose is -1.6°C, (approximately 29°F), probably dropping to around -13°C (approximately -1°F) at 9,000 ft. (2,700 m).

C. Biotic Features:

In contrast to the draft management plan for this area, only a short summary of biotic features, concentrating on sensitive species, is presented below. The interested reader can request a copy of a report entitled "The Physical and Biotic Attributes of the Western Panamint Canyons" by Rowlands and Aardahl which will be deposited in the ACEC files and the California Desert District Library.

1. The Vegetation of Surprise Canyon:

a. Major Plant Assemblages:

The plant assemblages found in Surprise Canyon are listed below. Descriptions can be found in Rowlands (1982), Rowlands, et al (1982) and Rowlands and Aardahl, (1982) (cursory descriptions can be found in Appendix 5A, B.

(1) Great Basin Assemblages:

(a) Sagebrush scrub

(b) Blackbrush scrub

(c) Hopsage scrub

(2) Saline Alkali Scrub

(a) Shadscale scrub

(b) Desert holly scrub

(3) Mojave - Colorado Desert Scrub

(a) Creosotebush scrub

(b) Cheesebush scrub

(c) Succulent scrub

(4) Xeric-Conifer Woodland/Forest

(a) Utah Juniper - One leaf Pinyon Woodland

(b) Subalpine Forest

(5) Riparian/Wetland Vegetation (Map 2)

(a) Cottonwood - willow streamside woodland

(b) Seep and spring vegetation

(6) Desert Saxicole Subscrub

(a) Basic Saxicole assemblage (i.e., calciphyte community)

(b) Noncalciphyte Saxicole assemblage

b. Rare, Threatened, and Endangered Species:

Several sensitive plant species can be found in Surprise Canyon; Panamint Daisy Enceliopsis covillei, Brickellia knappiana weasel phacelia. (Phacelia mustelina) and Panamint Dudleya Dudleya saxosa ssp. saxosa (Map 3). Two other species Perityle villosa and Gallium hypotrichum ssp. tomentellum are present within Death Valley National Monument. The former in Hanaupah Canyon and the latter on Telescope Peak. A fifth species, Brickellia knappiana, is reported to be present in the canyon, but several searches have failed to reveal its presence.

Dr. Frank C. Vasek, Botanist at the University of California, Riverside, feels there is circumstantial evidence to support the notion that this is not a true taxon, but instead may be a part of a complex of variations resulting from possible interbreeding between Brickellia multiflora and B. longiflora.

Detailed descriptions of these species can be found in Munz (1973).

(1) Dudleya saxosa (Jones) Britt. St. Rose ssp. saxosa

The habitat requirements of Panamint Dudleya (Figure 2) are rocky, stoney slopes and precipices between 3,000 and 7,000 feet in the Panamint Mountains. species seems to have an affinity for rock crevices in dolomite and could therefore be considered to be a calciphyte. This plant is not particularly rare. Although certainly a plant of limited distribution, it is very common in Surprise Canyon and other nearby canyons in the Panamint Range. Observations do not indicate that herbrivory, whether from native wildlife or feral burros, is presently a problem at this

(2) Enceliopsis covillei (Nels.) Blake

The Panamint Daisy (Figure 3) as its common name indicates is a member of the daisy family or Asteraceae more specifically the sunflower tribe (Heliantheae). A rare plant status report prepared by the California Native Plant Society, gives a full description of this species and is included in Appendix A. No remarks concerning the ability of this species to reproduce vegetatively can be found in the State report. However, it is evident that the plant can reproduce vegetatively by means of rhizome-like stolons as shown in Figure 4 and from analysis of specimens in Surprise Canyon, this seems to be an important aspect of reproduction especially in specimens which grow on talus slopes.

At present, circumstantial evidence seems to indicate that Enceliopsis covillei is being threatened by the herbrivory of ferral burros. However, no burros have been observed by any representatives of BLM, in the act of eating this species. Burro trails do wind through populations of this species in Surprise Canyon, and some specimens have been observed with flower-heads nipped off. But at best, this is a problematical situation. Bighorn sheep trails are also found within these same plant populations and there is no reason to suspect that bighorn sheep do not also utilize this species as food. Any definitive statements regarding the effects of burros on Enceliopsis covillei must await well-planned monitoring studies involving the use of exclosures (see Section VII)

Figure 2. Dudleya saxosa ssp. saxosa: habit; on limestone.

Figure 3. Enceliopsis covillei: habit; on talus slope, approx. .25 mi. west of Chris Wicht Camp, Surprise Canyon.

Figure 4. Enceliopsis covillei: note stolon-like underground stem. Enceliopsis appears to be able to reproduce vegetatively by this means.

(3) Phacelia mustelina Cov.

Phacelia mustelina Cov. is another sensitive plant species found in Surprise Canyon. This species is recognized by the California Native Plant Society as being rare in California, but common elsewhere, notably Nevada. It is not a candidate for listing by the Fish and Wildlife Service.

The CNPS (1980) records list Phacelia mustelina from Surprise Canyon around 4,800 feet between Limekiln and Brewery Springs. Several short surveys of the area in 1981, did not reveal its presence. However, a more indepth inventory probably is needed to be sure of its whereabouts. The plant typically inhabits rocky places, often limestone, between 3,000 -6,000 feet in the mountainous areas surrounding Death Valley.

c. Unusual Plant Assemblages

Unusual Plant Assemblages (or "UPA's) are defined in the California Desert Conservation Area Plan (1980); several UPA's are present within the confines of the Surprise Canyon ACEC. These are:

(1) Riparian - Wetland Vegetation

(a) Cottonwood - Willow Streamside Woodland

This vegetation type is relatively rare within the California Desert Conservation Area but is the predominant vegetation covering the bottom of Surpise Canyon, from about one-half mile below Chris Wicht Camp to Thompson Camp, and elevational

range of 4,400 ft. (2,400 - 6,800 ft.) over a linear distance of 5 1/2 miles. The riparian zone is not continuous, but is interrupted by stretches of desert wash scrub which occupies the canyon bottom where the stream flows underground and occupies the surface only intermittantly. Probably there is a quick turnover of this vegetation, which consists mostly of banded rabbitbrush (Chrysothamnus paniculatus) and brickell-bush (Brickellia multiflora), as the canyon periodically floods out during years of unusually high rainfall, taking out much of the vegetation with the deluge. The riparian zone, as defined here is a storied broad-leaf vegetation assemblage whose principal plant species occur in definite layers or stories. The upper story is defined by Fremont Cottonwood (Populus fremontii) and large willows (Salix exigua, S. laevigata). The middle story is composed of large shrubs (Baccharis sergiloides, B. glutinosa, Rosa woodsii, Brickellia multiflora) and the lower story by grasses and herbaceous perennials, for example: Solanum nodiflorum, Mimulus cardinalis, Polypogon monospeliensis, Distichlis spicata var. stricta, Juncus spp. (especially J. xiphioides), and Horsetails (Equisetum hymeneale). There are at least two species of climbing vines which cover the middle and upper stories of the riparian vegetation. These vines are California wild grapes (Vitis girdiana) and virgin's bower (Clematis ligusticifolia).

The total length of storied riparian zone in Surprise Canyon was measured by automobile milage indicator. The first well-developed riparian zone can be found at Chris Wicht Camp and extends up canyon for 0.4 mi. After a short hiatus, another clump of storied riparian vegetation measured 0.5 mi in extent, but with only willows in the upper story. Most of the cottonwoods in Surprise Canyon are located in the vicinity of Chris Wicht Camp, and may be the progeny of trees which were planted by miners. From the end of the last stretch of storied riparian vegetation there is another gap of about 0.3 mi until Limekiln Springs. From this location, storied riparian vegetation extends 0.2 mi, but a storied vegetation is not present. After yet another break of 0.5 mi, willows again can be found in profusion, but the vegetation does not become storied until 0.3 mi further and thence extends to Brewery Springs (Map 2). Riparian vegetation is absent until one reaches the area around Thompson Camp; however, the actions of Mineop Corp. (a mining company working patented claims) has modified much of the riparian vegetation in this vicinity, making an evaluation of its potential extent problematical (Figure 5 and 6).

The riparian zones described above are produced mainly by the water manifesting from four major springs: Limekiln, Brewery, a relatively large spring about 0.3 mi NNE of Thmopson Camp, henceforth referred to as Thompson Spring, and a spring about 0.4 mi north of the junction

Figure 5. Water diversion by Mineop Corp. at spring in Water Canyon. Mineop is withdrawing 100 % of the flow.

Figure 6. Riparian zone in Water Canyon; bulldozed by Mineop Corp. in order to lay pipe from the water diversion to the mine operations site.

of Sourdough Canyon road and Surprise Canyon road, henceforth referred to as Jody Spring.

(b) Seep and Spring Vegetation

As mentioned above the four important springs in the Surprise Canyon ACEC are the sources of most of the running water within the ACEC, supporting the area's riparian vegetation. Two of these springs issue from the canyon bottom and are associated with typical storied riparian vegetation described earlier. However Limekiln and Jody Spring have been substantially impacted by human activity and are being used as a source of water for mining operations. The drip wall is presently covered with sheets of wood (to eliminate burro damage?) and the area around the base of the drip wall has been extensively bulldozed and littered with debris.[1]

Limekiln Spring, (Figure 7) in contrast to Jody Spring, is relatively undisturbed.[2] According to Alan P. Romspert of CSU., Fullerton, modification of the spring was attempted in the early 1970's (was the present drip wall created by undercutting the bank with a bulldozer?). At any rate, the drip wall of Limekiln Spring is impressive, being almost completely covered with a growth of maidenhair fern (Adiantum capillus-veneris) and moss hummocks (Mnium sp. or Polystichum). Other plant species found at Limekiln

1. The drip wall and spring was extensively damaged by a miner attempting to develop a water source.

2. Limekiln Springs was also damaged by local people who evidentally desired a "swimming hole", as a large pit was bulldozed at the base of its extensive drip wall, which then filled with water. The disturbance was done in early May, 1982 (Figure 8).

Figure 7. Limekiln Spring prior to disturbance by recreational bulldozer.

Figure 8. Limekiln Springs after disturbance; note the large "wading pool" or "swimming hole"; this public tresspass occurred sometime in the first two weeks of May, 1982.

Spring are: lobelia (Lobelia cardinalis), california wild grape, virgin's bower, Brickellia multiflora, Salix exigua, Baccharis sergiloides, Solidago confinis, Juncus balticus, J. xiphioides, and water cress (Rorippa nasturtium - aquaticum). These springs and their associated vegetation are all part of and included within a public water reserve

(2) Basic Saxicole Plant Assemblage

This is another "unusual plant assemblage" or UPA (see the Final Plan for the California Desert Conservation Area). The component species of this UPA are so-called "calciphytes" or calciphils because they are found almost exclusively on calcareous substrates, usually dolomites or limestones. Extensive outcroppings of dolomite (a major undeveloped site with a potential of over 20 million metric tons according to Bowen et al, 1973) occur just below Panamint City. Because of the very limited distribution of this unusual substrate and the probability that certain of the constituent species have limited competitive ability relative to other species on substrates with lower concentrations of calcium it is not surprising that several species which occur on these outcroppings are considered to be rare plants. The calciphytes in Surprise Canyon have not been extensively inventoried. However, the following species of calciphytes are known from the entire Panamint Mountains: Haplopappus brickelloides, Perityle villosa, Scopulophila rixfordii, Forsellesia nevadensis, Dudleya saxosa ssp. saxosa,

Tetracoccus ilicifolius, Astragalus funereus, A. panamintensis, Buddleja utahensis, Arctomecon merriamii, Eriogonum eremicola E. heermannii, E. intrafractum, E. microthecum var. panamintense, Cheilanthes covillei, Notholaena jonesii, Cercocarpus intricatus, Gallium hypotrichum ssp. tomentellum, Mimulus rupicola, Penstemon calcareus. Many of these species are known from Surprise Canyon. Others are known only from localities inside Death Valley National Monument (Tetracoccus, Arctomecon, Mimulus rupicola) An intensive inventory of this plant assemblage in Surprise Canyon would be valuable.

(3) *Bristlecone Pine Forest*

A small stand of Subalpine Forest, whose primary plant species are bristlecone pine (Pinus longaeva) and limber pine (Pinus flexilis) is located near the top of Sentinel Peak (elev. 9,640 feet, ca. 2,900 m), within the Surprise Canyon ACEC (Figure 9). This type of vegetation overlaps with the one-leaf pinyon and Utah juniper woodland on its lower margins. Secondary species within the sabalpine forest at this location include: Acer glabrum var. diffusum, Artemisia tridentata, Chaemaebatiara millefolium, Chrysothamnus viscidiflorus ssp. pumilis, Ribes cereum, R. montigenum, Symphoricarpos longiflorus and Sitanion hystrix.

At present, there are no known agents threatening the bristlecone pine forest in the Surprise Canyon ACEC, but the riparian assemblages and the basic rupicole assemblages

Figure 9. Subalpine forest (*Pinus longaeva*, *P. flexilis*) on Sentinel Pk

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are both being threatened by mining operations and feral burros and as a result are in a state of decline (especially the riparian areas). Monitoring studies are proposed for these UPA's as outlined in Section VII.

2. *Wildlife and Wildlife Habitat of Surprise Canyon*

The diversity of vegetation and communities, varied topography, abundant surface water and varied climate all contribute to providing niches for a diverse wildlife community, perhaps one of the most diverse and significant in the California Desert Conservation Area. Important species of wildlife in each of four classes of vetebrates are presented as follows:

a *Amphibians: The Pacific treefrog (Hyla regilla) occurs throughout the aquatic habitat of the canyon, especially in the vicinity of springs where lush aquatic and riparian vegetation grow. The population in Surprise Canyon is an "island" or relict population isolated long ago by changing climate (i.e., from abundant rainfall and cooler temperature to limited rainfall and extremely warm temperatures).*

b *Reptiles: The chuckwalla (Sauromalus obesus) occupies rocky, dry habitat in Surprise Canyon and is one of the largest lizards encountered in the California Desert.*

The Panamint alligator lizard (Gerrhontus panamintinus) is of special significance. This species was first described by Stebbins (1958) and the type specimens were located in Surprise Canyon at an elevation of 4,500 feet near Limekiln and Brewery Springs. This reptile occupies rocky canyon bottom near permanent water overgrown with riparian vegetation, and also on exposed talus and desert shrub habitat adjacent to aquatic and riparian habitats. The Panamint alligator lizard population in Surprise Canyon is relict, having been isolated here since the Pleistocane epoch

by changing climate conditions as is the case with the Pacific treefrog. This species probably occurs within the altitudinal range of 3,800 to 4,800 feet and perhaps to a high of 7,600 feet (Stebbins, 1958; Dixon, 1975). A specimen has been taken from the vicinity of Sourdough (i.e., Jody) (A. Romspert, personal Communication). This species is known only from a few locations in the Panamint, Grapevine, Inyo and White Mountains. The lizard is seldom seen , and is active during the late spring, summer, and early fall.

c. Birds: Bird inventories were conducted by the Bureau of Land Management along 2.25 miles of aquatic and riparian habitat in Surprise Canyon during 1977-78. Three plots, each 0.75 miles long, were selected in the vicinity of Chris Wicht Camp, Limekiln Spring, and Brewery Spring. An average of 18 days of sampling, covering a one-year time period, were conducted at each of the three plots.

All three areas surveyed supported a righ assemblage of bird life; Chris Wicht Camp area-68 species, Limekiln Spring area-50 species, Brewery Spring area-45 species. One species observed at all three study areas, the yellow warbler (Dendroica petechia) is listed as sensitive by the U.S. Fish and Wildlife Service under Criteria 3 (a species whose population, habitat and/or distribution are declining significantly or fluctuating unpredictably (either throughout or in an ecologically definable portion of their range) such that federal listing as a threatened species will be unavoidable if the trend continues). This species, although common throughout much of its range, has suffered population decline

and extirpation in some areas of California, such as in the Colorado River Valley, Central Valley, south coastal zone and San Francisco Bay areas. Riparian habitat loss has been the key factor in the decline of this species as well as the brown-headed cowbird (Molothrus ater). The brown-headed cowbird has been sighted in the Chris Wicht Camp study area.

Raptors are present in Surprise Canyon, including breeding species. A minimum of two red-tailed hawk (Buteo jamaicensis) and one prairie falcon (Falco mexicanus) eyries (aeries) (nesting sites) are located within 0.5 mile of the drainage in the bottom of Surprise Canyon. Two additional species of raptors, the sharp-shinned hawk (Accipiter striatus) and the American kestrel (Falco sparverius), have been observed in the Limekiln and Chris Wicht Camp study plots.

Extensive aquatic and riparian habitat in Water Canyon in the upper reaches of Surprise Canyon is equally valuable wildlife habitat for birds. This special habitat provides probably the highest-elevation source of surface water and riparian vegetation in the ACEC.

d. Mammals. The desert bighorn sheep (Ovis canadensis nelsoni) is the key mammal inhabiting the ACEC. No recent or comprehensive inventories of bighorn in the Panamint Mountains have been conducted. Weaver (1972) included the Panamint Range in an overview of desert bighorn distribution in Death Valley National Monument and adjacent Public Land, which included the Panamint Range. He flew 21 hours in a

helicoptor conducting sheep inventories and habitat evaluations in the Panamint Range from Panamint Butte south as being periodically occupied by bighorn. BLM personnel have observed eight bighorn and numerous tracks and fecal pellets immediately south of Chris Wicht Camp. Mr. George Novak, resident miner at Chris Wicht Camp, reported that eight bighorn are routinely observed a short distance to the west of his camp. He also said that when he first arrived at Chris Wicht Camp seven years ago he regularly observed a band of about 20 bighorn (Novak, personal communication). Bighorn obtain water in the Chris Wicht Camp area from the flowing stream in Surprise Canyon. A majority of recent sightings have been made approximately 0.5 mile west of Chris Wicht Camp.

In October, 1978, a dead bighorn ram was found in the upper part of Surprise Canyon, about one-mile below the crest. The most probable location for the sighting is in upper Water Canyon at an elevation of approximately 8000 feet. During the bighorn census at selected waters in Death Valley National Monument in 1978, one adult ewe was observed at Limekiln Spring and bighorn sign was observed in Sourdough Canyon (Sanchez, 1978).

