

FOREST MANAGEMENT PLAN
for the
SANTA YSABEL RESERVATION
2003 - 2017

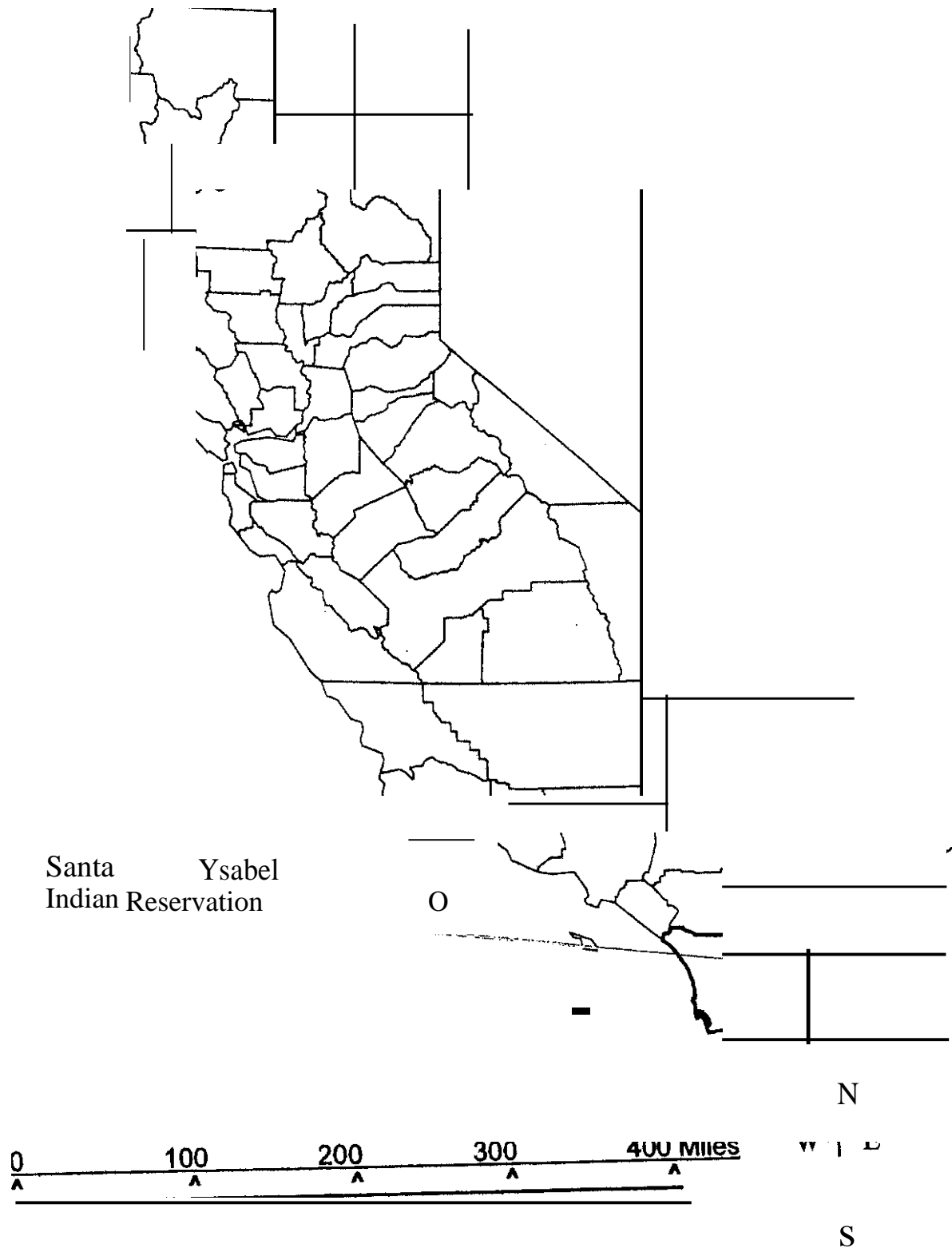
Prepared for:
Santa Ysabel Tribal Council