Weaver (1972) conducted an extensive bighorn survey of the Panamint Range and rated habitat using the Hansen method. Habitat evaluations of the Surprise Canyon area are taken from Weaver's report

Geographic Area	*Rating*
Hall-Surprise Canyons - 2400 ft.	*62 - zone of deficiency*
- 3600 ft.	*70 - periodic use zone*

Geographic Area		Rating	
Hall-Surprise Canyon	- 4000 ft.	70	- periodic use zone.
	- 6400 ft.	74	- periodic use zone.
	- 6500 ft.	74	- periodic use zone.
Surprise Canyon	- 2000 ft.	62	- zone of deficiency.
Chris Wicht Canyon	- 2800 ft.	68	- periodic use zone.
Limekiln Spring	- 4800 ft.	78	- periodic use zone.
Surprise Canyon South facing slope	- 6500 ft.	76	- periodic use zone.
Surprise Canyon North facing slope	- 6500 ft..	74	- periodic use zone.
Surprise-Happy Canyon	- 2800 ft.	62	- zone of deficiency.
	- 4800 ft.	86	- important to bighorn.
	- 5600 ft.	70	- periodic use zone.

Weaver (1972) estimated the bighorn population in Surprise Canyon was transient, while Happy and Hall Canyons contained an estimated five and eight bighorn, respectively. In contrast, Welles and Welles (1961) estimated Surprise Canyon contained 25 bighorn and the estimate for Happy and Hall Canyons matched those of Weaver.

Based on existing data and records on bighorn in the Panamint Range, it appears Surprise Canyon has the potential for supporting many more bighorn than now exist in the area. Estimates made by Weaver (1972) may be low for the area as it appears that eight bighorn are seen regularly in the vicinity of Chris Wicht Camp

Abundant water, rugged topography and an adequate food supply are key bighorn habitat features in Surprise Canyon. Bighorn are believed to obtain water from the stream in the canyon

where riparian vegetation is sparse or absent. This behavior is typical of bighorn and is probably an innate mechanism to avoid predation or other damage by being fully aware of the surrounding area through an unobstructed view.

Mule deer (Odocoileus hemionus) occur in the higher elevations of the ACEC, typically near the crest of the mountains arround Sentinel Peak where the topography is less rugged and forage is typical of Great Basin habitat (big sagebrush and bitterbrush).

Another interesting species, the ringtail cat (Bassariscus astutus) occurs in the rocky portions of the canyon. One ringtail lives near Chris Wicht Camp and is regularly observed at night by the resident miners. The ringtail is a rarely-seen mammal of the desert.

E. Cultural Resources

Both historic and prehistoric cultural resource values are found within the Surprise Canyon ACEC. Although there has not been a complete archaeological survey of the area, six archaeological sites have been recorded so far within the ACEC: two historic mining camps, one historic mining town (Panamint City) and three prehistoric rock shelters with pictographs. Panamint City and the three rock shelters are significant from the point of view of preservation and interpretation.

The area of the Surprise Canyon ACEC was identified by the CDCA archaeological inventory as a area of "very high" archaeological sensitivity (Polygon # 91,

Cultural Resources Sensitivity Mapping Record). The rating of these cultural resources is based on many different factors, each of which was assigned a high value. The factors include:

1. Site Diversity. The recorded sites include both historic and prehistoric sites and represent a broad range of human history from prehistoric Native American lifeways to full scale industrial mining of the late 1800's. Additional sites of various types are predicted for the area.
2. Site Complexity. Various human activities and behavior are represented in the archaeological record of Surprise Canyon. Subsistence patterns, economics, technology and aesthetics of both the prehistoric and historic inhabitants of the area can be studied in the numerous artifacts, debris, shelters, rock art and mining ruins present within the ACEC.
3. Uniqueness/Rarity. The rock art of the area is unique and rare not only in its contents but also the density of elements depicted. The ruins of Panamint City, including the remains of houses, the smelter stack, the numerous mining adits, and other mining debris, are also unique and rare in the amount of material which remains in relatively good condition.
4. Current Research Interest. Current research regarding these cultural resources relates to the history of mining and prehistoric rock art. Much has been written about Panamint City in both popular and scholarly books and articles (See references). The cultural resources here have value for scientific and popular publications on several topics including the history and technology of the early mining industry, Native American rock art studies, and the prehistory of the Panamint Valley-Death Valley region.
5. Aesthetic Value. The ruins of Panamint City (Map 4), especially the standing smelter stack, and the Panamint City rock shelters with its multicolored pictographs are quite spectacular and picturesque. The area already attracts many sight-seers. Tourists are guided to the canyon through guide books and newpaper and magazine articles

6. *Integrity/Surrounding Environment.* *This value is the only one which cannot be rated high. Loss of integrity to the cultural resources has occurred because of prior vandalism to the Panamint City ruins and the ongoing mining activities within the ACEC. The current mining at Panamint City is a sharp contrast to the setting of the Historic ruins, in spite of its continuing theme, and may seriously impair its National Register quality.*

7 *Ethnic Concerns.* *Portions of the ACEC were identified during the Desert Plan inventory as areas of Native American heritage or religious values. The area was traditionally used by the Panamint Shoshone.*

8. *Historic and Ethnohistoric Documentation.* *The story of the boom and bust of Panamint City is well documented in the literature (Vredenburgh et al 1981). Native American ethonohistoric documentation also references the area (Steward 1938).*

F. Recreational Resources

1. *Scenic Values.* *The method by which the Bureau assesses scenic quality is through the Visual Resource Management System. This system assigns a numerical rating to the visual quality of an area. Scenic quality, sensitivity of the area to change as perceived by users and distance from key observation points are the factors used to determine the evaluation.*

Surprise Canyon received the highest rating with this system; Scenic Quality Class A and VRM Class II. This was a reflection of the continued stream flow and riparian vegetation that extends along the length of the canyon. The stream and vegetation contribute to the spectacular drive up the narrow canyon to Panamint City, the ghost town at the top of Surprise Canyon. With the present development of the mining operation at Panamint City, the landing strip, working area and construction of residences, has

detoriorated the quality of the historic ghost town.

In a Class II area, changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen but should not attract attention.

2. Visitor Use. Surprise Canyon provides for a semi-primitive motorized recreation opportunity. Access through the canyon is on a rugged 4-wheel drive road on the canyon floor. This road is subjected to severe flash flooding. The narrow canyon walls and the challenge of navigating the road provide for an excellent 4-wheel drive experience.

From Panamint City visitors backpack and hike to various locations in the Panamint Range such as Hungry Bills Range located in Death Valley National Monument and Sentinel Peak. During spring, Colleges and Universities also visit the area.

3. Interpretive Values. There are several subjects of interpretive value that can be made available to visitors of the area. They are: geology, vegetation and historic mining.

Geology: The steep narrow canyon provides an excellent opportunity to interpret the formation of the Panamint Range. The canyon walls provide a cross cut of layers of rock that form the range.

Vegetation: The year round stream flow contributes to the diversity of vegetation along the canyon floor. Specific locations for interpretation of the canyon's unique vegetation occur at Limekiln and Brewery Springs.

Historic Mining: *Panamint City is the destination of the majority of visitors to Surprise Canyon. Interpretation of the historic mining activity will provide meaning and understanding to the visitor of remaining ruins located within the area.*

G. Wilderness

Suprise Canyon ACEC is contained within Surprise Canyon Wilderness Study Area CDCA-136. In the California Desert Conservation Area Plan Surprise Canyon WSA is prelimiary recommended as "nonsuitable" for inclusion in the National Wilderness System. Prior to Congressional designation, as either "suitable" or "nonsuitable", this area will receive special management (BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review) to assure that the wilderness characteristics and values are not impaired.

H. Land Status

Of the 20.6 mi^2 of land within the ACEC, slightly less than 1 mi^2 is private. This private land consists primarily of patented mining claims. About 1565 ac. of land are contained within public water reserve 107. (Map 5A & 5B). A land status review is recommended for this ACEC.

At the present time, the ACEC is only partially surveyed. The Cadastral Survey is in the process of completing its survey of this area and should be finished in the near future.

Patented mining claims are held by several prople within the management area. The most prominent are, Mr. David Pruett of Bishop, who owns patented land in the vicinity of Thompson Camp and Panamint City and leases other patented claims, and Mr. Richard Crowe of Bakersfield. Unpatented land is claimed by Mr. George Novak, a resident miner who lives at Chris Wicht. Mr. Joe Ostrenger of Long

Beach leases unpatented land claimed by Mr. David Pruett. Based on current data, all surface water in the ACEC is within public water reserves established by Executive Order of April 17, 1926 and subsequently located by BLM Order of November 13, 1970. Public water reserves are withdrawn from "settlement", metalliferous, sale, or entry, and reserved for public use in accordance with the provisions of Section 10 of the Act of December 29, 1916, and in aid of pending legislation. Furthermore, the term "public use" implies that the water rights are held by the Federal Government for uses including land management operations and subsequently development and implementation of this ACEC management plan.

Millsite claims within public water reserves have been filed and recorded. These millsites are usually associated with ore processing equipment, water diversions, and residences. Prime examples of these activities are located at Chris Wicht Camp, Sourdough Canyon, Upper Surprise Canyon (Panamint City area) and Water Canyon.

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IV. Use Philosophy and Goals

The overall goal of the Surprise Canyon ACEC Management Plan is to protect and enhance those sensitive biological and cultural resources occurring on public lands within the area designated as the Surprise Canyon ACEC. These resources include at least two sensitive plant species, several unusual plant assemblages (UPA's) one sensitive animal species, both prehistoric and historic archaeological sites, and wilderness, recreational, and scenic attributes. Specific goals are listed in Section V (Planned Actions).

Protection of resources will not preclude all recreation or mineral use of the ACEC, the two principal uses. The overall goal of the management plan will be to manage sensitive resources and public use in order to optimize both environmental protection and public use. Some uses considered to be incompatible with the management goals of the ACEC include:

A. Camping within public water reserves and near cultural sites.

B. Driving vehicles off road would be both unnecessarily destructive and dangerous. (This is a very narrow canyon with only one main road)

C. Indiscriminant discharge of firearms especially within the vicinity (300 yards) of cultural sites, riparian habitat and bighorn use areas.

D. Collection of any biological, archaeological, or paleontological entites within the ACEC, without a proper permit.

E. Unnecessary and undue degradation of public lands within the ACEC especially those with known sensitive resource values.

F. Construction of permanent structures (i.e. dwellings) within the ACEC on public land.

G. Withdrawal of water from public water reserves to an extent that the continued existence of the biological entities dependent upon these water sources would be in jeopardy.

H. Introduction of exotic organisms (i.e., burros, gerbils, goldfish, cultivated plants, etc.). Refer to BLM Manual 6830.

I. Developement of "mini-hydroelectric"facilities and dams

Low impact recreation including camping, picnicking, photography, hiking, nature study, and 4X4 vehicle touring on designated roads occurs now in the area and is not incompatible with the goals of the ACEC. Scientific research and educational tours are not only compatible with management goals, but are encouraged as a legitimate use of this ACEC. The findings and opinions of researchers and educators may provide valuable tools for future management.

One of the greatest conflicts in managing this particular ACEC is the ongoing disturbance of the natural system by mining. Although many areas are affected, mining has particularly affected riparian areas and water resoures. Riparian areas have been variously disturbed for the purposes of constructing roads or pipelines (Figures 5 and 6) and springs have been bulldozed and "developed" as domestic or industrial water sources (Figures 10 and 11). Only recently, in May 1982, the base of the Limekiln Springs was bulldozed by miners in order to create a "swimming hole" (Figure 6). In some cases water diversions and development have been authorized uses and mine operators have ligitimate water rights. In other cases incursions into the public lands and water reserve constitute unauthorized use and must be curtailed. A discussion of surface water rights is presented in Section V.M.

At the moment, the relatively uncontrolled activities of miners, outside of their legitimate authorized mineral development constitute the major threat to the Surprise Canyon ACEC and its sensitive resources. Whereas CFR 3802/3809 regulations give clear guidelines for management of mining operations only constant on-the-ground presence of BLM staff can ensure compliance At the present time, compliance checks are sporadic at best. The frequency of these checks will have to be increased in order to

Figure 10. Spring (unnamed) between Panamint City and Thompson Camp. Note the water diversion for Mineop Corp.'s domestic water supply.

Figure 11. Partially buried water line leading toward Mineop Corp. facilities near Panamint City.

maintain protection against unauthorized use.

V. Planned Actions

The 23 major recommendations or management prescriptions for the ACEC, identified in Section II, will be implemented through specific actions. These actions, a discussion of the need/rationale and recommendations are presented as follows:

A Designate parking and camping area. Unrestricted camping and parking of vehicles in the ACEC have the potential of impacting flora, fauna, cultural and scenic resources in the ACEC. A critical item is the elimination, as much as possible, of human use and occupancy of riparian and bighorn sheep habitat areas. Bighorn watering areas must be protected in order to maintain and enhance bighorn populations in Surprise Canyon, camping and parking in riparian habitat have the potential of degrading this very important habitat by reduction of ground cover (wood cutting, campfires, crushing vegetation) and pollution of surface water (human excrement, trash, chemicals). Camping and vehicle parking on archaeological sites destroys or degrades their scientific aesthetic values.

Camping and overnight parking of vehicles will be allowed at the mouth of Surprise Canyon, and in the canyon from the Panamint City area to within 0.25 mile of Brewery Springs.* Refer to Map 6 for designated camping and parking areas. Camping restrictions will be identifed through signing. Campsites will not be identified but will be on an opportunistic basis because of the limited area available

*Archaeological sites, including a 50 meter upper zone will be eliminated from camping and parking area.

B. Construct interpretive displays and provide pamphlets describing the area. One interpretive sign with a pamphlet box will be installed where the Surprise Canyon dirt road enters the ACEC. The pamphlet will contain an ACEC map plus highlights on unique natural and cultural recoures and management of the ACEC. The pamphlet will also include a list of recreation opportunities and prohibited activities. The Panamint City ruins have already demonstrated public interest and appeal. They should be made available as a point of interest and interpreted. Refer to Appendix 3.A,B for a diagram of the interpretive sign and location.

C. Prohibit gathering of firewood in riparian areas. Eliminating camping in riparian areas will greatly reduce the potential for firewood cutting in these areas. Prohibiting firewood cutting in all riparian areas will prevent cutting of wood and hauling to an authorized camping area or to residences occupied by people involved in mining (Panamint City area and Chris Wicht Camp). This restriction will be identified on the ACEC interpretive sign and pamphlet. A letter identifying this restriction will also be sent to all residents in the canyon. This action is required to protect and enhance flora and wildlife habitat.

D. Allow vehicle use on approved routes. Refer to Map 6, for recommended approved routes of travel for vehicle use. Vehicle use restrictions are necessary to prevent degredation of vegetation, wildlife and cultural and scenic resource values. Designated routes are also necessary to make points of interest, scenic vistas, etc. available to the public.

E. Begin intensive burro removal. No burros are to remain in the Panamint Range (California Desert Conservation Area Plan, Map No. 8). The lower portion of Surprise Canyon from Chris Wicht Camp to the mouth is

heavily occupied by burros. Burros often occupy the alluvial fans and flats in Panamint Valley during the day and travel into the canyon at night. This situation exists in all the west Panamint Mountan Canyons that have a source of water. A burro proof fence and cattle guard should be considered for the mouth of Surprise Canyon as a means of preventing burro movements from Panamint Valley into the canyon. Total burro elimination for Panamint Valley should be considered in order to reduce conflicts and keep burros out of the western Panamint Mountains. A plan amendment to eliminate the herd or reduce the size substantially will be considered.

F. Rehabilitate Limekiln, Jody and Thompson Springs:

These springs, as mentioned above have been severely disturbed and should be returned to as near a natural condition as possible. Although identified in the California Desert Conservation Area Plan, rehabilitation of the "marsh" at Chris Wicht Camp is not appropriate. The "marsh" is not a natural feature, but rather an old excavated pit approximately 1,000 square feet in area which has filled with water. Since a marsh doesn't naturally exist here, the rehabilitation prescription does not apply.

This man-made pond is in close proximity to a residence at Chris Wight Camp。 Removal of trash will be required under the approved mining plan for Mr. George Novak, resident miner on the site. Water use and diversions will be monitored and managed under the application and enforcement of surface mining regulations (43 CFR 3809/3802).

G. Eliminate Exotic Vegetation (Tamarisk):

Tamarisk is a non-native invader which vigorously competes with native willows and other riparian species for water and space. Tamarisk thickets are of a lower value to wildlife (especially non-game birds) than native willows (Anderson & Ohmart, 1977; Robinson, 1965).

Individual shrubs will be cut or chopped down using hand tools and/or a chain saw. An effective herbicide will be applied by brush to the cut portions of the remaining stump to eliminate the plant. Repeated applications of the herbicide may be necessary to eliminate the plant. Interior Department authorization will be required prior to the use of herbicides such as "Tordon" on Public Lands.

Portions of shrubs removed will be hauled out of the canyon and stockpiled in an area until dry, and then burned.

H. Monitor the Effects of Mining & Other Man-made Impacts on Wildlife & Riparian Vegetation:

In order to determine the effects of ongoing mining operations on wildlife it is necessary to have extensive records on historic wildlife use in Surprise Canyon. Since such records are, for the most part, non-existent, it isn't possible to quantify what effect mining has had on wildlife.

However, records on bighorn sheep populations in the Panamint Mountains adjacent to Death Valley National Monument indicate bighorn sheep were considerably more abundant in the past. Welles and Welles (1961, in Weaver, 1972) estimated that 25 bighorn inhabited Surprise Canyon in 1961. Eleven years later the population was estimated to be transient only (Weaver, 1972). It is generally known that bighorn were shot for food during the mining boom period in the late 1800's. This unregulated hunting probably had a serious impact on the viability of bighorn populations Cumulative impacts of human occupancy of bighorn habitats, including crucial water sources, an expanding feral burro population and increased off-highway vehicle recreation have suppressed bighorn populations significantly.

One method available to determine the impact of mining operations on riparian habitat and wildlife is the assessment of habitat quality and quantity and monitoring of bighorn sheep use (refer to the Monitoring Section VII B). The total linear miles and condition of riparian habitat will be estimated and reported every 5 years. Since riparian habitat isn't continous, each segment will be treated separately (i.e. Water Canyon, Sourdough Canyon, Brewery Spring segment, Limekiln Spring segment, etc). Also refer to the monitoring section, specifically vegetation.

Water quality and quantity will be monitored every two years at Brewery and Limekiln Springs and immediately downstream from Chris Wicht Camp. Water quantity will be monitored in Water Canyon and Sourdough Canyons on an annual basis. The terminus of the surface water flow below Chris Wicht Camp will be determined on a seasonal basis every two years.

I. *Investigate the feasibility of acquiring key private parcels and mitigate acquisition as appropriate. Private land in the ACEC is located in the Panamint CIty area and in the upper portion of Woodpecker Canyon. Except for the parcels in upper Woodpecker Canyon, all private property has recently been acquired by the Mineop Corporation and active mining is underway. The parcels in Woodpecker Canyon should be acquired to prevent possible future intrusions into isolated habitat occupied by a variety of wildlife including bighorn sheep.*

J. *Protect scenic values through rigorous application of the BLM Visual Resource Management system. At the present time the only land use seriously degrading the scenic quality of the ACEC is mining. Visual Resource Management recommendations will be made during the environmental review of mining plans of operation. Only mining activities on Public Land can be regulated*

under Title 43 CFR 3802 and 3809. However, at this time, mining activities on public land are believed to be not necessarily subject to the BLM Visual Resource Management System. The VRM system may be superceded by the 3802/3809 regulations and field experience has shown that substantial visual intrusions do occur in spite of application of Title 43 CFR 3802/3809 Title CFR 43 3802.3-d(d), for example states that: "The operator shall to the extent practicable harmonize operations with the visual resource." This statement is obviously open to a broad spectrum of interpretations. In conclusion, application of the Visual Resource Management System does not guarantee that visual quality of the ACEC will be maintained. This action needs to be researched for applicability.

K. Increase Visitor Service/Law Enforcement/Management Presence:

Increased visitor service and law enforcment personnel in the area will help in preserving the value of the various resources and will deter vandalism. In FY-83, funding will provide for either Ranger or Visitor Service Specialist presence in Surpise Canyon four times each month, primarily on weekends. No aerial patrols are anticipated due to lower funding of recreation management programs. The degree of BLM presence in the ACEC will fluctuate each year according to funding. Management presence in the ACEC will be generally associated with resource monitoring and compliance checking. On site inspections are expected to be 4-6 times each year as dictated by need and funds

L. Prohibit Collecting Plants & Animals Except by Permit:

Interpretive signs and brochures for the ACEC will state that collection of plants and animals is prohibited by permit. However, it must be made clear that the Department of Fish and Game is responsible for regulating

collection of animals, including game species taken by hunters during established hunting seasons. Several species of animals may be taken as game animals during established hunting seasons: Gambel's quail (Lophortyx gambelii), chukar (Alectoris chukar), mourning dove (Zenaidura macroura), and mule deer (Odocoileus hemionus).

The BLM is the authority for permitting the collection of vegetation Several unique plant species/assemblages in the ACEC require protection from collection. It is also very important to control firewood cutting on public lands. Mining operations often utilize naturally occurring pinyon pine for firewood. Controlled wood cutting on public lands other than mining claims is necessary for protecting the scenic quality and wildlife habitat in the ACEC. Wood cutting on mining claims in support of mining activities is allowed under BLM regulations

M. Protect Water Sources:

Surface water in the ACEC is a key resource element to be managed for protection, maintenance and enhancement of biological and scenic values. Recent BLM investigations estimated water discharges in Surprise Canyon as follows: Brewery Spring, 527 GPM (*8/21/81), Unnamed Spring in Sourdough Canyon (Jody Spring), 120 GPM(12/18/80), Unnamed Spring in Surprise Canyon, 300 GPM (12/18/80).

In spite of the existence of public water reserves and BLM enforcement of the new regulations entitled "Surface Management of Public Lands under the U.S. Mining Laws" (43 CFR 3809) and similiar regulations affecting public lands under wilderness review (43 CFR 3802), surface water and dependent flora and fauna as well as scenic quality are being significantly degraded by mining operations. Interpretation and application of the condition of "unnecessary and undue degradation" as it

applies to mining operations is generally ineffective from an environmental standpoint, in providing protection to resources on public land especially when such resources are of limited extent and not protected by law.

Therefore, water sources and public water reserves in the Surprise Canyon ACEC will be withdrawn from location and entry under the U.S. Mining Laws. This action is consistent with the overall objectives of the ACEC, Executive Order No. 11990 (Protection of Wetlands) and BLM Manual 6740 (Wetland-Riparian Area Protection and Management).

N. Develop a Water Use Management Plan for the Surprise Canyon ACEC/ Western Panamint Mountains and Canyons WHMA:

As part of a larger plan involving the entire wet slope of the Panamint Mountains from Jail Canyon in the north to Goler Canyon in the south, a water use management plan will be developed for Surprise Canyon. The plan will be prepared by California Desert District staff in particular, a hydrologist and geologist in cooperation with the Ridgecrest Resource Area Office. The plan will facilitate water use and distribution, clarify rights and access to water sources and may establish a Memorandum of Understanding with local residents and mining operations. The water use plan will be developed according to guidelines and policies developed in BLM Manual 7250 - Water Rights.

O. Establish Cooperative Agreement with Private Landowner:

A cooperative agreement with the Mineop Corporation is highly desirable for the protection and possible restoration of the Panamint City ruins and prehistoric sites in the vicinity of the mining operations. The need for a cooperative agreement stems from the complex land ownership of public and patented land in the Panamint City area, and the high value of the cultural resources in the area

Although informal cooperation between the BLM and Mr. Pruett has, so far, protected the resources from direct negative impacts of the current mining operations, a formal agreement will clarify responsibilities and assure the continued protection, possible restoration, and interpretation and educational opportunities for public use.

Possible issues for consideration are the following:

a) Protection and preservation of cultural resources located on patented land as well as public land.

b) Inclusion of cultural resources on patented land with those on public land for the purposes of inventory.

c) Consideration of a joint nomination of cultural resources on both private and public land for inclusion in the National Register of Historic Places as a National Historic Landmark, and/or for listing on the National Architectural and Engineering Record.

d) Stabilization and restoration of the more substantial extant historic ruins.

e) *Fencing of the Panamint City rock shelter to protect the site from vandalism.*

f) *Control of visitor use to assure visitor access to the Panamint City ruins while minimizing public interference with the mining operations. The presence of the mining company at the ruins has deterred vandalism.*

g) *Possible assistance with materials and labor to protect, restore or stabilize the cultural resources of the Panamint City area.*

P. *Conduct intensive resource inventory.*

a) *Fauna. At the present time more information is required on bighorn sheep in the ACEC. Population, size, age and sex structure, areas of concentrated use and watering requirements need to be more accurately defined through field observations and interviews of residents in the area. Further study of the Panamint Alligator lizard distribution and abundance should be focused over the Western Panamint Mountain WHMA*

b) *Cultural Resources. An intensive inventory of the cultural resources in the Panamint City vicinity is the necessary first step in the management of this resource. Not only is this data needed for the National Register nomination, it is also necessary to clarify exactly what resources remain and where they are located.*

The goal of the inventory is to produce a map of the historic and prehistoric remains of the Panamint City region. This map should relate the extant archaeological remains to the current land ownership pattern of the area. Each feature should be photgraphed and described as part of a permanent site record. At this time, a determination can be made regarding condition or suitibility for restoration or interpretation. The map will also serve as baseline data for monitoring.

The map has already been produced under Contract (No. CA-060-CT1-4) awarded to Archaeological Systems Management, Inc. November 26, 1980. As soon as the map is available, field inventory can begin. This inventory can be done "in-house"

The Panamint City area is a priority for inventory because it has the greatest concentration of cultural resources and is also the area of greatest negative impact from vandalism and mining. Other areas within the ACEC should be inventoried in the future.

c) *Vegetation and Flora. Although a botanical survey of the Panamint Range was conducted by Romspert, (1972), no other publicatons or unpublished reports concerned with the vegetation and flora of the Surprise Canyon area are known. Romspert's flora is simply an unannotated list and is not specific to the Surprise Canyon area. An intensive survey of this region including the production of an annotated floristic list and 50 line intercepts evenly spread along the elevational gradient is recommended as a means of characterizing the area's vegetation. These data will be used as a basis for future determinations of condition and trend.*

Q. Protect, stabilize and, or enhance wildlife values. Planned management actions identified for implementation will generally satisfy this prescription. Evaluations and revisions of this plan will identify additional measures needed to manage the ACEC/WHMA.

A wildlife water source should be provided at higher elevations near the boundary of Death Valley National Monument to enhance habitat conditions for bighorn sheep and mule deer. Natural water sources typically occur in the bottoms of canyons, requiring that deer and bighorn occupy habitat adjacent to, or make long trips to water in the lower elevations, especially during the summer and fall seasons. The mining operation, recreation use of the area and human presence in these areas creates an adverse situation for wildlife watering.

biologists from the Department of Fish and Game, the BLM, and the National Park Service will conduct a joint field inspection of the ACEC to locate a site. The design will be specified after a site has been selected and precipitation data studied to determine water collection potential.

R. Protect, stabilize, and or enhance vegetation. The previously described actions will satisfy the vegetation protection, stabilization, and enhancement objectives. Review and revision of the plan will identify other needed measures.

S. Protect, stabilize and enhance Cultural Resources Values. The ruins of Panamint City are significant to local state, and perhaps national history. As a potential national register site, they should be protected. Cultural resource inventory will determine which historic or prehistoric features need protection, stabilization, or restoration. Two immediate

needs are already known. Because of the complexity of the projects and the sensitivity of the resources, they would best be handled by professionals under contract to the BLM. Completion of these projects depends upon available funding for cultural resource protection and stabilization.

Panamint City Smelter and Stack.

The old brick smokestack at Panamint City is about all that remains of the Surprise Valley Mill and Water Company's twenty-stamp mill (Hartill et al 1980: 154). The mill went into operation on June 29, 1875, but was not enough to stem the tide of economic depression which hit California in August of that year. By November of 1875, most of the 1500-2000 residents of Panamint City had left. Senator Jones finally shut down his Panamint Mill in May 1877 in response to a stock market panic.

The stack has suffered from vandalism; shooting has damaged the bricks, especially the protective cap at the top of the stack. This has allowed water to seep inside eroding the brick from the freezing and thawing of water. Erosion of the hill slope applied pressure to the base of the stack.

The restoration of brick structures requires careful reconstruction since some measures may cause more damage than the original problem. The best protection would be to restore the stack to its original shape with as materials as close to the original as possible. This would best be done by professionals skilled at historic brick reconstruction.

Panamint City Rockshelter:

The rockshelter contains a multicolored pictograph of various elements. It is in good condition but the possibility of vandalism increases as the mining activity at Panamint City increases and as the traffic of sightse'ers to Panamint City increases.

To reduce this threat, it is recommended that a grate be placed over the face of the shelter. This grate should be designed in such a manner as to offer the necessary protection while also allowing visual access for viewing and photographing.

T. *Nominate the Panamint City Ruins for Inclusion in the National Register of Historic Places, as a National Historic Landmark, and for Listing on the National Architectural and Engineering Record:*

The CDCA Plan recommends this measure. Joint nominations should be considered between the BLM and the Minop Corporation in order to include all of the ruins as a unit.

U. *Comply with WSA Interim Management Policy:*

V. *Establish a Monitoring Program (See Section VII and Planned Action H)*

W. *Prohibit Indiscriminant Discharge of Firearms in the ACEC:*

Indiscriminate discharge of firearms (plinking) is both dangerous, and has had a deletorious effect on such resources as the Panamint City Smelter Stack. The use of firearms for plinking will be prohibited within the ACEC. However, hunting of game animals according to California State Department of Fish and Game regulations will be allowed

VI. Coordination with other activites

A. Fire Management. Maintenance of riparian habitat, water quality, wildlife populations and scenic quality necessitates that a fire management plan be developed. Fire is also a beneficial vegetation management tool, provided it occurs at the appropriate time, in suitable topography and location and in limited acreage. Since this ACEC is not a rangeland the renewal of plant vigor and, or successional change typically associated with controlled burning does not apply in the strict sense.

The riparian vegetation and associated springs in the Public Water Reserves require protection from fire. This area supports unique vegetation and wildlife, produces large amounts of good quality water and is highly scenic. The potential for fire in this area is greater than would be expected because of active mining operations and occupied residences. Vehicular access is via a primitive dirt road in the canyon bottom passing immediately adjacent to dense willow-cottonwood thickets. Fire suppression in this area will be immediate utilizing designated roads for vehicular access. Hand crews will stop advancing fire with minimal alteration of the landscape. Only water may be used as a retardant (i.e., no chemical additives will be used as wetting agents).

Upland habitat susceptible to wildfire spread are the pinyon pine, sagebrush and mountain mahogany vegetation zones occurring in the higher elevations beginning in the Panamint City area. The highest elevations are generally sparsely vegetated with limber pine and bristlecone pine and are not influenced by fire. Occasionally a few trees may burn after being struck by lightning. Fire suppression in these upland areas will be applied to prevent fires from burning uncontrolled and engulfing large acreages of woodland

habitat. Spot fires will be allowed to burn if they are self extinguising, of limited size, and will not spread to riparian areas or threaten human life and property.

B. Mineral Development:

Existing regulations governing mining (43 CFR 3802/3809), Executive Order #11990, etc., will be strictly applied to prevent undue degradation of resources in the ACEC. A list of stipulations used by the Ridgecrest Office in developing mining plans is presented as Appendix 6. Diversion of water for mining and domestic purposes will not be permitted which will adversely affect the scenic, wildlife, riparian and recreational values of the area The BLM will protest any proposal by the State to issue a water right in the Surprise Canyon ACEC. The presence of public water reserve may preclude the State's option of entertaining a water right application.

VII. MONITORING:

A. Vegetation/Wildlife Habitat:

Monitoring the vegetational resources of the Surprise Canyon ACEC will have two aspects:

1. Experimentation:

Experimental plots and procedures with full application of scientific practices and the scientific method will be established in order to perform casual analysis, particularly those relating actions of living and nonliving ecosystem components to vegetational change, in order to derive predictive models to facilitate resource management. This will be of particular importance in condition/trend determination.

2. Passive Recording and Observation:

Passive observation and recording can be very important for the documentation of environmental change, although it will not necessarily provide for casual analysis. Such passive monitoring could include: permanent photo sites, trend plots, visual analysis, low-level aerial photography,

and ad hoc study sites. This form of analysis would be most applicable for complicance checking.

3. *Monitoring Methods:*

Monitoring in the Surprise Canyon ACEC will involve several procedures.

a. Experimental plots

Exclosures

Permanent quadrats or line intercept sites

b. Ad Hoc study plots

c. Permanent photo slides

d. Aerial photography

(1) High level (1 : 20,000)

(2) Low level (1 : 1,000)

Photogrammetric mapping of cultural resources in the vicinity of Panament City has already been contracted. Upon completion, this might serve as a framework for monitoring, however, it is questionable whether this technique will prove valuable for vegetation analysis. The following reasons are given:

a. Many vegetational resources (sensitive plants, riparian vegetation) are situated in canyon bottoms and it would be dangerous to fly aircraft at low elevations in a narrow canyon. At higher elevations, resolution would be lost.

b. Sensitive plant species such as Enceliopsis and Dudleya described previously, are too small to be accurately identified even with low level photography. In addition, Enceliopsis grows on canyon slopes where much of the population could be lost in shadow.

c. Rugged, steep nature of the terrain especially in the lower part of the canyon would create distortion in the photographic image.

However, some monitoring by this method might be feasible in the higher reaches of the ACEC (i.e., Sentinal Peak Bristlecone Area) which are not

readily accessible. This can be done on an "as needed" basis.

B. Sensitive Plant Species

1. Dudleya saxosa ssp. saxosa

There is no indication at the present time that Dudleya saxosa is being subjected to impacts from any agents in Surprise Canyon. However monitoring of the population by visual assessment on a yearly basis is recommended especially with regard to observing rates of herbivory by various animals especially burros.

Six populations will be evaluated annually using $1m^2$ permanent quadrats. A climatic monitoring station will be established close-by in order to evaluate population fluxes in relation to climatic variation. A phenological study will be made the first year of monitoring. At least 3 of the above populations will be enclosed by herbivore-proof fences. Population parameters collected every year should be at peak of flowering (regardless of calendar date) and should include plant density, plant height, and area of the basal rosette. Each plant in the quadrats should be accurately mapped on a scaled down map of each quadrat every year for as long as monitoring continues.

2. Enceliopsis covillei

As mentioned earlier, there is circumstantial evidence to indicate that E. covillei is undergoing a decline due to the depradations of feral burros. The main thrust of the monitoring program in this case will be to determine whether of not burros of Surprise Canyon are having an adverse impact on E. covillei which would jeopardize the continued existence of this species.

There are several problems associated with the monitoring of Enceliopsis:

1. The species generally occurs on very steep slopes often on unstable talus which is difficult to navigate.

2. This species does not usually occur in dense stands, but individuals or clumps (i.e. clones) are scattered and sparsely distributed so that quadrats or exclosures may have to be inordinately large to accomodate a statistically significant number of individuals.

3. The population in Surprise Canyon is small and largely inaccessible thus limiting, from a statistical stand point, the amount and quality of data which can be collected concerning the ecology of Enceliopsis covillei.

Logistical practicality may necessitate restricting the scope and the statistical reliability of the monitoring program for Enceliopsis covillei. However general trends can be recorded while maintaining as high a degree of monitoring quality as is possible under the circumstances.

There is one small population of E. covillei about .25 mile below Chris Wicht Camp on the north side of the canyon, just above the stream bed (Map 3). A group of about 10 plants could be fenced (although these occur on steep talus) within an exclosure. But it should be pointed out that this group is much more accessible to burros than the majority of individuals. Therefore any results gleaned from an "inside vs outside" grazing study would be biased towards overestimating the impacts of burros and should be interpreted in this light.