Prepared by:
Pacific Meridian Resources

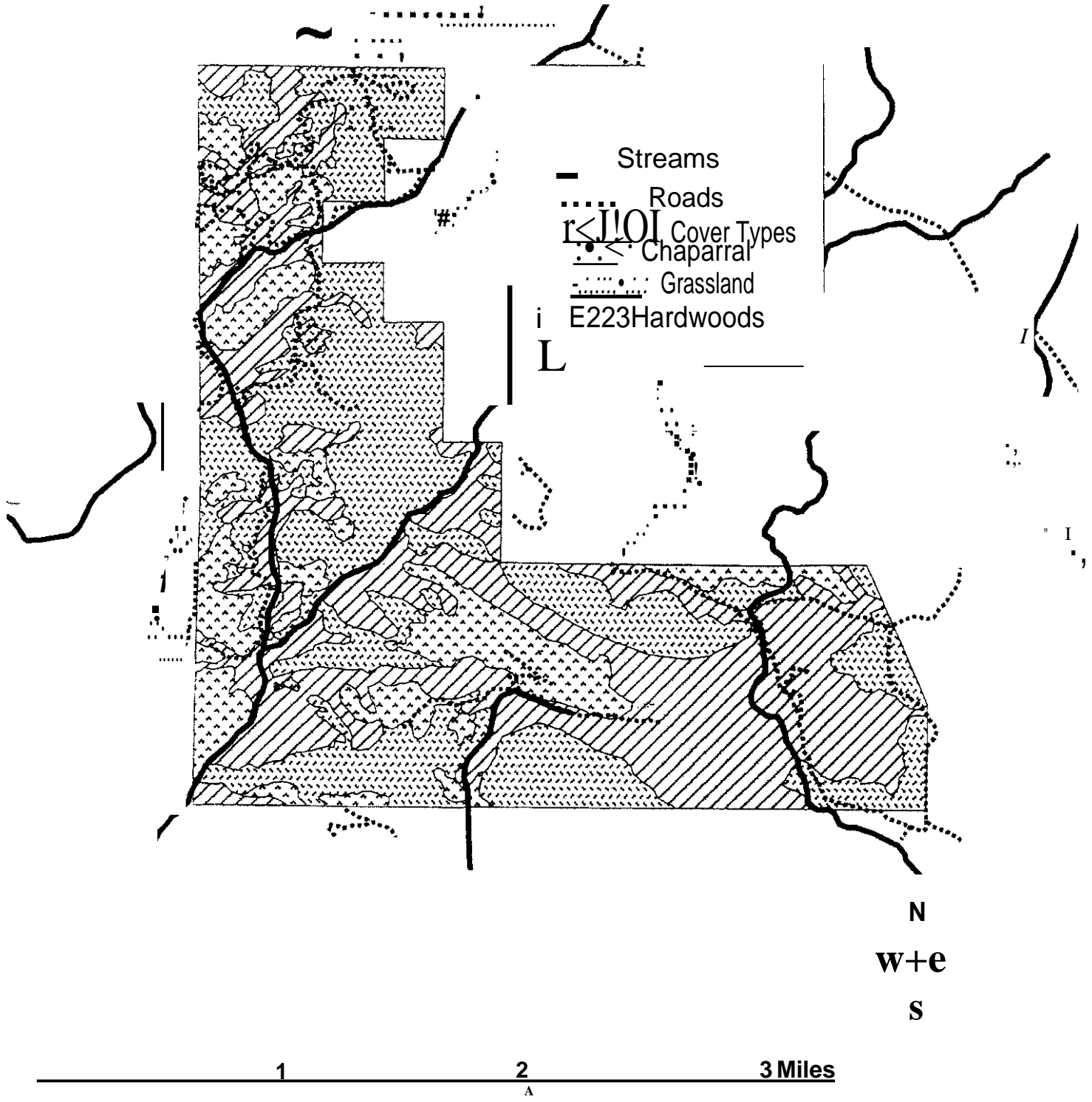


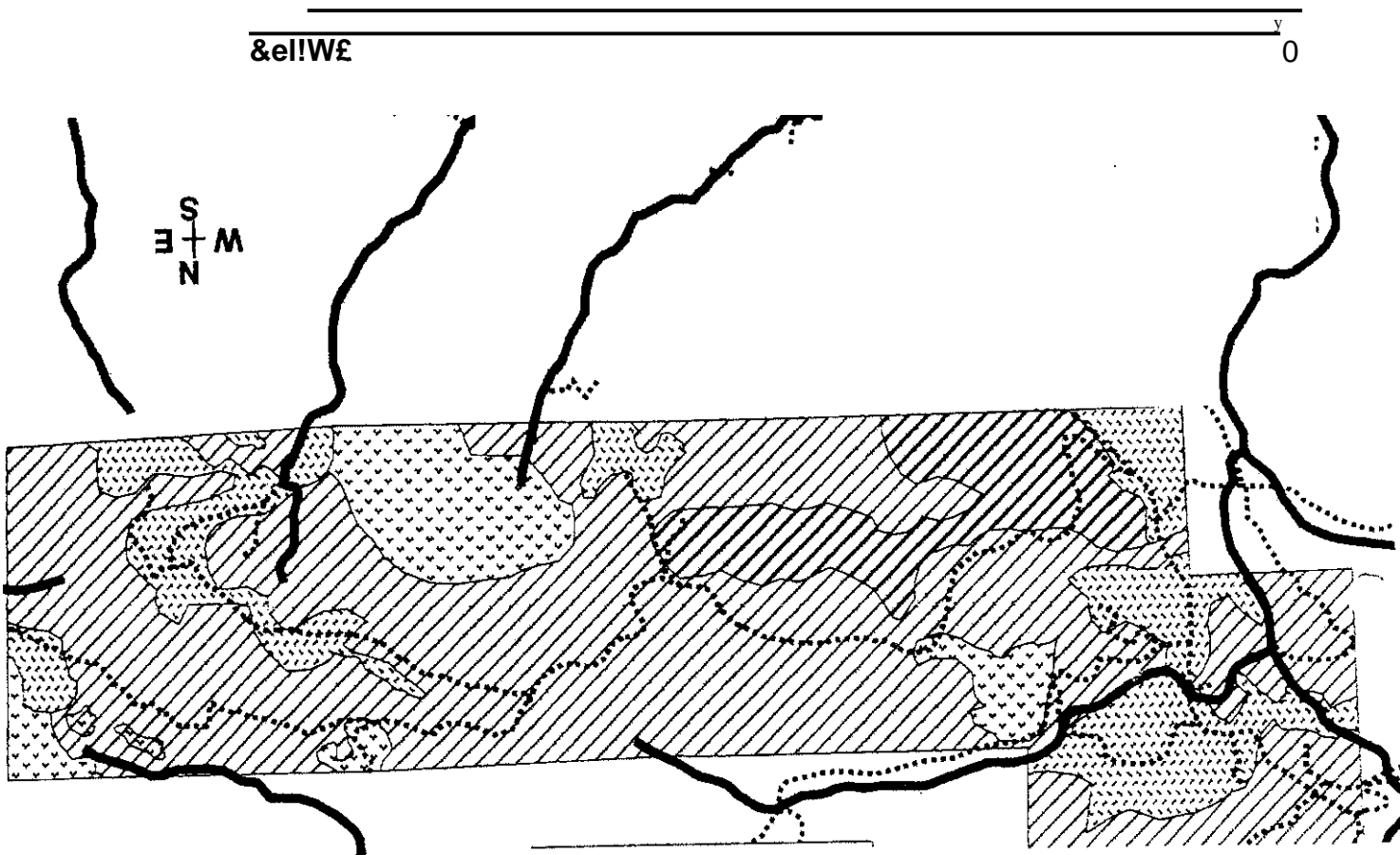
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Santa Ysabel Indian Reservation Location Map San Diego County, California