The several aspects of this study include:

1. Physical environment:

Since E. covillei is reported to be found on soils rich in $CA_2 SO_4$ (Gypsum) a soil analysis based on samples taken from the immediate vicinity of atleast 10 plants will be performed in order to verify its soil requirements. Soil movement on active talus will also be monitored by relating it to a

soil "dam" at the base of the talus slope. The volume of material accumulated behind the dam will be measured yearly. In addition, a meteroro-logical station (raingauge plus thermometer; recording types) will be established in order to help relate plant response to environmental fluctuations.

2. Reproductive biology

Studies in reproductive biology will include a phenological study, evaluation of pollination phenomena, see production, and vegetative reproduction. Volunteers (e.g., university graduate students) will be encouraged to undertake such studies. The District Research and Monitoring Coordinator could circulate a list of studies the BLM would like to see done among the more prominent southern California universities and colleges. In return for the studies, the BLM would give these students support as volunteers.

3. Effects of grazing

The aforementioned group of plants could be fenced by an exclosure 20mm long by 10m wide. The fence should be burro proof, but not bighorn sheep proof. Each plant within the exclosure should be mapped and accurately measured along with a like number outside the exclosure. The plot and control should be evaluated every year during the period of maximum vegetative development of E. covillei.

At the same time, burros and if possible, bighorn sheep should be observed foraging when in the vicinity of Enceliopsis in order to establish preference (or for that matter avoidance) for E. covillei.

To reiterate, this study would tend to overestimate the effects of grazing by burros.

C. Riparian Areas:

The goal of this monitoring program will be to assess the role of man,

burros, and other agents in modifying desert riparian systems and to evaluate plant succession in these systems.

1. Streamside Woodland (Cottonwood Willow)

The most diverse assemblage of riparian species in Surprise Canyon lies about 0.1 mile above Chris Wicht Camp. An exclosure will be constructed 0.1 mile (.16 km) long and 100 feet (30m) wide or at least out to the road margin. The remainder of this area would be left unfenced as a control. The understory vegetation within and without will be evaluated using the line intercept technique (Canfield, 1941) as modified by Strong (1966). A complete description of this technique can be found in Cox (1976). The height, cover and basal diameter of cottonwood trees and large willows of tree-like stature should be recorded within the exclosure and over a like area outside the exclosure. Measurements should be repeated yearly for as long as the monitoring period lasts

Fences on this exclosure should be constructed to form a "break away" type where they cross the stream channel. In this way a flood will only tear out a small part of the fence which could easily be repaired. A "gate" over the stream bottom which pivots on its upper horizontal axis would also accomplish the same purpose.

2. Seeps and Spring

a. Limekiln Spring[1]

Limekiln Spring will be fenced or barricaded in such a way as to prevent vehicle access up to the base of the drip wall. Of course such barricades and/or fences should not exclude wildlife. Because of the small area involved, monitoring would best be achieved by examination of photographs periodically taken from a permanent photo site directly in front of the drip wall of the spring. Photographs

1. Subsequent to the writing of this plan some local individuals at Panament City, bulldozed out a pit at the base of the drip wall of Limekiln Springs.

would be taken with a 35mm camera which should include both a 50mm standard lens and a 28 or 24mm wide angle lens. Water quality will be monitored for:

1) Flow

2) Total dissolved solids

3) Heavy metals

4) Ressidues of organic chemicals

5) Total conductivity

b. Brewery Spring

Since the present road runs directly through the riparian vegetation created by Brewery Springs and directly adjacent to the springs itself, fencing seems impractical since it would necessitate realigning or closing the road. At the present time, the road itself seems to be the only impact on the spring and its environs. Therefore monitoring should take the form of casual observations. If problems arise, they can be dealt with soon after they are defined.

c. Jody[1] and Thompson Springs

These two springs are currently being exploited and modified as water sources for mineral operations. As a result they are in a state of decline if not outright degredation. A monitoring program will be initiated as soon as the BLM reaffirms its claim to these areas under the public water reserves system. In this case monitoring would measure recovery rates and investigate the effects of water withdrawal for mining operations on the Spring riparian areas. At this time precise methodological procedures would be premature but should include a combination of fencing and enhancement, followed by yearly measurements of water flow, water quality, and vegetational cover changes

1. Subsequent to the preparation of the first draft of this ACEC Management Plan the spring was severely disturbed by a local resident attempting to "improve" the flow.

d. *Bristlecone Pine (Subalpine Forest)*

Stands of bristlecone and limber pine are present on Sentinel Peak which can be visited only on foot. Yet it is apparent by the presence of dry wallows, that burro populations in the area are extensive at elevations at and around 9,000 feet. Utilization of vegetation within these stands will be monitored periodically (every year or 2 years) by a trend plot analysis in areas of burro concentration. The trend plots will consist of 100m long line intercepts (Strong 1966). Access to plots would be available by helicopter and burro counts could be conducted simultaneously. These activities will be coordinated with Death Valley National Monument whose borders are adjacent to the Surprise Canyon ACEC. Periodic changes in cover and plant damage will be recorded and related to climatic fluctuations (A recording precipitation guage and thermometer will have to be established) and burro population numbers and activity.

D. *Wildlife*

Assessing selected habitat component condition and degree of habitat use by key wildlife species are factors which will provide an index of suitability of the habitat in the ACEC for wildlife. These factors include riparian habitat condition, water quality and quantity, size of the feral burro population, amount of vehicle traffic, recreational use, and extent of bighorn sheep occurance and behavior. These ACEC characteristics will be monitored to provide an index of suitability of the habitat for wildlife in general. Data initially collected on these parameters will form the basis on which the BLM will evaluate the effectiveness of the management prescriptions in managing Public Land in the areas as an ACEC.

1. *Riparian Habitat. Refer to section VII C and also Planned Action H.*

2. Water:

Water quality and quantity will be monitored at the two major springs downstream from mining operations at Panamint City, Brewery and Limekiln. In addition, water flows from two additional springs in Water and Sourdough Canyons (Thompson & Jody Springs) will be monitored for flow. Water diverted for public use under BLM right-of-way will be monitored for compliance with the conditions of the permit (amount of, a point of diversion) and adverse impacts to adjacent riparian and aquatic habitat.

3. Feral Burro Population:

Feral burro populations will be removed under the CDCA's wild horse and burro management program during Fiscal Year 84 - 87.

E. Cultural Resources:

The photogrametric map along with the aerial photographs, provided under contract, the ground survey and site records will provide data for cultural resource monitoring. Permanent photo sites will be established to monitor resources. Regular monitoring will management to problem areas before valuable resources are lost will determine the effectiveness of protective measures

F. Costs:

Total cost of monitoring will be approximately $15,000 and 8-10 workmonths initially and 2-3 workmonths/year thereafter

VIII. REPORTING:

Reports on plan implementation, results of monitoring and overall environmental conditions in the ACEC will be submitted to the District Manager annually.

IX. IMPLEMENTATION:

Implementation of this management plan is the responsibility of the Area Manager of the Ridgecrest Resource Area. Task assignments for plan implementation are presented on the next page.

Prescription/Action	Work Months	Cost Code	Dollar Cost	Completed by
A. Designate parking and camping areas and roads	1	4333	No cost	FY-83
B. Construct interpretive displays and provide pamphlets describing areas	3	4333	$5,000.00	FY-84
C. Regulate firewood collecting and prohibit gathering of firewood in riparian areas			No cost	FY-83
D. Allow vehicle access on approved routes	1	4333	No cost	FY-83
E. Remove burros	3/yr.	4321	No cost [1]	Ongoing operations
F. Rehabilitate Limekiln, Jody and Thompson Springs		2220	$2,000.00	FY-84
G. Eliminate exotic vegetation	1*	4350		FY-84
H. Monitor effects of mining & other man-made impacts on wildlife and riparian vegetation	1 per yr.	4350 4340		Ongoing
I. Investigate the possibility of acquiring key private lands and begin acquisition if appropriate	1	4212	No cost	FY-84
J. Protect scenic values through the BLM visual resource management (VRM System)	No cost Admin. actions		No cost	Ongoing
K. Increase ranger and other BLM presence	1/yr	Benefiting activity	No cost	FY-83
L. Prohibit collection of plants and animals except by permit	1/yr.	4350	No cost	Ongoing
M. Protect water sources	No cost	Admin. actions	No cost	Ongoing
N. Prepare water use management plan	4	4340	No cost	FY-83
O. Establish cooperative agreement with private landowners	1	4340	No cost	FY-84
Conduct extensive resource inventory	3	4350 4340 4331	No cost	FY-84

	Prescription/Action	Work Months	Cost Code	Dollar Cost	Completed by
Q.R.	Protect, stabilize & enhance wildlife, soils & vegetation	4	4350 4340	No cost	Ongoing
S.	Protect, stabilize & enhance cultural values	2	4331	No cost	Ongoing
T.	Pending determination of eligibility, nominate the Panamint City ruins for inclusion in the Nat'l Register of Historic Places. Nat'l Historic Landmark, and the Nat'l Architectural & Engineering Record	1	4331	No cost	FY-84
U.	WSA interim management compliance	1/yr.	4332	No cost	Ongoing
V.	Establish monitoring program inc. exclosures	6**		$15,000.00	FY-83 & Ongoing
W.	Prohibit indiscriminate discharge of firearms (i.e., plinking)	No cost Admin. action		No cost	FY-88

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1 Cost will be incurred through the BLM's burro removal program
* 1 workmonth initially then 1/4 workmonth per year thereafter
** 6 workmonths initially, then 2 per year thereafter

Total workmonth cost (initially)	31 WM
Ongoing workmonth cost	12 1/4 WM/yr.
Total dollar cost	$22,000.00
+ 10% inflation	$24,200.00

X. *ANALYSIS OF PUBLIC RESPONSE:*

Twenty-five copies of the Surprise Canyon ACEC and Western Panamint Mountains Canyons WHMA Management Plan were mailed out for 30-days public review on August 23, 1982. Fifteen plans were sent to the members of the California Desert Multiple-Use Advisory Council. Ten others were sent to members of the public who have intimate knowledge of the area, Inyo County, Death Valley National Monument, and California Department of Fish and Game. Since people tend to share plans, the total distribution was probably greater than the twenty-five parties/ organizations to whom the plan was sent.

An additional 34 plan summaries were sent to members of the public who had expressed an interest in the Surprise Canyon ACEC in their response to the California Desert Plan.

The letters, except for two postcards, are arranged in Appendix 4A-4G[1] *The comments have been numbered on each letter. Where appropriate, we have responded to these comments, according to each correspondent in the following table. The interested reader should read the letters first, then the comments to appreciate the context of the argument. Where the correspondents identify specific planned actions by letter, these refer to the order given in the draft plan. They do not coincide with those in the final plan since certain actions have been eliminated, others added, and some have changed in their order.*

1 A letter from Mr. David Pruett representing Mineop Corporation was received after the closing date and is present as Appendix 4H. Changes were made in the plan where appropriate, but are not discussed on the next page.

CORRESPONDENT	COMMENT	RESPONSE
Death Valley Nat'l Monument (Appendix 4A)	1	We recognize the validity of this viewpoint, which was reiterated by California Department of Fish and Game (Appendix 4F, Comment 1). We will propose an amendment to the California Desert Plan which would change the proposed burro population numbers of the Panamint Valley herd to zero. Until such time we would like to attempt to manage influx of animals into the ACEC with burro proof fences and cattle guards.
	2	This point is well taken and the trail will be deleted from the planned actions.
	3	This is also a good suggestion. References to this sensitive plant will be deleted from the interpretive signs
Bruce P. Besskew (Appendix 4B)	1	Increased presence of BLM personnel is included as a planned action.
	2	We believe that education of the public is necessary for ACEC management if the public understands why protective measures are needed, they will be more likely to support these measures. To say that because vandalism may take its toll of interpretive and other facilities, we should abandon them as management tools, is"management by intimitation".
	3	See response to comment 1.
	4	See response to Appendix 4A, comment 1.
	5	There are no plans to rehabilitate the marsh at Chris Wicht Camp. However, the area should be "cleaned up", the debris and refuse removed from the site.
	6	We are prepared to do this.
	7	Local volunteers will also be encouraged.
	8	See response to Appendix 4A, comment 3 and 4B and comment 2
	9	A determination of eligibility for the National Register of Historic Places for Panamint City was suggested by the Desert Plan. It may not be found eligible; and if it is, a memorandum of understanding with the private landowner (Mineop) will have to be pursued.
	10	See response to Appendix 4A, comment 2.

CORRESPONDENT	COMMENT	RESPONSE
Defenders of Wildlife (Appendix 4C)		No comments were directed to the office by the "Defenders of Wildlife "other than strong support of the plan".
Appendix 4D	1	A poll of the Ridgecrest Area Office Visitor Services staff revealed few problems with pamphlets. However, if they do become a litter problem, they will be removed and will be available only at the Ridgecrest BLM Office.
	2	Below the Pinyon-Juniper Zone, there is little "firewood" available for collection outside of the riparian areas. Miners can legally collect wood on mining claims and millsites. There is such little visitor use in the higher, more rugged areas of the ACEC, that excessive firewood collection is not considered to be a problem.
	3	There are no provisions for garbage collection in the plan.
	4	The proposed trail will be dropped from the final plan
	5-6	The ACEC is not being promoted for recreation. The plan addresses the protection of sensitive wildlife, vegetation and cultural values.
	7	In the final plan, "plinking" will be prohibited, but hunting according to the California Department of Fish and Game regulations will be allowed.
Alan P. Romspert (Appendix 4E)		Comments from Alan P. Romspert (who has performed several biological studies in Surprise Canyon including a botanical survey) were largely directed towards making minor corrections and supplying additional information. These were incorporated into the plan and report on the Physical and Biotic Attributes of the Western Panamint Mountains (Rowlands and Aardahl, 1982).
Margaratha Krucker (Appendix 4F)	1-11	These actions are mandated by the California Desert Plan
	12	The BLM Manual and interagency agreements state that the BLM has a clear responsibility to protect water sources, riparian areas and wetlands on public lands
	14	Not all areas of the desert were inventoried by the DPS specialists. There is a broad gap in knowledge with respect to Surprise Canyon. This is particularly true for bighorn sheep populations, numbers, migration habits, and interactions with burros and man.
	15	Unfortunately, many of the sensitive resources of Surprise Canyon are in, or near jeopardy. Measures must be taken to ensure their survival. Bighorn sheep populations have drastically declined.

CORRESPONDENT	COMMENT	RESPONSE
Margaratha Krucker (Appendix 4F) con't	16-17	BLM must observe private property rights. This action is mandated by the Desert Plan.
	19	
	20	The trail has been deleted from the final plan.
California State Dept. of Fish & Game (Appendix 4G)	1	See response to comment 1 by Death Valley National Monument (Appendix 4A).
	2-4	These comments essentially show support for the planned actions.

Two postcards were also received from Mr. and Mrs. George Barnes of Palo Alto, California, and Vincent Yoder, President of the Bristlecone Chapter, California Native Plant Society, Lone Pine, California. Both responses expressed general support for the plan and its objectives. Comments were received from Mr. David Pruett sometime after the closing date of public review and after the corrected draft was submitted for final typing. The comments however, were accepted (Appendix 4H) and the plan was changed where it was felt to be appropriate.

Summary of Public Comment:

Most of the correspondents were supportive of the plan and its goals. Several letters expressed the need to substantially reduce or eliminate the Panamint burro herd. Several others including one from Death Valley National Monument questioned the need for a trail running from Surprise Canyon to Death Valley (Hungry Bill's Ranch). Only two responses were judged to be essentially negative with respect to the plan and its prescribed management actions.

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XII. Environmental Assessment (EA)

A. Introduction

1. Proposed Action: The action being analyzed in the implementation of the management actions or prescriptions for the Surprise Canyon and West Panamint Canyons Wildlife Habitat Management Area, hereafter referred to as the management area. The planned actions are identified in Section V (Planned Actions) and Section VII (Monitoring) of the Management Plan.

The California Desert Conservation Area Plan and Environmental Impact Statement previously established this management area as well as the planned actions. Thus, this EA is limited to analyzing the implementation of the established actions, primarily in terms of surface disturbing actions which potentially affect existing valuable resources such as archaeological sites, wildlife, and endangered species. Also, under review will be conflict with prior existing rights under the land laws and mining law.

2. Alternatives: There are no alternatives to be analyzed since this action is dictated by the CDCA Plan and EIS.

B. Affected Environment:

A description of the affected environment is contianed in Section III of this management plan.

C. Environmental Consequences:

This management plan will provide for increased protection of highly significant wildlife, botanical, cultural, archaeological, and Native American values.

No threatened or endangered plants or animals will be affected by implementation of this plan. The sensitive plant species of Surprise Canyon as well as bighorn sheep will be enhanced by habitat protection. There is potential for temporary disturbance of nesting migratory birds and resident wildlife in the vicinity of riparian habitat and water sources during construction of protective fences exclosures and study plots, and removal of tamarisk.

D. Mitigation:

1. Fence construction in the vicinity of riparian habitat and springs and manipulation of water sources for the benefit of wildlife will take place during the period from fall to late winter.
2. Prior to fence or trail construction an archaeologist will make a site inspection of each project to determine if special measures are needed to protect archaeological sites.

E. Public Interest: Individuals and representatives of pertinent organizations were selected to receive notices or copies of the draft management plan and environmental assessment for public review and comment. These people were selected from existing CDCA Plan mailing lists on the basis that they would have pertinent information, background, and interest in the specific management actions for the ACEC.

F. Summary: The environmental consequences of the proposed action have been analyzed and there will be no significant adverse impacts to the natural or human environment and, therefore, an environmental impact statement is not required.

Prepared by:

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Jan B. Moore	Archaeologist

Reviewed by:

William H. Collins — Nov. 19, 1982

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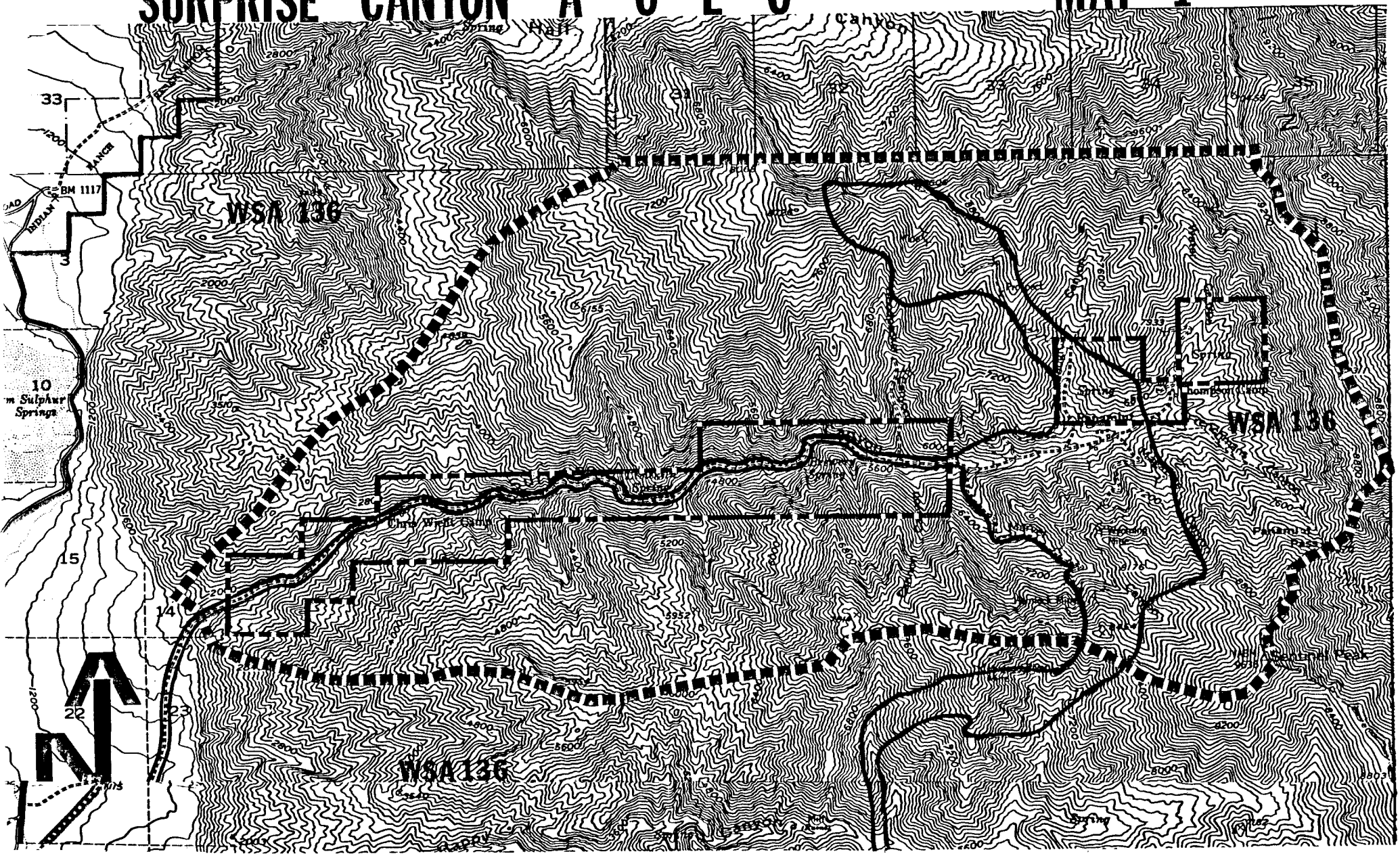
Date

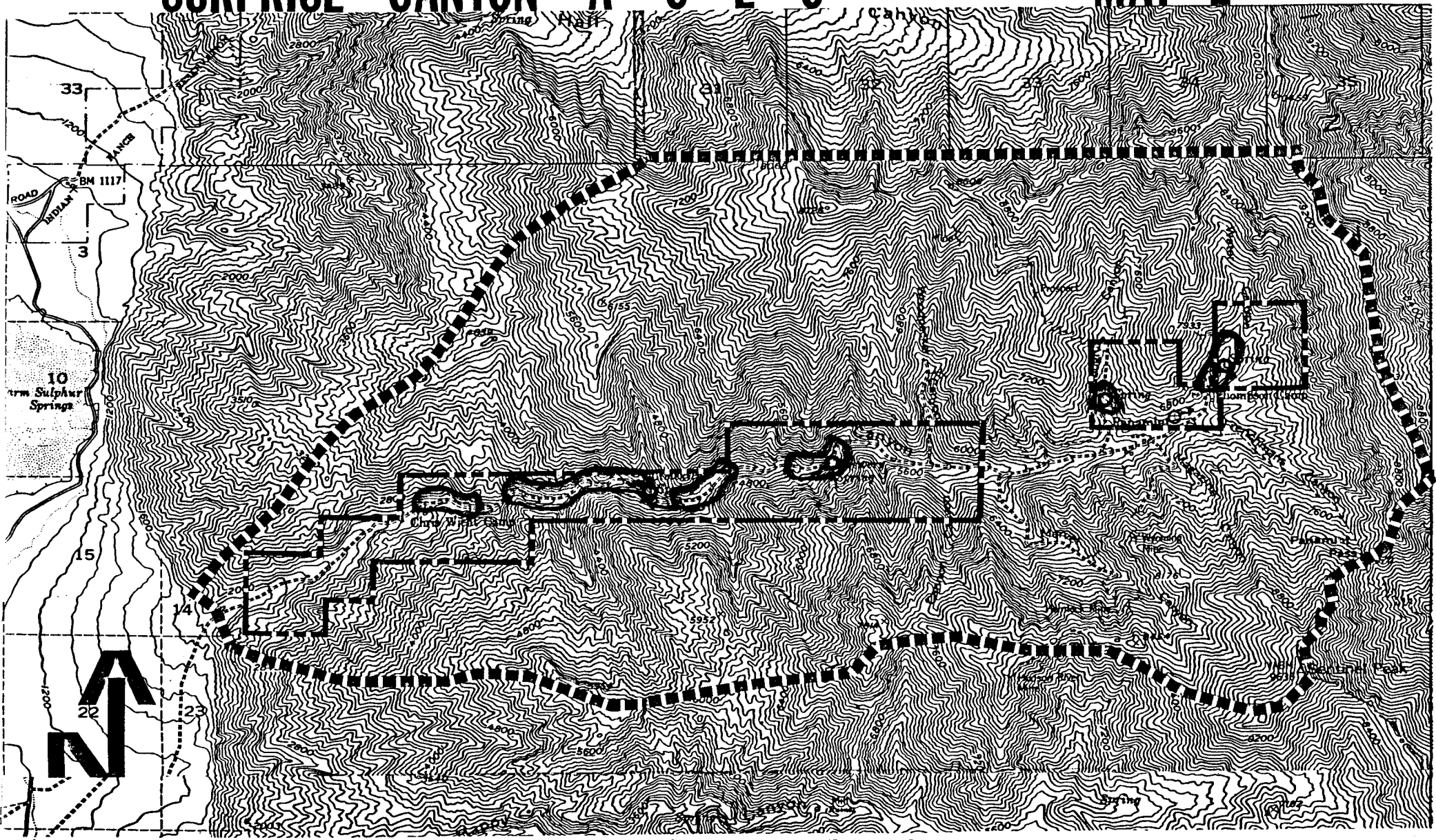
SURPRISE CANYON A·C·E·C MAP 1



RIPARIAN VEGETATION
SURPRISE CANYON A · C · E · C

A X PP

MAP 2



Riparian Vegetation

Springs

0 1 2 3

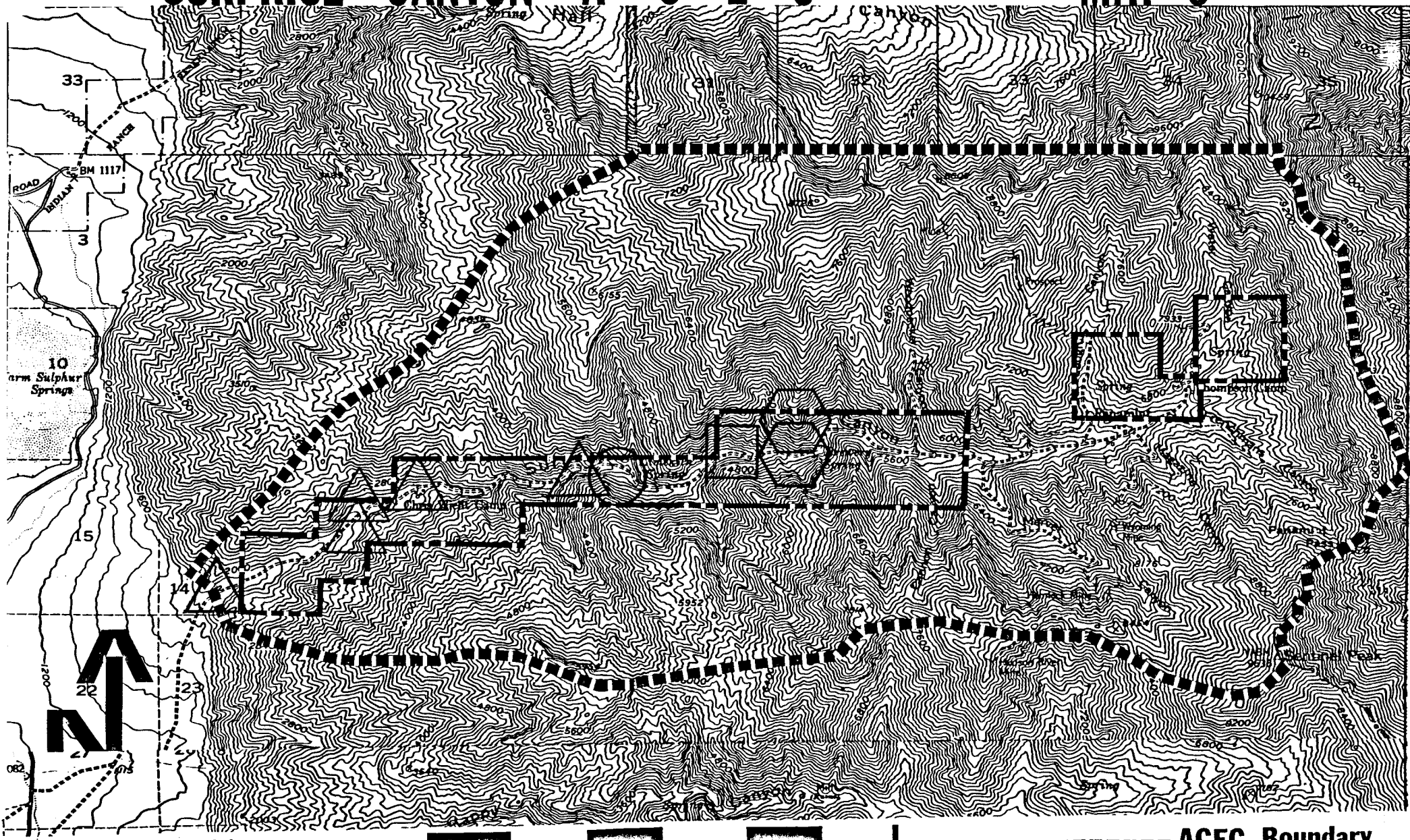
DISTANCE (miles)

ACEC Boundary

Public Water Reserv

SENSITIVE PLANT SPECIES
SURPRISE CANYON A · C · E · C

MAP 3



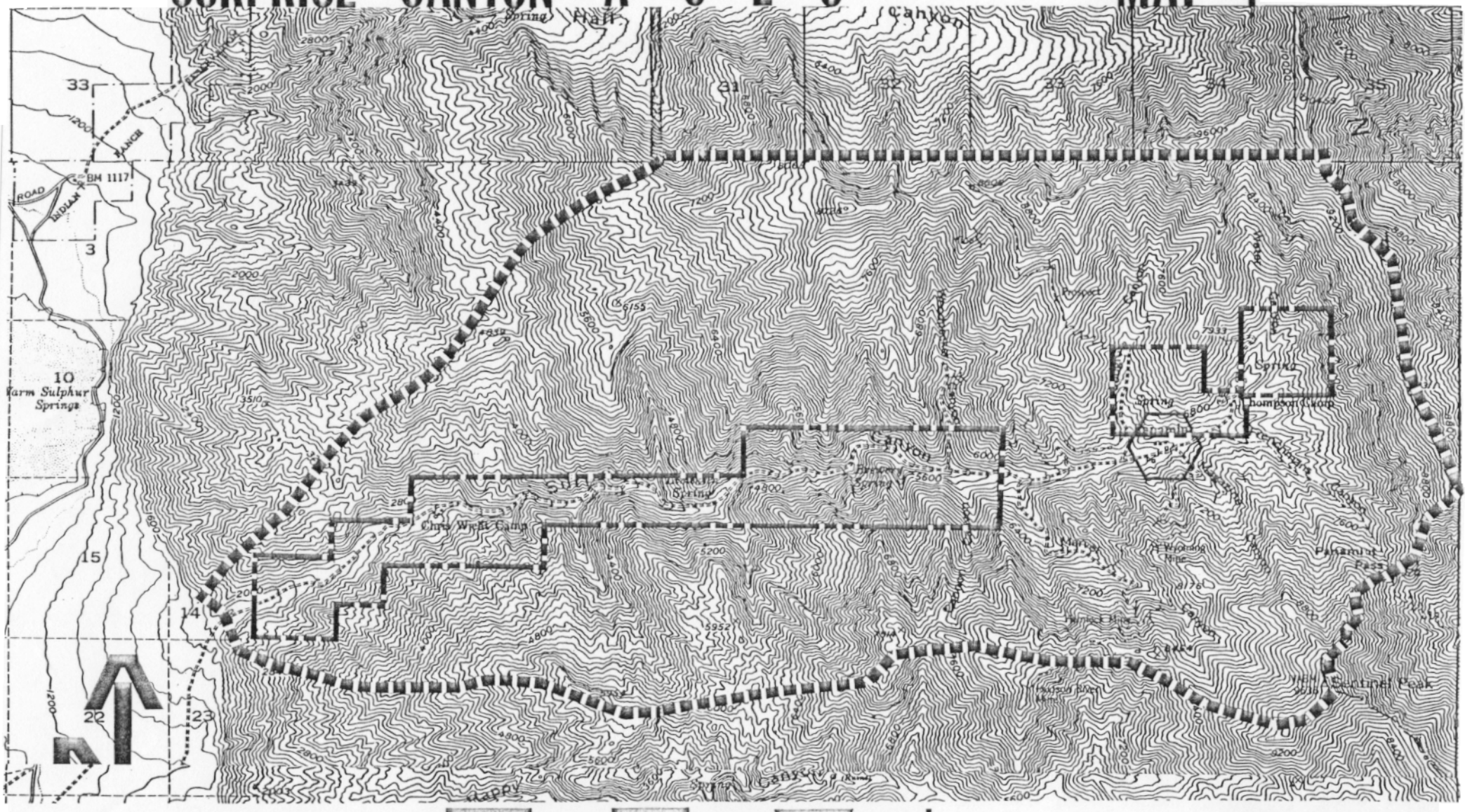
△ Enceliopsis covillei
○ Brickellia knappiana
□ Phacelia mustelina
⬡ Dudleya saxosa ssp. saxosa