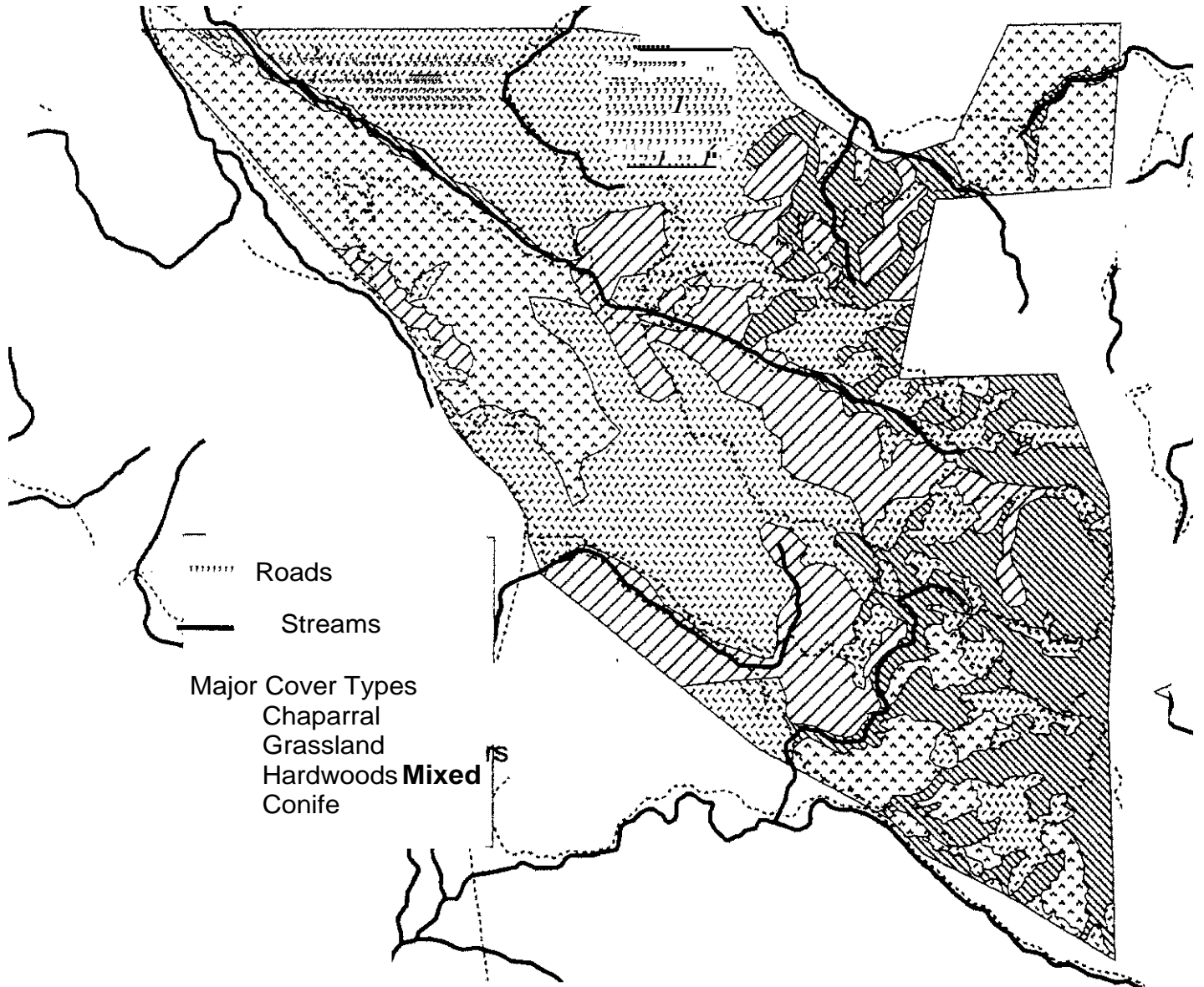


SYIR Tract #1 Vegetation Cover Map





SYIR Tract #3 Vegetation Cover Map



0 1 2 3 MILES



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FOREST MANAGEMENT PLAN
SANTA YSABEL 2003 - 2017

Compiled by

PACIFIC MERIDIAN RESOURCES

Approved: _____, 2005

r.

Santa Ysabel Tribal Council

By: Tribal Resolution No. 5_4_ ----

Approved: Gerald Jones Date 6/28, 2005
Gerald Jones
Regional Forester
Pacific Regional Office

Approved: Clay Gregory Date 6/30, 2005
Clay Gregory
Regional Director
Pacific Regional Office

Reviewed by: G. David Hutton | Date: CJ--, 2005
G. David Hutton

Forester
Southern California Agency

Recommended **by: @1.** Date, 2005

J es Fletcher
Superintendent:
Southern California Agency

INTRODUCTION

This document has been developed for the Santa Ysabel Band of Diegueno Indians and Bureau of Indian Affairs, Central California Agency to meet the requirements of:

- 25 USCA § 3104(b)(1) (Statutes)
- 25 CFR 163.3(b)(1) & (2) (Regulations)
- 25 CFR 163.11(a) & (b) (Regulations)

In order to determine the extent, condition and economic potential of forest lands held in trust for the Santa Ysabel Band of Diegueno Indians, a Forest Management Plan has been developed. This document consists of three basic elements: the Forest Inventory Analysis (or "FIA"); the Forest Management Plan (or "FMP"); and the Environmental Assessment (or "EA"). The FIA is the portion of the plan that describes the forest resources (i.e. the type, extent, condition, growth rate, etc. of the forest). The FMP identifies and describes potential forestry related projects based on the findings of the FIA. These projects are presented in the form of several management alternatives designed to reflect the issues and concerns identified through meetings with the Tribal Council and surveys of the tribal community (i.e., scoping). A Preferred Alternative is usually nominated by the Band from these alternatives. The planning horizon (the time over which the plan is considered valid) is meant to be 15 years. Once a Preferred Alternative is chosen, the Band is not necessarily compelled to perform the activities described, and may in fact choose not to perform any projects. The EA describes the context and intensity of a range of proposed actions, identifies the nature and significance of the impacts of those alternatives to defined resources, and prescribes mitigation measures where appropriate. The preferred alternative best meets the standard of not having the potential to "significantly affect the quality of the human environment", while still meeting the needs of the Band and the mandate of the Agency.

Tribal Objectives

The following goals, as determined from scoping discussions with members of the Tribal Council on June 6, 2000 and 5 questionnaire responses summarize the Band's desires for the long-term management of their forest resources:

- Band is interested in addressing range trespass problems (Tracts 1 and 2).
- Band would like to assess wood cutting and replanting if needed.
- Band is concerned about mortality observed in Black Oak.

Tribal Ordinances and Standards (O&S)

Although the Santa Ysabel community has expressed concerns and objectives regarding their forest resources (see above), there are currently no specific Tribal O&S in place that pertain to the management of these resources.

All forest management activities should comply with the laws, regulations and guidelines set forth in Public Law 101-630, Title III (25 USCA § 3101 et. seq.); the National Indian Forest Resources Management Act, 25 CFR; 53 BIAM; the Pacific Area Office (PAO) Logging Practices (see Appendix). If the Tribe decides to establish a wood cutting program, it is recommended that, in accordance with 53 BIAM Supplement 4, the Tribal Council develop approved Policies and Procedures for the Harvesting of Minor Forest Products which would address the removal of firewood.

Additionally, there are no current Tribal O & S that pertain directly to the protection of these resources. Public Law (P.L.) 83-280, P.L. 101-630, 25 USCA, § 3101 et. seq. provide the Tribe the means to prosecute cases of theft and arson.

BIA Trust Responsibility

Indian Reservation lands are considered tribal property held in trust by the Federal Government. As trustee, one of the duties of the Bureau of Indian Affairs is to oversee the proper management of Tribal forest resources. Thus, Tribal goals and BIA policies must be coordinated.

FOREST INVENTORY ANALYSIS

Description of Forest

Location and Topography

The approximately 15,530 acre Santa Ysabel Indian Reservation (SYIR) is comprised of three non-contiguous tracts (called Tracts 1, 2 and 3), and is located in north central San Diego county California, approximately 25 miles east of Escondido (see Location Map). There are approximately 115 structures located on the reservation, which include a Tribal administrative building, a school and residences. Tract 3, which is the largest, fronts State Highway 79, and all tracts are accessible via a network of all-season county and Bureau roads, Topography is generally moderate and steep throughout. All tracts are watered by various springs and associated streams, Elevations range from 2,000 feet on the southern edge of Tract 2, to over 5,700 feet at Pacheco Peak on Tract 3.