▬▬▬▬ ACEC Boundary

——— Public Water Reserv

CULTURAL RESOURCES
SURPRISE CANYON A · C · E · C

MAP 4



MAP 5A

UNSURVEYED TOWNSHIP 21 SOUTH RANGE 45 OF THE MOUNT DIABLO MERIDIAN, CALIFORNIA

Protraction Diagram No 76 Officially Filed 8/16/1971

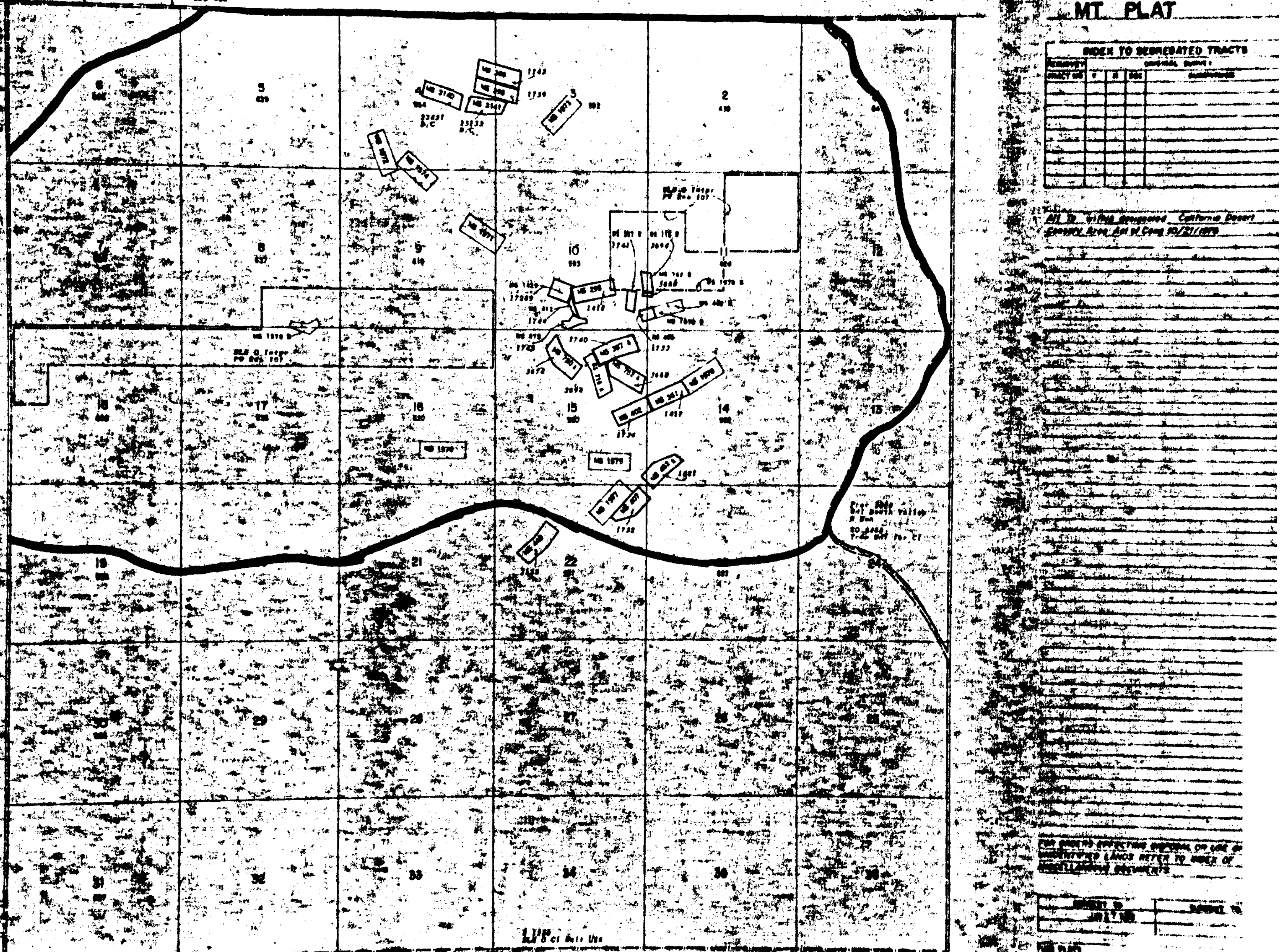
INYO COUNTY

BAKERSFIELD DISTRICT SEC 15

RIDGECREST RA

STATUS OF PUBLIC DOMAIN LAND AND MINERAL TITLES

MT PLAT



All in Withdrawn California Desert Conservation Area Act of Cong 10/21/1976

MAP 5B

PARTIALLY SURVEYED TOWNSHIP 21 SOUTH RANGE 44 EAST OF THE MOUNT DIABLO MERIDIAN, CALIFORNIA

INYO COUNTY

BAKERSFIELD DISTRICT SEC 19

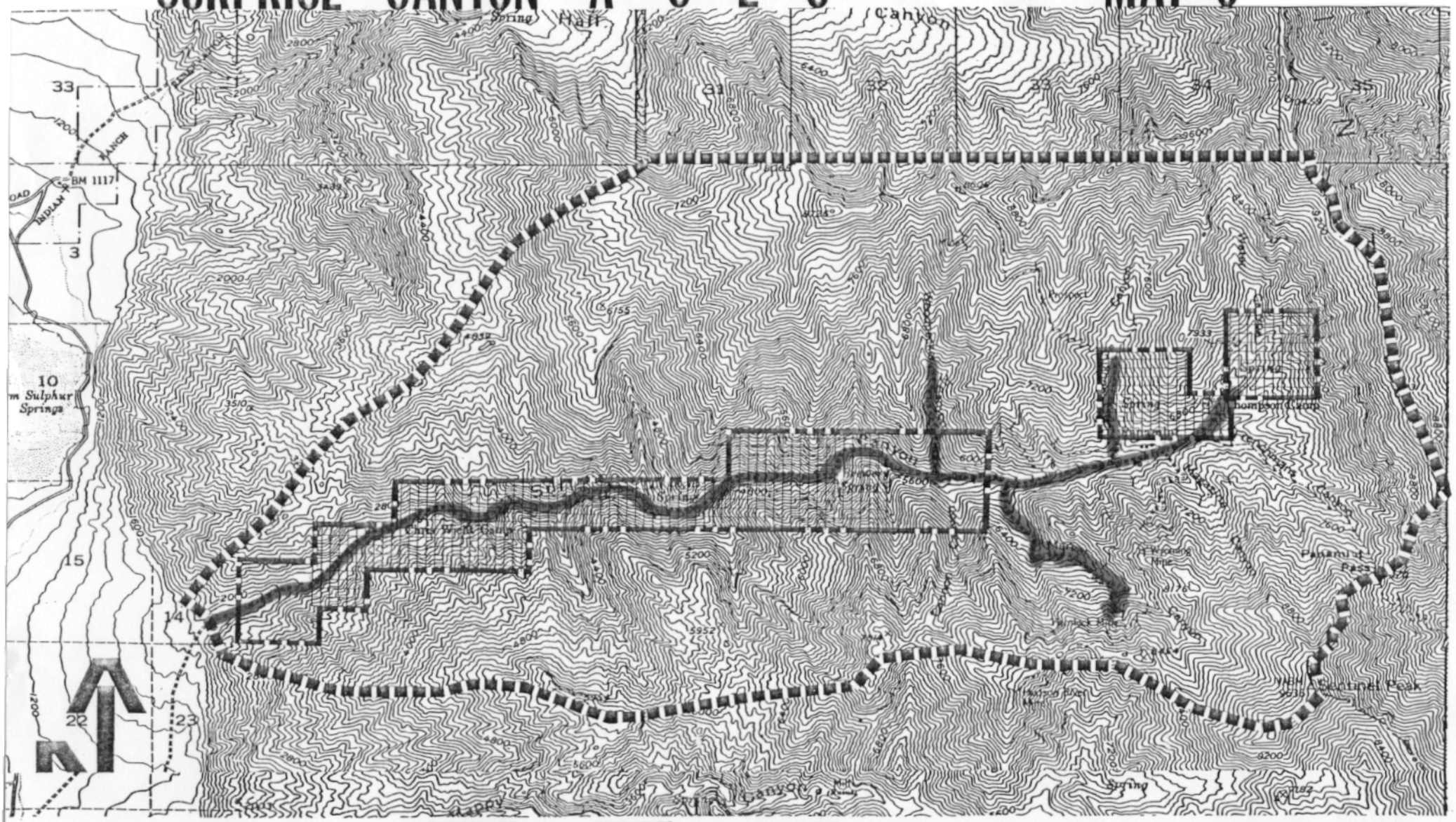
STATUS OF PUBLIC LAND AND MINERAL

MT PLAT

INDEX TO SEGREGATED TRACTS

SURPRISE CANYON A · C · E · C

MAP 6



APPENDIX 1.

CALIFORNIA NATIVE PLANT SOCIETY RARE PLANT STATUS REPORT

Contributor: Mary DeDecker Date: Feb 1979

Name: ENCELIOPSIS COVILLEI (Nelson) Blake
Panamint Daisy

Family: Asteraceae (Compositae): Sunflower Family

CNPS Taxon Code: ENCO

Designation: CNPS (1974):3-2-2-3[a] Federal: Threatened (under review)

Synonymy and History: Coville (1893) originally thought this taxa was part of *Helianthella argophylla* (D. C. Eaton) A. Gray, and so published a description under that name (1893). Jones (1895) recognized it as different and named it *Encelia grandiflora* Jones. Nelson (1904) believed it should still be in the genus *Helianthella*, but since the specific epithet was already in use for another taxa, called it *H. covillei* A. Nels. Later Nelson (1907) decided it should be in the genus *Enceliopsis*, and so went back to the original specific epithet, *Enceliopsis grandiflora* A. Nels. Jepson (1925) reduced it to *Enceliopsis argophylla* (D. C. Eaton) A. Gray var. *grandiflora* (Jones) Jepson. Blake (1931) raised it to *Enceliopsis covillei* (Nels.) Blake. Blake's interpretation was accepted by Abrams (1960) and Munz (1974). Type, 18 Apr 1891, Coville 698: US.

Distribution: Type from near the mouth of Hall Canyon, Panamint Mtns., Inyo Co., Calif. Known from a few canyons on the W slopes of the Panamint Mtns., the populations always limited to one or a few plants. Elev.: 1200-1400 ft. USGS maps: Telescope Peak, Emigrant Canyon, both 15'.

Description: *Enceliopsis* is a genus of scapose, xerophytic, perennial herbs from branching sometimes woody rootcrowns; leaves pubescent; heads large, many-flowered, solitary on naked, elongate peduncles; disk akenes strongly compressed, pappus of 2 short awns. ENCO is a stout perennial, 3-6 dm high; leaves broadly rhombic-oval to orbicular, 4-10 cm wide, the silvery-gray leaves with a silvery sheen from pubescence; blades longer than winged petioles; disks 3.5-5 cm wide; rays 20-34, 3.5-6 cm long. Flowering time: late Mar-early Jun.

There is one other species of *Enceliopsis, E. nudicaulis*, found in Calif. However, it does not occur in the same habitats as ENCO. It differs from ENCO as follows: generally smaller, 1-4 dm high; leaves 2-6 cm long with a dull gray pubescence, blades shorter than winged petioles, disk 2-3.5 cm wide.

Habitat: Deposits of clayish soil on dry canyon floors or slopes, usually where the vegetation is very sparse. It appears to tolerate certain salts that would discourage other species.

---

[a]Current rating is 2-2-2-3 according to the California Native Plant Society (1980): Inventory of rare and endangered vascular plants of California. California Native Plant Soc. Spec. Publ. No. 1. (2nd Ed.) Berkeley, Calif. 115 pp.

Endangerment Factors: Its greatest danger is in its appeal to sight-seers who want to possess it. It is so showy that it attracts attention. Few plants are left along the roadways. Populations in Death Valley National Monument are probably safer than those on BLM land because visitors to the former are usually familiar with restrictions on collecting.

Management Suggestions: Protection of this showy plant is difficult. Do not call attention to ENCO sites.

References:

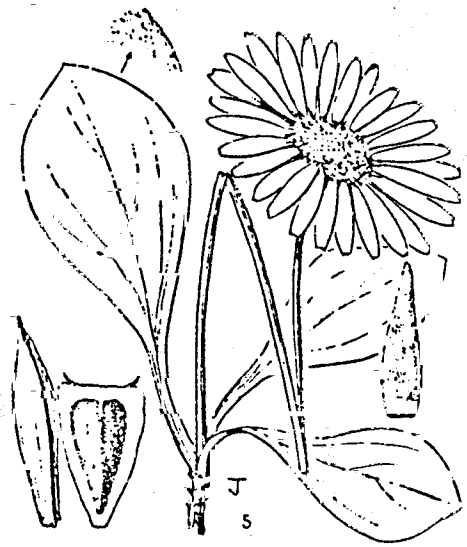
Blake, S. 1931. J. Wash. Acad. Sci. 21:334.
Coville, F. V. 1893. Contr. U.S. Natl. Herb. 4:132.
Jepson, W. 1925. P. 1081.
Jones, M. E. 1895. Proc. Calif. Acad. Sci. Ser. II 5:702. (orig. descrip.)
Nelson, A. 1904. Bot. Gaz. (Crawfordsville) 37:273.
---------. 1907. Bot. Gaz. (Crawfordsville) 47:433.

Supported by California Department of Fish and Game Endangered Plant Program Study 2.0 Job 1.0 (June 1978).

Illustrations:

Color transparency by Mary DeDecker.

Below reprinted from Abrams and Ferris, ILLUSTRATED FLORA OF THE PACIFIC STATES, 4 Vols., with the permission of the publishers, Stanford University Press.



5172. Enceliopsis covillei

Appendix 2. California Native Plant Society Ratings

SPECIES	R-E-V-D
Brickellia knappiana [1,2]	3-1-1-2
Dudleya saxosa ssp. saxosa [2]	1-2-1-3
Enceliopsis covillei [2]	2-2-2-3
Phacelia mustelina [1,3]	1-1-1-1

Rarity (R)

1. Rare, or limited distribution, but distributed widely enough that potential for extinction or extirpation is apparently low at present.
2. Occurrence confined to several populations or one extended population.
3. Occurs in such small numbers that it is seldom reported; or occurs in one or very few highly restricted populations.

P.N. Possibly extinct or extirpated.

Management (F)

1. Not endangered.
2. Endangered in part
3. Totally endangered.

Vigor (V)

1. Stable or increasing.
2. Declining.
3. Approaching extinction or extirpation.

General Distribution (D)

1. Not rare outside California.
2. Rare outside California.
3. Endemic to California.

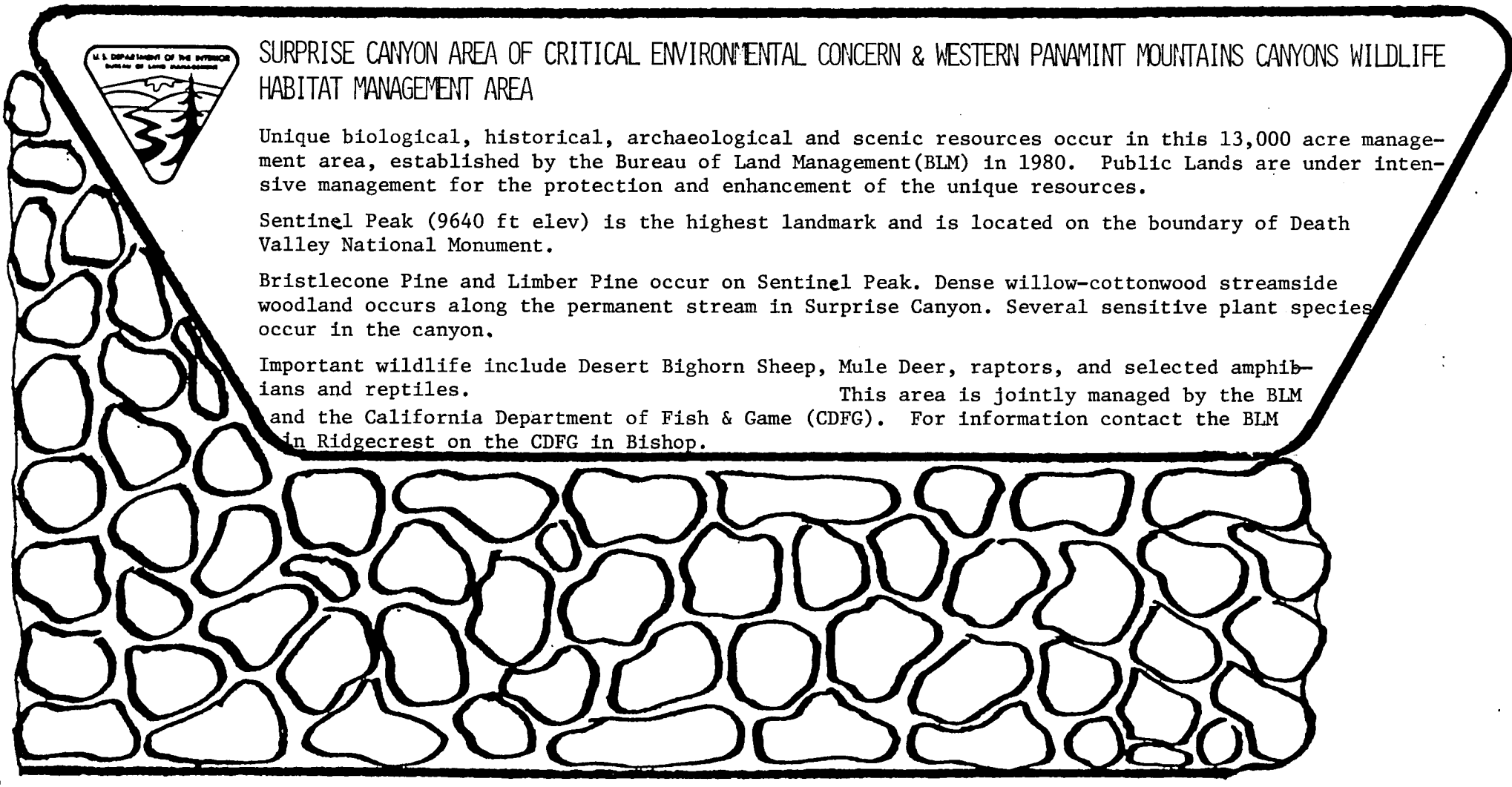
---

[1] Presence in Surprise Canyon is unsubstantiated. In the case of Brickellia knappiana, there is good reason to doubt the taxonomic validity of this species.

[2] These species are currently under review by the U.S. Fish & Wildlife Service. (Federal Register 45(242) : 82479-82569).

[3] A taxon no longer under review by the U.S. Fish & Wildlife Service.

Natural Resources Interpretive Sign



SURPRISE CANYON AREA OF CRITICAL ENVIRONMENTAL CONCERN & WESTERN PANAMINT MOUNTAINS CANYONS WILDLIFE HABITAT MANAGEMENT AREA

Unique biological, historical, archaeological and scenic resources occur in this 13,000 acre management area, established by the Bureau of Land Management(BLM) in 1980. Public Lands are under intensive management for the protection and enhancement of the unique resources.

Sentinel Peak (9640 ft elev) is the highest landmark and is located on the boundary of Death Valley National Monument.

Bristlecone Pine and Limber Pine occur on Sentinel Peak. Dense willow-cottonwood streamside woodland occurs along the permanent stream in Surprise Canyon. Several sensitive plant species occur in the canyon.

Important wildlife include Desert Bighorn Sheep, Mule Deer, raptors, and selected amphibians and reptiles. This area is jointly managed by the BLM and the California Department of Fish & Game (CDFG). For information contact the BLM in Ridgecrest on the CDFG in Bishop.

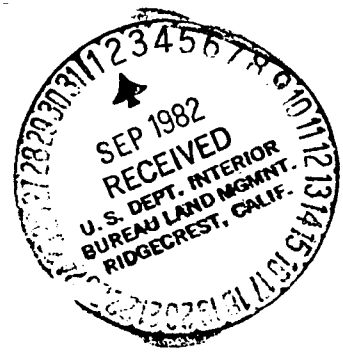
United States Department of the Interior

NATIONAL PARK SERVICE
DEATH VALLEY NATIONAL MONUMENT
DEATH VALLEY, CALIFORNIA 92328

IN REPLY REFER TO:

L7619

August 30, 1982



Mr. Mark E. Lawrence
Area Manager
Bureau of Land Management
1415A N. Norma St.
Ridgecrest, CA 93555

Dear Mr. Lawrence:

We have reviewed the Draft Resource Management Plan for the Surprise Canyon ACEC dated August 18, 1982.

The report has been well researched but the draft is flawed by many typographical errors. Page 44, item G is unintelligible.

The goals, beginning on page 45, are good ideas which NPS supports. To be effective, rules and other plan provisions must be enforced.

1 We favor removal of burros from Panamint Valley rather than building a cattleguard and fencing at the mouth of Surprise Canyon. Structures are considered ineffective because of flash flood damage potential, vandalism, and intensive maintenance required (Ref. page 50).

2 At the present time, NPS does not favor construction of a trail into Death Valley National Monument. Present and future projected use does not justify construction costs. A passible route exists now and receives light use by backpackers without complaint.

3 With reference to Appendix 3, CNPS recommends best protection for Panamint daisy is by not calling attention to sites. We suggest deleting reference to this plant in your sign text (paragraph 3).