Forest Soils

Soils associated with the forested areas on the Reservation consist primarily of Holland sandy loam, Crouch rocky loam and Tollhouse rocky loam. There are some areas of acid igneous rock land in Tract I that support some sparse tree cover. Non-forested areas are mostly underlain with the Tollhouse and Sheephead rocky loams.

. Climate

The closest climate station to the SYIR is at nearby Henshaw Dam (Station id 043914). Climate is influenced heavily by the VolcanMountains on the east side of the SYIR. This ridge effectively draws moisture from eastward moving weather systems before reaching the dry Anza Borrega Desert to the east. Precipitation averages around 25 inches per year(+/- 4" in snow). Average annual monthly temperatures range from 39 to 74 degrees F.

Major Forest Types

The entire trust portion of the SYIR is recorded with the San Diego County Assessor's Office as many separate parcels grouped into three separate tracts totaling 15,527 acres. Tract 3, the largest, supports stands of live oak, black oak, bigcone Douglas-fir, Coulter pine and Incense Cedar. Tracts 1 and 2 support mainly live oak. (Refer to the Vegetation Types Map). Stand ages on Tract 3 range from recently cut oak stands to virgin old growth Douglas-fir stands estimated at over 300 years old. Stands on the entire Reservation average between 60-80 years.

Economic Development and Utilization of Forest Resources

Fuelwood trees (black oak and liveoak) have been and continue to be cut on Tracts 2 and 3 in an irregular manner. While some of this cutting may have generated revenues for a few Band members, no records exist by which to measure the economic benefits from this utilization. Because of the significant extent of this resource on the reservation, and it's significance to the maintenance of a healthy ecosystem, it is important that tribal officials and reservation residents

understand the short- and long-term environmental impacts of this harvesting activity. Conifer logs have generally not been harvested on the SYIR in recent years, primarily due to a lack of market for logs. The nearest mill is located approximately 250 miles north at Terra Bella.

Because of the abundance of accessible fuelwood cutting areas, if desired, economic development could be possible. Conifer volume and growth (see later sections) are sufficient to support timber sales, however this is not currently possible due to distance to market costs. Unfortunately, the continuing trend in the timber industry is towards concentration, e.g., fewer and more dispersed log buyers. Naturally, any such program of commercial fuelwood or sawlog harvesting would have to be compatible with the desires of the Reservation community and all applicable environmental regulations. Refer to the Forest Economics Benefits Assessment section below.

The forest resource has also been used in the past for non-economic purposes, including recreational use such as hiking, hunting, collection of cultural plants for medicine, food and basket making. Limited cattle grazing on Tract 3 is also a current economic activity occurring within and adjacent to the forest and woodland areas. No data was available for this activity so an assessment of economic benefits was not possible. Cattle were observed in the western portions of Tract 3 during the 2000 inventory.

Summary of Inventory Results

Previous Inventories

A previous inventory of the SYIR was performed on a portion of the SYIR in 1987-88, and is summarized on a per acre basis in Table 1 below.

Table 1. 1987-88 Per Acre Conifer Volume Estimates

Diameter	trees/ac	basal area	cu ft	bd ft gross	%def	bd ft net
white fir						
2-4u	0.0	0.0	0.0	0.0	0.0	0.0
6-10"	0.13	0.07	0.64	0.0	0.0	0.0
12-20"	0.35	0.5	8.84	28.0	8.65	25.6
22+¹¹	0.04	0.11	2.64	14.2	4.61	13.6
Total	0.52	0.68	12.12	42.3	7.29	39.2
Incense cedar						
2-4!!	0.0	0.0	0.0	0.0	0.0	0.0
6-10"	6.03	1.99	35.65	0.0	0.0	0.0
12-20"	2.21	2.71	56.84	74.7	3.88	71.8
22+¹¹	0.56	2.26	54.51	251.4	1.90	246.6
Total	8.80	6.97	147.0	326.1	2.35	318.4
Coulter pine						
z-4n	0.0	0.0	0.0	0.0	0.0	0.0
6-10"	0.97	0.33	3.58	0.0	0.0	0.0
12-20"	0.94	1.36	21.36	69.3	9.74	62.5
22+¹¹	0.57	2.70	67.44	401.8	3.56	387.4
Total	2.49	4.39	92.37	471.1	4.47	450.0
big cone Douglas-fir						
z-411	0.0	0.0	0.0	0.0	0.0	0.0
6- 10¹¹	0.78	0.2	0.0	0.0	0.0	0.0
12-20"	0.23	0.3	5.32	20.8	23.71	15.9
22+¹¹	0.16	0.80	23.91	153.1	3.20	148.2
Total	1.17	1.3	29.23	173.9	5.65	164.1
All softwoods						
z-411	0.0	0.0	0.0	0.0	0.0	0.0
6-10"	7.91	2.59	39.88	0.0	0.0	0.0
12-20"	3.74	4.88	92.36	192.8	8.82	175.8
22+¹¹	1.33	5.87	148.49	820.5	3.00	795.9
Total	12.98	13.34	280.73	1013.4	4.11	971.7

Along with the 1988 cruise data summary, acres used in that inventory by cover type were provided by the BIA Bureau of Forest Resource Planning (BOFRP). It is not clear if the per acre estimates are based on the entire 15,530 trust acres, or only the 6,342 tree covered acres. If the 6,342 forested acres are applied, there was an estimated 6,158,000 net board feet of merchantable conifer wood volume (970 bft/ac) and 14,567,000 net cubic feet (or 113,800 cords) of hardwood volume in 1988 (2,300 cu ft/ac). These numbers seem reasonable compared to year 2000 results.

Current Inventory

In June 2000, a stratified inventory design (Freese, 1963) was applied to the SYIR to allow for an efficient sample of the fairly extensive and uniform tree cover types present. 1992 color stereo air photos (Aerial Fotobank Inc) and USGS 1996 color infrared digital ortho photos (DOQQs) were used to delineate cover types to sample in the field. One-fifth acre, fixed radius plots were applied on a random azimuth system within the delineated tree cover polygons. The property is generally fenced, and where not fenced, property lines were locatable. In general, horizontal ground control was very good. Interplot distances were +/-6 chains apart, with a 1-1/2 chain buffer from the property boundaries. For each conifer and hardwood tree within each plot over 10 inches in diameter at breast height (dbh), species, dbh, log height and defect were recorded. Conifer board foot volumes to an 8" top diameter (dib) on 16' logs, were computed with in-house inventory software using U.S. Forest Service volume tables. Hardwood volume tables were developed using Pillsbury volume equations by species (Pillsbury and Kirkley. RN PNW-414. 1984). Photo classifications were checked in the field and adjusted to reflect on-the-ground observations. Site quality was estimated from increment cores and tree heights taken from randomly chosen trees on every 5th plot, and from associated soil site maps for the Cleveland National Forest. Current growth was estimated on the basis of site index and increment data collected during the inventory.

GIS

The vegetation polygons were digitized from air photo delineations into ArcView GIS software. Soils were obtained and reprojected from the Cleveland National Forest through a Freedom of Information request. Roads, streams and property boundaries were captured from USGS digital raster graphics (DRG) files, and further detail captured from the DOQQs. All geographic data sets were added to ArcView project files and projected in UTM zone 11 NAD83. Acres for each vegetation class (Table 4) and BIA Forest Land Class (Table 5) were determined using the GIS. Digital coverage's (ArcView themes) were created for each of these data layers were labeled per BIA specifications and appear in Table 3.

Subject property boundaries were captured from the best information available at the time of data capture (APN maps and DRGs). Should acreage or location be determined to be significantly different than depicted, the management plan and associated GIS data should be amended.

Area and Volume

Acres of the predominant cover types are summarized in Table 4. For the purposes of the inventory and management, there are four predominant cover types present: mixed conifer forest (Bigcone Douglas-fir/Coulter pine/incense cedar/true fir forest); black oak/live oak stands; chaparral/sage areas; and grasslands. Table 5 shows the distribution of the BIA land classes for the 15,530 acre Reservation. 2,020 acres of the reservation forest is considered to be unreserved, accessible, commercial timberland, and 4,879 acres are considered commercial woodland.

The 2000 inventory estimates 16,187,000 net board feet of conifers present on the SYIR. Per acre stocking of conifers was estimated at 2,920 board feet gross and (2,360 bd ft/ac net, which is the per acre volume after deductions are made for damage and defect on the entire 6,990 forested area of the reservation). Hardwood volume, mostly canyon live oak was estimated at 32,450,000 cubic feet (or 253,500 cords), or 4,640 cu ft/ac. (See Tables 2 and 6)

Table 2. 2000 Per Acre Conifer Volume Estimates

Diameter	trees/ac	bd ft gross	% def	bd ft net
white fir				
12-20"	0.06	7.29	0.0	7.29
22-28"	0.14	99.45	32.32	67.07
30+	0.04	106.29	8.49	97.40
Total	0.25	213.03	19.72	171.78
Incense cedar				
12-20"	1.98	219.30	8.22	201.66
22-28"	0.96	390.64	12.05	343.39
30+	0.32	446.63	13.45	386.55
Total	3.28	1056.57	11.84	931.61
Coulter pine				
12-20"	0.33	51.47	11.76	45.64
22-28"	0.16	57.16	5.26	54.24
30+	0.14	173.81	15.03	147.56
Total	0.63	282.44	12.41	247.45
big cone Douglas-fir				
12-20"	0.65	72.76	18.05	59.63
22-28"	0.40	177.75	19.77	142.61
30+	0.46	1113.29	27.49	807.23
Total	1.50	1363.80	25.97	1009.48
All softwoods				
12-20"	3.00	350.83	10.3	314.23
22-28"	1.60	724.99	16.2	607.32
30+	0.97	1840.05	21.85	1438.75
Total	5.67	2915.87	19.04	2360.31

Statistical Significance

There were 237, 1/5 acre plots measured, which represents a 0.7% (by area) sample of the commercial forest land area. The Standard Error of the Estimate (SE) for the conifers is 16% and 7% for hardwoods (gross volumes).

Forest Growth

The two predominant commercial conifer species present are Douglas-fir and coulter pine. The Cleveland National Forest Soil Survey map, and increment measurements made during the inventory, indicate an average site index of 100 feet for Douglas-fir (McCardle, 1949) and 115 feet for Coulter pine (applied ponderosa pine - Dunning, 1942). On the 2,020 acres of mixed conifer areas, stocking averages 8,015 btlac and stand age averages around 80 years. For the conifer stands, a normal yield table (McArdle, Meyer, Bruce, 1949) indicates that for this site quality, an 80 year old fully stocked stand could carry around 13,900 btlac. This "fully stocked" condition does not take into consideration admixtures of hardwoods, and a fully stocked condition of 11,000 bf(80% of McArdle et al) is considered more realistic for management purposes. Therefore, the current stocking level of 8,015 btlac is below (25% below) the theoretical fully stocked condition of 11,000 btlac. Increment data indicate annual volume growths in these conifer stands to be in the range of between 2 and 3%. When expanded to the 2,020 conifer acres, average annual growth of the current stand is estimated at around 240 bfi/ac/yr, or around 490,000 btiyr for the reservation. Based on this information, a "fully stocked" condition could be achieved in 15 years without any significant depletions due to fire, pests or harvesting.

Increment data collected from predominant hardwood species indicate annual volume growth rates of 30 cubic feet per acre. On the 6,990 acres of SYIR forest (including the mixed conifer which contains significant amounts of hardwoods), average stocking is around 4,640 cu ft/ac. Growth is estimated at 30 cu ft/ac/yr, or around 210,000 cu ft/yr (1,640 cords/yr).

Past Harvesting

Records have not been maintained for fuelwood harvests since 1988. Interviews with the Band and a careful inspection of resource photography indicate that roughly 5 acres per year have been harvested since 1988. These areas typically are completely cleared of trees over 10" dbh, although some areas were seen on the ground that were less severely harvested. At +/-5 acres per year, it is estimated that approximately 138,000 cu ft (or 1,080 cords) have been harvested on +/- 60 acres since 1988. Significantly, black oak stocking is thought to have been significantly reduced due to over harvesting. It was not possible to determine hardwood stocking by species from the 1988 data, so a short term trend could not be demonstrated. This species is critical for habitat and has not been regenerating as well as hoped by the Band. AS a result, planting efforts have begun on Tract 2 (see Forest Development section below).

Forest Conditions

No pests were observed while conducting the forest inventory. There has been a history of insect and drought related tree mortality and decline on the reservation which was mentioned by Tribal members during scoping meetings. Ozone pollution can be a contributing factor to reduced tree vigor which increases vulnerability to pests. There are documented beetle infestations, annosus root rot and dwarf mistletoe on Coulter pine in the area around Julian as recently as 1992 (USDA 1994). On Coulter pine, likely pests include:

Western Pine Beetle (*Dendroctonus brevicomis*)
Pine Engraver Beetle (*Ips* spp)
Annosus root rot (*Heterobasidion annosum*)
dwarf mistletoe (*Arceuthobium* spp)

On fir and Bigcone Douglas-fir, the primary forest health issues are death and decline due to fir engraver beetle, true mistletoe and annosus root rot. True firs were cruised that showed decline likely due to root rot and other pocket rot fungi (probably *Fomes pini*). Tree vigor can be compromised when conifers are growing in close proximity to hardwoods which are infected by *Armellaria* root rot (*Armellaria mellea*), although none was observed.