Where cooperation with NPS is proposed in the plan, we will continue working constructively with you.

In summary, we find the plan well conceived and workable, if enforcement is provided.

We thank you for the opportunity to read and review the draft resource management plan.

Sincerely,

Richard S. Rayner
Acting Superintendent

P.O. Box 267
Death Valley, Ca. 92328
September 01, 1982

Bureau of Land Management
Ridgecrest Area Office
1415A N. Norma Street
Ridgecrest, Ca. 93555

Dear Bureau:

Enclosed are some ideas about the Surprise Canyon Area ACEC. Thank you for the opportunity to comment. In making these suggestions, I first reviewed the full draft plan. Comments are addressed by letter designation as per your proposed management actions outline.

1 A - designated parking and camping areas will not be adhered to without intensive BLM presence, thus implementation must include provision for increased patrol activity, or action should be dropped

2 B - Large interpretive signs and displays in remote areas are vandalized by fire, firearms, and physical abuse. Dispenser boxes and pamphlets are vandalized or stolen. I would redirect funding to greater presence of visitor service/law enforcement who can personally aid visitors rather than waste time and materials on static interpretation.

3 C - requires increased BLM presence

D - to prevent re-invasion of feral animals, all of Panamint Valley and west slope of Panamint Mountains should be a burro removal area to zero population through direct reduction

5 E - manmade feature - no need to expend funds to rehab

6 F - feasible but requires commitment of funds for manpower and materials.

7 G,M - continue to encourage universities and colleges to provide research efforts

O,P - physical barriers are highly subject to vandalism - increased presence will be required. Care should be taken so that protective structures do not call attention to sites that visitors might otherwise not locate easily. There should be no interpretation of fragile or vulnerable resources such as endemic/endangered species, or rock art

9 Q - although regionally significant, I question the need to place Panamint City on the National Register due to its lack of national importance, the altered state of the site and surrounds now, and the difficulty of providing proper attention in stabilization and patrol of the area due to diminishing funds.

T - a route to Panamint Pass already exists and anyone with a topo map should easily be able to navigate there. Expenditure would be relatively great compared to the light X use that occurs. Encouraging increased use is not a good idea when extant resources, facilities, and values cannot now adequately be maintained or patrolled, or monitored. In talking with Death Valley people, they indicate tha t they could not provide increased backcountry patrols in the area to handle additional hikers attracted to a new trailhead.

Bruce P. Bessken

Defenders OF WILDLIFE

September 1, 1982

Mr. Mark E. Lawrence
Area Manager
Ridgecrest Resource Area
Bureau of Land Management
1415A North Norma Street
Ridgecrest, CA 93555

Dear Mr. Lawrence:

Thank you for providing us with information on BLM's Draft Resource Management Plan for the Surprise Canyon ACEC and a portion of the Western Panamint Mountains' WHMA.

We have reviewed this information, and we strongly support the proposed management actions outlined to protect wildlife and other resource values contained in this ACEC and WHMA. We hope these proposed management actions can be quickly implemented.

Thank you very much for considering our views.

Sincerely,

Richard Spotts

Richard Spotts
California Field Representative
Defenders of Wildlife

5604 Rosedale Way
Sacramento, CA 95822
(916) 442-6386

RS/bc

Appendix 4 D

1508 Saratoga Ave.
Ridgecrest, Calif. 93555

Sept. 9, 1982

Jeff B. Aardahl, Wildlife Biologist
Bureau of Land Management
Ridgecrest Resource Area
1515A No. Norma St.
Ridgecrest Calif. 93555

Dear Jeff:

Re: Surprise Canyon Area of Critical Environmental Concern & WHMA

I support the management plan as summarized to protect wildlife habitat for all wildlife, not just the bighorn sheep; special limestone loving plants and prehistoric values, as well as riparian areas in the ACEC and WHMA.

Comments:

B. Pamphlets become litter; are expensive; permanent interpretive panels as at the Tortoise Preserve would be much better. Pamphlets could be available at the Resource Office.

2 C. No firewood should be collected anywhere in any ACEC or surrounding area. This item for whatever purpose can be brought to the site. Do you really want to encourage campfires merely for psychological reasons? Don't worry about "enforcement", just a statement of prohibition and the reason--desertification on a small scale. (A candle held up by rocks is just as good!)

3 A. No garbage collection in Surprise Canyon; thus no garbage cans; If they can bring it in full, they can take it out empty!

4 T. Use volunteer labor to construct the trail, provided BLM has the proposed route clearly ribboned before the volunteers arrive on the scene. BLM provide on site supervision.

5 Promoting an ACEC for "recreation" increases vehicle traffic, encoura es people and tourists and degrades the wildlife habitat.

6 Is an ACEC for people or for the protection of the wildlife. riparian areas, plants and cultural resources now and into the future?

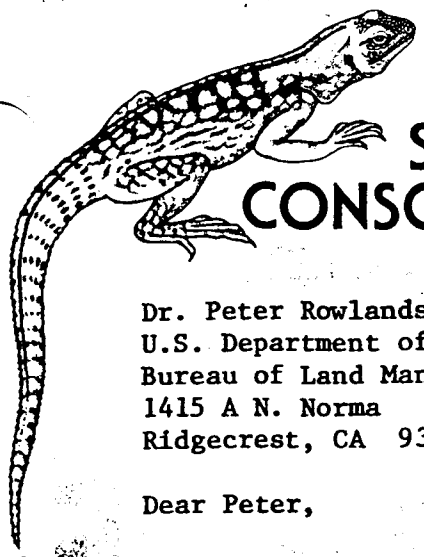
7 Recreational shooting, plinking etc. is not addressed. Guns have no place in any ACEC.

You guys have been doing a splendid job on the ACEC plans.

Sincerely,

Mary Ann Henry

Mary Ann Henry

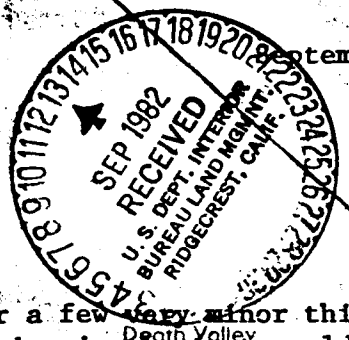


DESERT STUDIES CONSORTIUM

CALIFORNIA STATE UNIVERSITIES AND COLLEGES

U.S. Department of the Interior – Bureau of Land Management

Dr. Peter Rowlands
U.S. Department of the Interior
Bureau of Land Management
1415 A N. Norma
Ridgecrest, CA 93555



September 10, 1982

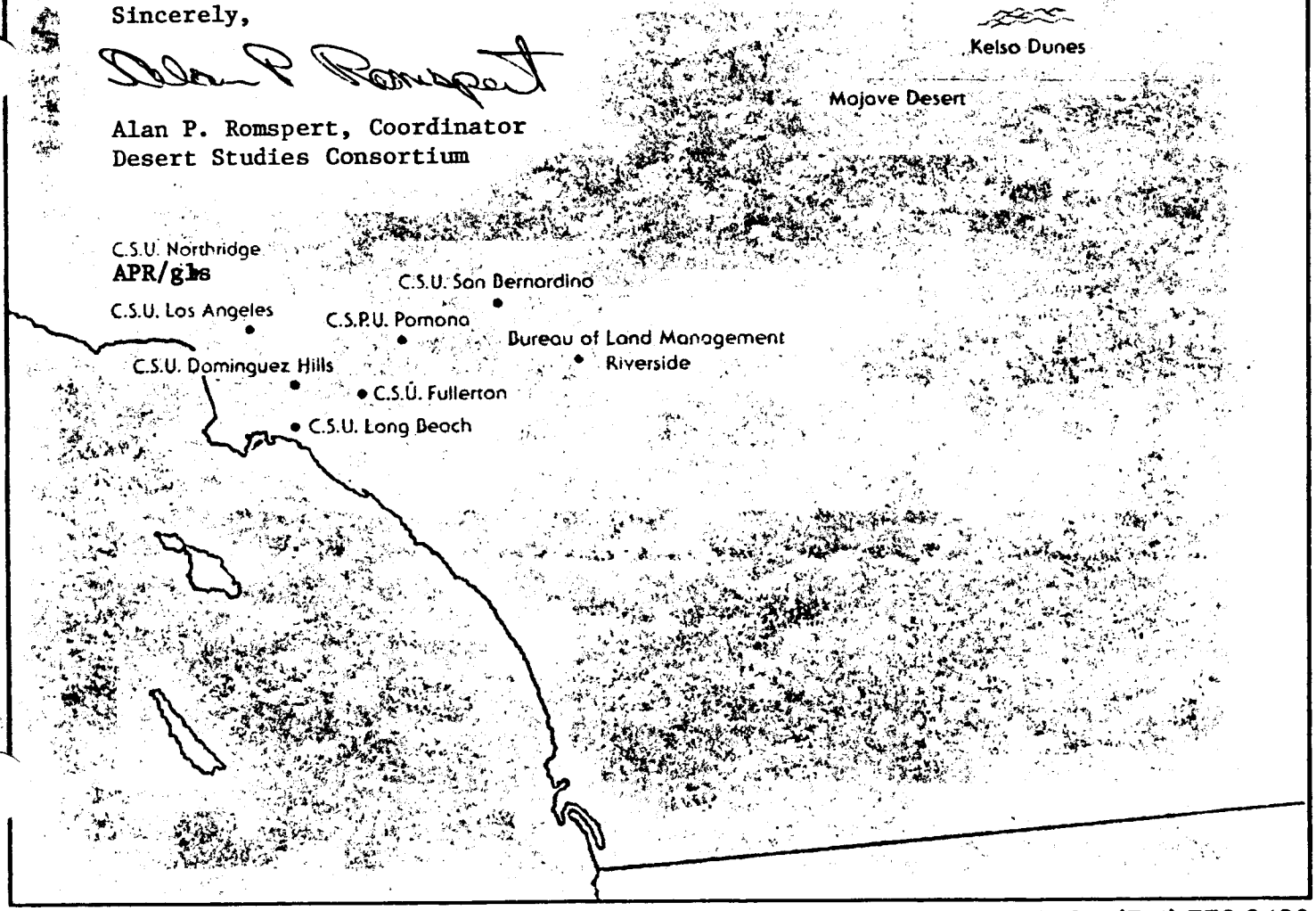
Dear Peter,

The draft looks excellent except for a few very minor things such as typos and two page nineteens. The only thing in the text would be the two species of plants you have being in the wash habitat. I have not found either Cassia or the Brickellia so you might want to check on them. If you have voucher data I would be very interested in obtaining it.

If you need anything else in regard to information feel free to call. I was up over Easter vacation and was apalled at what the mining interest has done at Panamint City.

Sincerely,

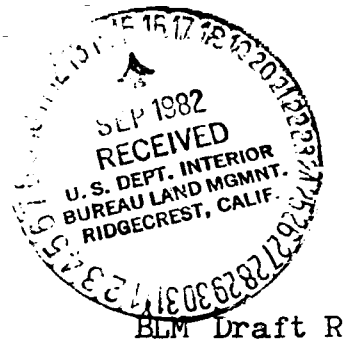
Alan P. Romspert, Coordinator
Desert Studies Consortium



APR/gbs

DEPT. OF BIOLOGICAL SCIENCE, CALIFORNIA STATE UNIVERSITY, FULLERTON, CALIF. 92634 (714) 773-2428

Margaretha Rita Krucker
102 N. Rockingham Ave.
Los Angeles, California 90049



September 13, 1982.

BLM Draft Resource Management Plan for surprise Canyon ACEC, and Western Panamint Mountains WHMA, located in Inyo County.

1 A: No, BLM does not have the manpower to enforce laws within the large and rugged area of the Panamint Mountains. Irreversible damage has already been done to natural and historic resources as well as to private properties by desert visitors. I will supply you with photographic material on the subject in the near future.

2 B: No, for the same reasons as above.

3 C: Gathering of firewood (dead trees) is no problem to the environment.

4 D: No, because the burros do not create the kind of damage to the environment which BLM and some environmentalist groups claim they do. These reports are greatly exaggerated.

5 E: Only if the waterrights of private citizens are considered as most important element.

6 F: No, do not eliminate any kind of vegetation.

7 G: All these facts have been studied and discussed sufficiently, the subject should be considered accomplished and closed.

8 H: No, any further spending of taxpayer's money should be avoided.

9 I: The Surprise Canyon area is highly mineralized, this subject should be only carried out if mining operations are not interfered with.

J: Only increase law enforcement to prevent further vandalism and crimes within the areas.

K: yes, and include also the burros.

L: Do not infringe on any existing waterrights or on waterrights for mining operations.

M: Only if possible without spending taxpayer's money.

N: No, has been conducted extensively during the CDCA-planning-period Any further inventory not needed.

O: Not necessary in these areas.

P: Only where there is no interference with the rights of property owners or the rights of mining operations.

Q: Only if the rights of property owners and mining operations can be observed.

R: Only if there are no negative effects on mining and other rights.

S: Not required, except for the prevention of vandalism and crime.

T: No, existing hiking trails are sufficient starting at Surprise Canyon and at the vicinity of Happy Canyon.

Margaretha R. Hueber

STATE OF CALIFORNIA—RESOURCES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF FISH AND GAME
50 Golden Shore
ong Beach, CA 90802
(213) 590-5113

September 16, 1982

Mark E. Lawrence - Area Manager
Bureau of Land Management
1415A North Norma Street
Ridgecrest, CA 93555

Dear Mr. Lawrence:

This is in reply to your request for comments on the draft Resource Management Plan for the Surprise Canyon ACEC and Western Panamint Mountains WHMA.

We support the planned actions presented in the document, and feel they will help protect wildlife habitat.

Of particular importance are the following proposed actions:

1. Burro removal - While we commend your plan to remove feral burros from the entire Panamint Range, we believe this is not practical without also removing all burros from the Panamint Valley. It seems unlikely that the construction of burro-proof fences and cattle guards in drainages will be effective in keeping burros out of the Panamint Mountains.

2. Monitoring riparian habitat and water quality - This should provide valuable information on effects of other planned actions on wildlife habitat, and is one of the most important proposals in the plan.

3. Protection of water sources through withdrawal from location and entry under mining laws - We support this action because of its value in protection of critical riparian habitat.

4. Development of a bighorn and deer water source in the Panamint Mountains - We will be pleased to work with your personnel on this project. Some of our people have had considerable experience in water source development.

Sincerely,

Bruce E. Eborn for

Fred A. Worthley Jr.
Regional Manager
Region 5

cc: Koontz
Pister

MINEOP. CORP.

GEOLOGY
EXTRACTIVE SYSTEMS
MINING SERVICES

[illegible] Box 111
[illegible]
792-482-3822

Box 338
Independence Ca
93526

Re: 1791 (C-065.01)

Bureau of Land Management
Ridgecrest Resource Area
1415A N. Norma St
Ridgecrest Ca 93555

Mark Lawrence
Area Manager

Mark

Here are some comments on the area plan for Surprise.

Page 22 Fig 3 Mineop diversion is less than half of flow. You fail to mention the small stream running parallel to the pipe here.

Page 23 The spring identified as Jody Spring is actually Sourdough Spring

para b Limekiln is not being used for mining purposes

footnote Although Mineop Corp has a millsite and a water application for the Sourdough spring we are not in possession of the spring. A squatter Joe Ostrenger is in tresspass on both patented and unpatented ground,

MINEOP. CORP.

GEOLOGY
EXTRACTIVE SYSTEMS
MINING SERVICES

X459 MIZPAH TERRACE
Box 111
TONOPAH NV 89049
702-482-3622

Surprise Canyon comment (cont.)

A court action to evict Ostrenger will be heard Oct 25, 26 at Independence Ca. District court. One of our complaints is Ostrengers misuse of the water without application or permit, a predjudice to our operation.

Page 46 Fig. 10 This is Jodys Spring

Page 53 K Mining Operation Inspection for surface management by BlM is expected. Inspection by BLM personnel for mine saftey or plant operation as attempted several weeks ago by BLM ranger will not be allowed by this Company. Saftey and operational complaint or inspection will be handled by Federal MSHA and CAL-OSHA inspectors.

Page 54 N This should be tied to your statements on page 49 C

Page 54 M The Thompson spring water rights predate the 1926 PWR

55 The legality on the last paragraph is very doubtful.

56-57 Mineop Corp supports the general issues a-g

MINEOP. CORP.

GEOLOGY
EXTRACTIVE SYSTEMS
INING SERVICES

458 Minnan Terrace
Reno, NV 89502
702-882-9822

Surprise Canyon Comment (cont.)

Page 61 T Mineop Corp does not restrict any hiking thru its operations. We do restrict entry to the actual mining area, or plant areas. There is the problem of having the scenic area in the middle of operations. It is easier to send the hikers up the road towards Thompson camp where they can be seen from the camp. Many of them double back and try to enter the active mine workings. This is almost impossible to stop. Tresspass signs in critical places are about the only defense against attractive nussiance.

Page 63 B Mineop Corps permitted and riparian water rights and mineral riths for the most part predate any Public Water Reserve on ACEC withdrawal Further application for water is not expected In the last sentence of para B you should underline the word "may"

Page 69 c Jody spring is misidentified -should be Sourdough. We have been prevented from access to Sourdough Spring by a District Court Order and restrainer from eviction of Ostrenger until trial date. Any information on his activity would be appreciated.

MINEOP. CORP.

GEOLOGY
EXTRACTIVE SYSTEMS
MINING SERVICES

[illegible]
X Box 111
[illegible]
X 702 482 9822

Surprise Canyon Comment (cont.)

Page 69 c The statement that Thompson spring is in state of decline if not outright degradation is outright horsemanure.

Page 71 2 There are no water diversion tresspasses by this company. All Mineop Corp diversions are permitted. The diversion in Sourdough by Ostrenger has neither permit nor application. Mineop Corp application for the Sourdough Spring is in final stage. BLM protest has been entered to this application. Mineop Corp owns the buildings in Sourdough and the fee title to the property (patented) plus several millsite claims. These are included in our mine plan. However Ostrenger at this moment is beyond our control.