On fir and Bigcone Douglas-fir, likely pests include:

Fir engraver beetle (*Scolytis ventralis*)
Annosus root rot (*Heterobasidion annosum*)
Pocket rot (*Fomes pini*)
True mistletoe (*Phoradendron bolleanum* spp)

Careful monitoring, timely tree salvage, and complete slash treatment are all essential elements in maintaining forest health on the Reservation. This region north of Julian has a history of drought (and possibly ozone) related pest problems. Any significant tree decline or mortality observed, should be reported to BIA foresters in Riverside as soon as possible.

Many of the factors affecting hardwoods are directly a result of human intervention. The most significant and obvious human impact has been clearing and cutting for fuelwood. Failure of black oaks to regenerate following fuelwood operations in several locations have resulted in a reduction of this species. Even if trees are left following development, landscaping irrigation and obstructions to surface root aeration such as top fill or asphalt severely stress these trees, allowing them to fall victim to *Armellaria* root disease (*Phytophthora* spp.), and endemic defoliators such as the Pacific tent caterpillar. Although considered drought tolerant, oaks can show significant decline and mortality from prolonged drought conditions, which can also come about from alterations to the water table as a result of land grading. *Septoria* leaf blight (*Septoria* spp.) has caused some defoliation to black oaks in the coastal ranges in past years (USDA, 1996), but this pathogen generally only results in visual impacts and no long term effects or die-back to this species have been observed.

Stand Description:

Because of the long history of scattered tree mortality and hardwood cutting, the commercial forest stands on the reservation are generally patchy and range from between 60 and 80 years old. A few scattered white fir and Douglas-fir old growth trees were measured that were older than this (+200 yr.), but average conifer stand age is probably around 80 years.

Fuels

Fuel loading (i.e. fuels on the ground) in the conifer cover type was visually estimated at between .5 and 2 tons per acre, most of which is in flammable understory saplings and flashy needle and duff layers. The open grass and chaparral areas have up to an estimated 5 tons per acre of flammable fuels, and large areas of white sage on Tracts 2 and 3 carry an estimated 3 - 5 tons per acre of very volatile ground fuel. Hardwood stands carry an estimated 1-3 tons per acre of downed limbs and understory vegetation. Ladder fuels are most prevalent in the hardwood stands and risk of crown fires are greatest in this type. No fire history was found during research and field work but wildfire is known to have passed through the valley in historic times. A large fire burned up from Henshaw Lake in the 1980's, and evidence is still visible on the northern portions of Tract 3. Approximately 1,800 acres on Tract 1 were proposed for fuel treatment in 1999-2000. A fire Management Plan is currently in review with the BIA and will provide more detailed data on fuel loading and treatment options.

Indicated Allowable Cut

The Allowable Cut, is the sustainable harvest of wood volume that can be cut annually from the reservation. This amount is calculated based on estimates of the current stocking, the stand growth rate and predicted stand responses to harvesting. For conifer species, predicted growth at full regulation is 240 bflac/yr. Because uneven aged management is the most likely approach, the BIA direction has traditionally been to apply the Austrian formula. For the entire reservation, a hypothetical uneven aged management regime cycling between 8,000 and 11,000 bflac on a fifteen year cutting cycle was postulated. The average (midway) volume would be 9,500 bflac. In the present case we have:

$$AC = I + (V_m - V_p) / (\text{adjustment period})$$

Where,

$$I = \{[(\text{measured} + \text{projected}) / 2] + \text{predicted}\} / 2$$

$$V_m = (\text{actual})$$

$$V_p = 11,000 \text{ bflac (target average volume per acre)}$$

$$\text{Adjustment period} = \text{selected arbitrarily according to scenario}$$

Thus,

$$AC = 240 + (8,000 - 11,000) / 15 \text{ yrs} = 40 \text{ bflac} = 80,800 \text{ bfl yr}$$

On the 15 year cutting cycle proposed, average annual conifer harvests must not exceed 80,800 board feet. This means that over the fifteen year planning period, 1,212,000 board feet could be harvested without surpassing the Indicated Allowable Cut. This harvest level is below current growth, but will allow the forest to increase stocking over time and approach a regulated forest condition while still generating a flow of timber.

Hardwood sustainable harvests are estimated based on estimates of current growth rates as measured during the 2000 inventory on all 6,990 forest acres. Current growth equals approximately 30 cu.ft/ac/yr on 6,990 acres. A simple expansion of this number yields 210,000 cuft/yr or around 1,640 cords.

Both the conifer and hardwood harvest targets assume no significant losses from fire, pests or unauthorized cutting.

Sampling Recommendations

The sampling approach applied for this forest inventory was suitable to continue tracking the forest resources on the Reservation. A third inventory should be implemented in 2015 or 2020 to update forest conditions and allowable cut levels. The stratified inventory approach would be the most cost effective, but a grid based cruise would also provide the same level of information. A permanent plot system would be too expensive, unless active management activities require this level of information.

Table 3. Digital Coverage's, Santa Ysabel

<u>Coverage FileName</u>	<u>File Contents</u>
RBD3_592t(#)	Reservation boundary - (Tract 1, 2, 3)
STR2 592	streams
RDS2 592	roads
FLC3_592t(#)	forest land class - (Tract 1, 2, 3)
TTY3_592t(#)	vegetation cover class - (Tract 1, 2, 3)
SLS3 592	soils

Coverage's are projected into U1M zone 11 Nad83.

Table 4. Summary of Acreage by Cover Types, Santa Ysabel, 2001.

<u>Type Description</u>	<u>cover type</u>	<u>Acres</u>
Commercial Forest land:		
Mixed Conifer	MC	2,020
Hardwood	HWD	4,680
Hardwood - sparse	HWD-S	290
Subtotal		6,990
Other Lands:		
Dry grassland	HG	5,720
Chaparral	CWX	2,820
Subtotal		8,540
Total		15,530

Table 5. Forest Land Classification Acres on the Santa Ysabel, per 53 BIAM Supplement 2, Illustration 2.

				(2,020)	<u>Commercial</u>
				(2,020)	<u>Timberland</u>
			(6,990)	I	<u>Non-comm.</u>
			<u>Accessible</u>	I	(4,970)
			I	I	<u>Commercial</u>
			I	I	(290)
		(6,990)	I		<u>Non-comm.</u>
	<u>Unreserved</u>	I	I		(0)
	I	I	I	(0)	<u>Productive</u>
	I	I	I	<u>Timberland</u>	I (0)
	I	I	I	I	<u>Unproductive</u>
	I	I	<u>Inaccessible</u>	I	(0)
	I	I	I	I	<u>Productive</u>
	I	I	I	<u>Woodland</u>	I (0)
	(6,990)	I	I		<u>Unproductive</u>
	<u>Forest</u>	I	I		I (0)
	I	I	I	(0)	<u>Productive</u>
	I	I	I	<u>Timberland</u>	I (0)
	I	I	I	I	<u>Unproductive</u>
	I	I	<u>Accessible</u>	I	(0)
	I	I	I	I	<u>Productive</u>
	I	I	I	<u>Woodland</u>	I (0)
(15,530)	I	(0)	I		<u>Unproductive</u>
<u>Reservation</u>	<u>Reserved</u>	I	I		(0)
I	I	I	I	(0)	<u>Commercial</u>
I	I	I	I	<u>Timberland</u>	I (0)
I	I	I	I	I	<u>Non-comm.</u>
I	I	<u>Inaccessible</u>	I		(0)
I	I	I	I	I	<u>Productive</u>
I	I	I	I	<u>Woodland</u>	I (0)
I	I	I	I		<u>Unproductive</u>
(8,540)	<u>Non-Forest</u>				

Table 6. Estimate of Total Merchantable Wood Volume, Santa Ysabel, 2000.

<u>Species</u>	<u>Net</u> <u>Volume (cords)</u>	<u>Net</u> <u>Volume (bf)</u>
liveoak	172,300	
black oak	81,200	
Coulter pine		1,700,000
Douglas-fir		6,920,000
Incense cedar		6,390,000
True fir		1 180 000
Total	253,500	16,190,000

RESOURCE PROTECTION PLAN

This portion of the FMP addresses the protection of reservation resources from fire, insects and diseases, and trespass. A range of resource protection intensities are described in the Management Alternatives. The recommendations found in the Forest Conditions Section should be followed.

Resource Inventory

Human life, water quality, conifer and hardwood forests, structures, fences, pastures, riparian trees, habitat, and game animals are all Tribal resources vulnerable to fire, trespass and insect and disease damage. Of these vulnerable resources, human life, water quality, structures and forests probably have the highest tangible values to the Band, while habitat and visual resources have less tangible values. By protecting the human, water and forest resources, the other resources should also be protected.

Forest Insects and Diseases

As mentioned in the FIA, there have been no serious insect or disease problems observed on the reservation in the recent past. Timely tree salvage and slash disposal will reduce the risk of this problem, along with the minimization of disturbances around existing trees. It is essential to notify BIA foresters in Riverside as soon as any insect or disease outbreaks are observed. Insect and disease problems are usually associated with periods of drought. The Band should therefore remain especially vigilant for insects and diseases in the years following droughts. Recent years have not been particularly dry.

Fire and Emergency Rehabilitation

There have been wildfires on the reservation over recent years, but not above average. Recent winters have been fairly wet, resulting in increases in vegetation growth that have increased the risks of wildfires. A Fire Management Plan Assessment (FMPA) that addresses the protection of all trust lands is now in place for the Agency.

BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION

In the event of a wildland fire on Tribal land, the Pacific Regional Office, Branch of Forestry will determine if a site specific Burned Area Emergency Stabilization and Rehabilitation (ESR) Plan should be developed for the burned area. An ESR plan is a document that specifies treatments required to implement post-wildland fire stabilization and rehabilitation policies on an individual incident. The ESR plan will be conducted in a manner that is compatible with the long-term goals and objectives identified in approved land management plans. The ESR plan will follow the policies and procedures in the Department of Interior (DOI) Department Manual Part 620, Chapter 3 Burned Area Emergency Stabilization and Rehabilitation and the DOI Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook. All ESR plans will be in compliance with the appropriate environmental regulations.

The ESR plan will contain one section listing emergency stabilization specifications and another section listing long-term rehabilitation specifications and may be two separate documents. Generally, emergency stabilization and rehabilitation activities are prescribed only within the perimeter of a burned area. The Pacific Regional Office will determine the extent and complexity of the rehabilitation needed and bring in either a Regional or National ESR Team. An ESR team will consist of a group of technical specialists that may include but is not limited to hydrologists, rangeland management specialists, foresters, soil scientists, biologists, archaeologists, Geographic Information System (GIS) specialists, silviculturalists, etc.

The Emergency Stabilization (ES) plan should be initiated during suppression efforts or immediately thereafter depending on the environment/landscape of the wildfire, the complexity of the wildfire and the availability of planning personnel and resources. Initial submission of the ES plan must be within 15 calendar days following control of the wildfire in order to ensure credibility and to document the urgency of the situation. Revisions to plans as a result of new information should be prepared and submitted as needed.

The Rehabilitation effort is not an emergency situation and the Tribe/Agency has 3 months to prepare the plan. The Rehabilitation plan is prepared to repair or improve lands unlikely to recover naturally from wildland fire; restore or establish a healthy, stable ecosystem; tree planting when a wildland fire leaves any Tribal commercial timberland understocked and it will be necessary to regenerate the commercial timberland; and the repair or replacement of fire damaged minor operating facilities (e.g. grazing fences, signs). The Rehabilitation plan should specifically identify all commercial forestland that needs reforestation that will not naturally regenerate in less than ten years after the wildland fire as determined by a certified silviculturalist. For lands that need repair or ecosystem restoration, the Rehabilitation plan should identify areas to restore or establish a healthy, stable ecosystem. This may include areas of cultural significance, grazing, or recreational areas, etc. The ESR plan should also identify different native plant species that will be planted or seeded in a wildland fire area. Plant species that have been identified by the Tribe as culturally important should have preference over other native species. The rehabilitation effort should be consistent with land management plans.

All rehabilitation of wildland fire suppression activity (ie. fire lines, cut fence lines, and other damage to resources lands and facilities resulting from wildland fire suppression actions, etc) should be completed while the suppression forces are still on site. This type of rehabilitation work is paid from wildland fire suppression funds and not from ESR funds.

A 1999 fuel treatment project on Tract 1 is a good start toward reducing wildfire risks, educating the community about these risks, and involving community members into the process.

Trespass

Public Law 101-630, 25 CFR 163 Regulations, and 53 BIAM, Supplement 7 provide for the investigation of trespass, and the process by which to reach settlements.

Fire Trespass: Fire trespass can be divided into three types: unintentional (e.g. lightning); negligent (e.g. out of control brush fire burning); and willful (e.g. arson). Depending on the strength of the evidence, arson can be very difficult to prove and prosecute, while negligence is generally fairly easy to establish when a brush fire jumps the line. Arson fires are not known to have been a problem on the Reservation.