David L Pruett
Mineop Corp

Appendix 5 A. Summary of Mojave Desert Plant Assemblages (from Rowlands et al, 1982)

I. Desert Scrub Complex

A. Great Basin Scrub

1. Sagebrush Scrub

Primary species: *Artemisia tridentata*—Big Sagebrush
Artemisia nova

Associated species: *Juniperus osteosperma*
Pinus monophylla
Oryzopsis hymenoides
Chrysothamnus viscidiflores
Coleogyne ramosissima
Gutierrezia sarothrae

Soil types: *A. tridentata*—deep, well-drained soil
A. nova—shallow, heavier soils

General location: Panamint Mountains
White Mountains
New York Mountains
Inigo Mountains

2. Blackbrush Scrub

Primary species: *Coleogyne ramosissima*—Blackbrush

Associated species: *Ambrosia dumosa*
Atriplex confertifolia
Ephedra nevadensis
Lycium pallidum

Soil types: rocky, well-drained soil

General location: rocky bajadas above 1000 m

3. Hopsage Scrub

Primary species: *Grayia spinosa*—Hopsage
Lycium pallidum

Associated species: *Lycium andersoni*
Lycium shockleyi
Larrea tridentata
Ambrosia dumosa
Yucca brevifolia

Soil types: sandy, loamy, moderately rocky

B. Saline-Alkali Scrub

1. Shadscale scrub

Primary species: *Atriplex confertifolia*—Shadscale

Associated species: *Atriplex canescens*
Yucca brevifolia
Eurotia *lanata*
Artemisia spinescens

Soil types: heavy, rocky soils on steep mountain slopes
General location: eastern Mojave desert region in California and southern Nevada; northern Mojave desert region: Death Valley
Owens Valley
Ingo Range
Panamint Range
Black and Funeral mountains

2. Desert Holly Scrub
Primary species: *Atriplex hymenelytra*—Desert Holly
Associated species: *Atriplex polycarpa*
Atriplex confertifolia
Tidestromia oblongifolia
Soil types: saline gravel fans
high proportion of carbonates
General location: bottom of Death Valley

3. Mojave Saltbush-Allscale Scrub
Primary species: *Atriplex spinifera*—Mojave Saltbush
Associated species: *Atriplex polycarpa*
Ceratoides lanata
Tetradymia glabrata
Yucca brevifolia
Soil types: mildly saline soils
General location: western Mojave desert region, Mojave to Barstow

4. Allscale-Alkali Scrub
Primary species: *Atriplex polycarpa*—Allscale
Associated species: *Suaeda fruticosa*
Atriplex confertifolia
Atriplex canescens
Atriplex parryi
Soil types: saline soils to 2.5 percent salt
General location: washes on Nevada test site
Saline valley salt sink

5. Iodinebush-Alkali Scrub
Primary species: *Allenrolfea occidentalis*—Iodinebush
Associated species: *Suaeda torreyana*
Sporobolus airoides
Juncus cooperi
Salicornia utahensis
Atriplex spp.
Soil types: highly saline soils; groundwater salt content as high as 6 percent
General location: widely distributed in playas and desert sinks in western, northern, and eastern Mojave regions

C. Mojave-Colorado Desert Scrub

1. Creosotebush Scrub
Primary species: *Larrea*—Creosotebush
Associated species: *Ambrosia dumosa*
Encelia farinosa
Hymenoclea salsola
Lycium andersoni
Opuntia spp.
Yucca spp.
Soil types: wide range from finely divided, poorly drained soils to coarser soil types
General location: widely distributed throughout the Mojave Desert below 1200 m

2. Cheesebush Scrub
Primary species: *Hymenoclea salsola*—Cheesebush
Associated species: *Cassia armata*
Atriplex spp.
Ambrosia eriocentra
Brickellia incana
Soil types: sandy washes, gravel pans
General location: widely distributed in dry washes and also on disturbed sites

3. Succulent Scrub
Component species: *Yucca spp.*
Agave spp.
Nolina spp.
Echinocereus spp.
Ferocactus spp.
Soil types: bajada, alluvial fans with well-drained soil
General location: dependent on summer rains; prevalent in eastern Mojave regions in Arizona and California

II. Xeric Conifer Woodland/Forest Complex

A. Desert Montane Forest

1. Limber pine woodland
Primary species: *Pinus flexilis*—Limber pine
Associated species: *Juniperus communis*
Pinus monophylla
Acer glabrum
Ribes cereum
Pinus longaeva
Soil types: shallow rocky soils
General location: above 2950 m in Panamint Mountains
Inyo mountains in California
Spring and Sheep ranges in Nevada

2. Great Basin Bristlecone Pine Woodland
Primary species: *Pinus longaeva*—Bristlecone Pine
Associated species: *Pinus flexilis*
Soil types: shallow rocky soils
General location: highest mountain peaks 2750-3500 m Panamint mountains Inyo Mountains in California
Spring and Sheep ranges in Nevada

3. White Fir-Pine Forest
Primary species: *Abies concolor*—White Fir
Associated species: *Populus tremuloides*
Juniperus osteosperma
Pinus flexilis
Acer glabrum
Soil types: granitic or limestone soils
General location: 1950-2400 m; Clark, Kingston, and New York mountains in California
Spring, Sheep, and Virgin mountains in Nevada

B. Xeric Conifer (Juniper-Pinyon) subcomplex
1. Utah Juniper-One Leaf Pinyon Woodland
Primary species: *Juniperus osteosperma*—Utah juniper
Pinus monophylla—One leaf pinyon
Associated species: *Yucca brevifolia*
Coleogyne ramosissima
Artemisia tridentata
Echinocarpus engelmannii
Yucca baccata
General location: between 1200 and 2200 m on desert mountain ranges; eastern Mojave region
2. California Juniper-One Leaf Pinyon Woodland
Primary species: *Juniperus californica*—California Juniper
Pinus monophylla-One leaf pinyon
Associated species: *Yucca brevifolia*
Canotia holacantha (Arizona only)
Larrea tridentata
Quercus turbinella
Stipa speciosa
General location: Western Mojave region
eastern Mojave region to Granite Mountains
northwestern Arizona section

III. Desert Microphyll Woodland Complex
A. Mesquite Thickets
Primary species: *Prosopis pubescens*
Prosopis glandulosa
Associated species: *Atriplex spp.*
Suaeda spp.
Pluchea sericea
Tamarix spp.
Soil types: highly saline soils
General location: desert seeps; playas; floodplains; below 800 m

IV. Streamside Woodland, Oasis Woodland Complex
A. Streamside Woodland
1. Cottonwood-Willow-Mesquite Bottomland
Primary species: *Salix lasiolepis*
Salix exigua
Salix goodingii
Populus fremontii
Prosopis spp.
Associated species: *Tamarix spp.*
Primary species: *Salix lasiolepis*
Salix goodingii
Salix exigua
Populus fremontii
Populus macdougallii
Prosopis glandulosa
Prosopis pubescens
Associated species: *Tamarix spp.*
Phragmites australis
Pluchea sericea
Typha spp.
Carex spp.
Juncus spp.
Soil types: sandy; sandy loam with coarse fragments
General location: floodplains and bottomlands of Colorado, Mojave, and Virgin rivers
2. Cottonwood-Willow Streamside Woodland
Typha spp.
Pluchea sericea
Soil types: sandy, sandy loam
General location: floodplains and bottomlands of smaller streams; springs

B. Desert Oasis Woodland
Primary species: *Washingtonia filifera*
Associated species: *Pluchea sericea*
Atriplex polycarpa
Sporobolus airoides
Soil type: saline
General location: isolated stands

V. Desert and Semidesert Grassland Complex
A. Desert-Semidesert Scrub Steppe
1. Indian Rice Grass Scrub-Steppe
Primary species: *Oryzopsis hymenoides*—Indian Rice Grass
Stipa speciosa
Associated species: *Larrea tridentata*
Ambrosia dumosa
Artemisia tridentata
Yucca brevifolia
Soil types: sand sheets; sandy, well-drained soils
General location: western Mojave region above 1500 m
2. Desert Needle-Grass Scrub Steppe
Primary species: *Stipa speciosa*—Desert Needle Grass

Associated species: *Yucca brevifolia*
Juniperus californica
Lycium andersonii
General location: Joshua Tree National Monument desert-facing slopes of mountains

3. Big Galleta Scrub-Steppe
Primary species: *Hilaria rigida*—Big Galleta Grass
Bouteloua eripoda
Muhlenbergia porteri
Associated species: *Juniperus osteosperma*
Yucca brevifolia
Juniperus californica
Stipa speciosa
Oryzopsis hymenoides
Soil type: sand sheets; sandy, well-drained soils
General location: eastern Mojave desert region Joshua Tree National Monument Mojave Desert region east of Lucerne Valley and Barstow

4. Galleta Scrub Steppe
Primary species: *Hilaria jamesii*—Galleta Grass
Bouteloua gracilis
Associated species: *Oryzopsis hymenoides*
Sitanion hystrix
Juniperus osteosperma
Yucca brevifolia
Chrysothamnus viscidiflorus
General location: above 1400 m northern and eastern Mojave desert

5. Saltgrass Meadow
Primary species: *Distichlis spicata*—Saltgrass
Sporobolus airoides
Associated species: *Allenrolfea occidentalis*
Juncus cooperi
Prosopis pubescens
Anemopsis californica
Soil type: saline
General location: near springs and seeps

VI. Desert Saxicole Complex

A. Calciphyte-Saxicole

1. Calciphyte Saxicole Subscrub
Primary species: *Astragalus funereus*
Astragalus panamintensis
Cercocarcus intricatus
Eriogonum spp.
Associated species: a very wide range of calcium-loving plants
Soil type: rock faces and crevices of calciferous outcroppings such as dolomite and limestone
General location: eastern and northern Mojave Desert regions in mountains: Panamint, Inyo, Grapevine, Kingston, Providence, Sheep, Spring.

2. Noncalciphyte Saxicole Subscrub
Primary species: *Peucephyllum schottii*
Associated species: *Perityle emoryi*
Brickellia desertorum
Penstemon spp.
Cheilanthus spp.
Soil type: noncalciferous soils
General location: widely distributed in all regions of the Mojave Desert.

VII. Desert Psammophyte Complex

This is the vegetation type found on sand dunes. It is very diverse and is difficult to classify. Table 4-7 summarizes the perennial plant species for dune systems in California.

Vegetation types within the California Desert, with a summary of the ranges of climatological variables associated with each.

VEGETATIONAL CATEGORIES	MEAN ANNUAL PRECIPITATION (MM)		TEMPERATURE (°C) MEAN JANUARY MINIMA		TEMPERATURE (°C) MEAN JULY MAXIMA		POTE/PPT		APPROX. ELEVATION RANGE (x100M)	
	LL	UL	LL	UL	LL	UL	LL	UL	LL	UL
Desert Scrub Complex										
Great Basin Subcomplex										
Sagebrush Scrub	175	325	−12	−4	25	36	2	5	12	26(30)
Blackbrush Scrub	150	240	− 8	−4	29	37	3	7	10	20
Hopsage Scrub	150	240	− 8	−2	29	37	3	7	10	20
Saline-Alkali Scrub Subcomplex										
Shadscale Scrub	130	225	− 8	−4	31	37	3	7	10	18
Desert Holly Scrub	42	90	0	5	42	47	20	32	− .8	4
Mojave Saltbush-Allscale Scrub	110	150	− 1	1	37	40	6	8	6	10
Allscale-Alkali Scrub	82	170	− 5	5	36	43	8	20	.8	12(18)
Mojave-Colorado Desert Scrub Subcomplex·										
Creosote Bush Scrub	42	275	− 6	6	34	47	4	32	− .7	13
Cheesebush Scrub	42	275	−10	6	30	47	3	32	− .7	20
Succulent Scrub	150	275	− 8	−2	29	47	2	7	10	20
Xeric-Conifer Woodland/Forest Complex										
Xeric Conifer Woodland Subcomplex										
Utah Juniper—One-leaf Pinyon Woodland	175	375	−13	−4	23	36	1	4	15	30
California Juniper—One-leaf Pinyon Woodland	175	400	− 9	−2	34	38	1	4	12	18
California Juniper—Four-leaf Pinyon Woodland	225	400	− 9	−1	35	39	1	4	11	17
Desert Montane Forest Subcomplex										
White-Fir Forest Enclave	250	325	−10	−7	26	30	1.5	3	19	24
Subalpine Forest (inc. Bristlecone Pine)	370	440	−17	−12	15	21	0.5	1	29	35

SOURCE: Rowlands, P. 1980. Vegetational attributes of the California Desert. In *The California desert: An introduction to its resources and man's impact*, ed. J. Laiting. *California Native Plant Soc. Special Publ.* no. 5, table 1. Reprinted with permission.

NOTE: LL = lower limit; UL, upper limit.
An adequate synecological analysis should result in substantial subdivision of these types.

Vegetation types within the California Desert, with a summary of the ranges of climatological variables associated with each.

VEGETATIONAL CATEGORIES	MEAN ANNUAL PRECIPITATION (MM)		TEMPERATURE (°C) MEAN JANUARY MINIMA		TEMPERATURE (°C) MEAN JULY MAXIMA		POTE/PPT		APPROX. ELEVATION RANGE (x100M)	
	LL	UL	LL	UL	LL	UL	LL	UL	LL	UL
Desert Microphyll Woodland Complex										
Paloverde Microphyll Woodland Subcomplex										
Foothill Paloverde-Sauaro Woodland	115	160	1	6	40	44	10	12	3	4
Blue Paloverde-Ironwood-Smoketree Woodland	80	160	1	6	40	44	10	20	0	8
Mesquite Microphyll Woodland Subcomplex	42	160	− 2	6	40	47	8	32	− .8	8
Streamside and Oasis Woodland Complex										
Streamside Woodland Subcomplex										
Cottonwood-Willow Mesquite Bottomland	80	160	− 4	6	35	42	5	17	0	10
Cottonwood-Willow-Streamside Woodland	125	250	− 7	1	30	38	3	9	8	20
Desert Oasis Woodland Subcomplex										
Washington Fan Palm Oasis	80	150	1	6	40	44	10	15	0	10
Desert-Semidesert Scrub-Steppe Complex										
Desert-Semidesert Scrub-Steppe Subcomplex										
Indian Rice Grass Scrub-Steppe	120	300	− 9	0	28	40	2	8	6	23
Desert Needlegrass Scrub-Steppe	120	250	− 9	−2	30	38	2	5	10	20
Big Galleta Scrub-Steppe	110−(80)	250	− 4	3	35	44	3	8(15)	3(0)	13
Galleta-Blue Gramma Scrub-Steppe	175	300	− 9	−3	28	36	2	4	12	23
Desert Alkali Grassland Subcomplex										
Saltgrass Meadow	42	120	− 5	5	38	47	8	32	− .8	10
Desert Saxicole Subscrub Complex										
Calciphyte Saxicole Subcomplex										
Calciphyte Saxicole Subscrub	100	300	− 9	0	26	38	2	10	6	24
Noncalciphyte saxicole Subcomplex										
Noncalciphyte Saxicole Subscrub	100	300	− 9	0	26	38	2	10	6	24
Desert Psammophytic (Sand Dune) Complex	42	150	− 4	6	37	47	7	32	0	10

Appendix 6

MINING PLAN STANDARD STIPULATIONS

Plan Name_____ Management Class_____

File No:_____

Date Plan Received_____ Date Due Out

1. All compacted areas shall be ripped to a depth of one foot and harrowed upon termination of mining operations. When disturbed areas exceed 2.5 acres and are ripped and/or seeded, they shall be fenced to exclude burros and livestock for one year.

2. All open shafts shall be securely sealed upon termination of mining operations or whenever operations are shut down for an extended period of time.

3. All drill holes shall be sealed by plugging the top three feet with cement, or the entire hole filled with sand, gravel, or drill chips upon abandonment of the hole.

4. Upon termination of mining operations all pits and trenches shall be backfilled to existing ground level.

5. All pits not backfilled shall be sloped to a two to one slope to the first bench. All benches shall be at least ten feet wide.

6. All embankments, cuts. etc., shall be sloped to a two to one slope to the first bench.

7 All surface structures added, modified, or used under the plan of operations shall be removed after operations are terminated or shut down for more than two years (one year for 3802). However, near surface cribbing collars, underground cadders. shoring, and mine ventilation shall remain in place.

8. All surface structures shall be painted with two earth tones.

9 All toxic materials shall be secured during periods of non-use to prevent access by wildlife or ready access by the public.

All soil not needed for construction purposes shall be stockpiled, terraced, and seeded with native grasses to stabilize spoil piles until needed during the reclamation phase.

11. Upon termination of mining operations, all disturbed areas shall be seeded with a seed mixture specified by the Ridgecrest Area Manager.

12. If desert tortoises are encountered during any phase of operations, they shall be moved to a similar habitat well away from vehicle routes.

The operator shall obtain all necessary county, state, and federal permits before any surface disturbance takes place, and approval of this mining plan is contingent upon obtaining the necessary permits.

14. The following stipulations concerning the use of waters from the public water reserve will become conditions of and will be in effect upon approval of this mining plan:

    a) Point of diversion shall be

    b) Type of diversion shall be

    c) Amount of water diverted shall not exceed that needed to maintain or improve existing riparian vegetation below point of diversion and that needed to supply drinking water for

    d) Any diverted water discharged back into the original channel shall be of a quality equal to that when diverted.

    e) Point of discharge of diverted water shall not be more than 1000 feet below diversion.

    f) No mechanized equipment will be used in the stream channel for purposes of construction or maintenance of the water diversion.

15. The approval of this plan does not authorize the cutting of firewood from public lands.

16. When possible, conduct mining operations, vehicle use, and other related activities away from surface water, such as springs and streams, maintaining a minimum distance of 200 yards.

    Your mining operations are within a Wilderness Study Area. Vehicle use is restricted to existing roads unless approved in the mining plan.

18. All tailings piles shall be graded and contoured upon termination of mining operations.

19. All excavated areas shall be filled upon cessation of mining.

20. All garbage and human waste disposal shall comply with State and County codes.

21. Your mining operations are located within a Class L (limited use) area of the California Desert District. Vehicle use is restricted to existing roads. Any new road construction will require a modification to this plan.

22. Your Plan of Operations is within a highly sensitive archaeological area. Because of the sensitivity and significance of the prehistoric and historic artifacts and ruins near your mining claims, we wish to remind you of your responsibilities to protect these resources. Please refer to Section 3809.2-2(c)(1-3).