Timber Trespass: Timber trespass can be divided into three general types: innocent, inadvertent, and willful. *Innocent* timber trespass occurs when the trespasser has relied on generally accepted survey data collected by a licensed surveyor in the process of laying out a timber sale, that end up being inaccurate. Damages for this type of trespass are often limited to the actual value of timber products removed. *Inadvertent* trespass occurs when the trespasser has failed to adequately locate the property line defining the edge of the cutting unit. Damages for this trespass usually are determined by Civil Code, and equal to twice the stumpage rate for the timber products removed. *Willful* timber trespass constitutes theft. This type of trespass is rare, and very difficult to prove. If proven, damages can be triple the stumpage value of timber products removed.

Based on scoping meeting discussions and on-site observations, there is a continuing problem with unregulated woodcutting, but this is not a result of timber trespass. If this does become a problem in the future, it is recommended that Policies and Procedures for Harvesting of Minor Forest Products be developed and implemented. Subject to sustainable harvesting constraints, such a policy could limit harvesting of firewood to tribal members only, and limit the amounts harvested per household. Stream buffers are discussed below. Penalties for non-compliance with the permits would be stated. Because of P.L. 83-280, the responsibility for the investigation and prosecution of trespass on Indian trust lands in California has been delegated to the State. See the Appendix for specific information.

Stream Buffers

To protect stream water temperature, filter strip properties, upslope stability, and fish and wildlife values, stream buffers must be applied when harvest operations occur. Within these buffers, at least 50% of the overstory and 50% of the understory canopy covering the ground and adjacent waters must be left in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy must be composed of at least 25% of the existing overstory trees. All of the areas observed that have been impacted by woodcutting were generally well out of stream zones. Cattle grazing may be a more significant impact to riparian areas and water quality.

FOREST MANAGEMENT PLAN

Tribal Ordinances and Standards (O & S)

As mentioned in the Introduction, although it is the intention of the Band to manage the forest resource in order to ensure long term health and sustainability, there are no current Tribal O & S that pertain directly to forest management. All forest management activities should comply with the laws, regulations and guidelines set forth in Public Law 101-630, Title III (25 USCA § 3101 et. seq.); the National Indian Forest Resources Management Act, 25 CFR; 53 BJAM; the Sacramento Area Office (SAO) Logging Practices (see Appendix). **If the Band decides to establish a wood cutting program, it is recommended that, in accordance with 53 BIAM Supplement 4, the Tribal Council develop an approved Policies and Procedures for the Harvesting of Minor Forest Products which would address the removal of firewood.**

Additionally, there are no current Tribal O & S that pertain directly to the protection of these resources. Public Law (P.L.) 83-280, P.L. 101-630, 25 USCA, § 3101 et. seq. provide the Tribe the means to prosecute cases of theft and arson.

Resource Inventory

Acres of the predominant cover types are summarized in Table 4. On the Santa Ysabel reservation, there are four predominant cover types: mixed conifers, hardwoods, grasslands and chaparral. Table 5 shows the distribution of the BIA land classes for the Reservation. 2,020 acres of the Santa Ysabel forest is considered to be unreserved, accessible, commercial timberland, 4,970 acres of the Santa Ysabel forest is considered to be unreserved, accessible, commercial woodland. 8,540 acres are considered non-forest grassland, chaparral and sage areas.

The 2000 inventory estimates 253,500 cords of hardwoods (mostly canyon liveoak and black oak) and 16,190,000 net board feet of conifer wood volume present on the Reservation. The total wood volume standing on the Santa Ysabel in 2000 is summarized in Table 6.

Traditional uses of the forest include firewood cutting, hunting, recreation, cattle grazing, basketry material and food plant collecting to name a few. Acorns have traditionally been used as an important food source by many tribes, and bedrock mortars were found in many locations suggesting this was a forest use in pre-European times. The forest is also a valuable visual backdrop for the Reservation as well as important wildlife habitat, watershed and stream bank stabilizer.

Roads

The Reservation is generally well roaded with all season black top roads, seasonal native surfaced roads, and many crude "blazed" roads resulting from woodcutting activities. Many of these blazed roads are not maintained and were essentially created by someone driving into woodland areas where the terrain permitted access. Some legacy roads (roads that have not been recently built) are in poor condition on portions of Tract 1, and would provide only limited access for fire suppression due to overgrown conditions and road surface losses. Elsewhere, seasonal roads are in generally good condition and are adequate for management activities as well as for fire suppression. All of the forest resources are accessible either by existing roads or could be accessed by construction of roads without much trouble. Maintenance of Reservation roads has been performed in a fairly informal manner in coordination with BIA Riverside, but there is currently a consortium of Tribes (RTA) who have funding and will likely provide this service to

Plan

the Band in the future. No major road failures or maintenance problems were observed in 2000, and low precipitation levels will generally result in minimal surface erosion. However, driving on wet native surfaced roads can cause rutting and damage water bars and dips which are essential to maintaining roads and minimizing sediment movement into stream courses. Wet weather driving on dirt roads should be discouraged. Known roads are depicted on the Vegetation Type Maps developed for this report.

Forest Development and other Projects

53 **BIAM**, Supplement 5 defines forest development as "...that segment of the Forestry Program that addresses the improvement of forest resources. It involves forestation and commercial forest stand improvement (CFSI) activities, principally, and consists of all silvicultural treatments applied to establish, promote, enhance, and maintain optimum growth on selected trees to produce perpetual yields of desired forest products under principles of sustained yield forest management..."

Hardwood planting

Black oaks provide firewood and acorns which are an important traditional food source. Past cutting has reduced this species below historic stocking levels. Harsh conditions in cut areas have generally only favored regeneration of chaparral and liveoak. To increase black oaks on Tract 2 of the Reservation, the Mesa Grande Band of Mission Indians Environmental Department will construct a small nursery in which to grow black oak trees from acorns harvested in the immediate area. The acorns will be gathered in the fall from mature oaks, and will be hand selected, kept dry and prepared for planting. The nursery will be located at an approximate 4,000 foot elevation, which is within the 3,500-5,000 optimal range for this species. Acorns will be planted in soil collected from the surrounding area, and fertilizers and soil supplements may be used to improve survival and growth. Following some site preparation (brush clearing) approximately 300 seedlings will be transplanted to the field in the Spring, and they will be fenced and watered as needed to improve survival rates. Additional planting may be attempted depending on the success of this initial phase.

Fuel Treatments

Thinning and removal of vegetation along roads and near structures is an important project to consider. Firesafe clearing around homes should follow the descriptions in Figure 1. Along roads, dead vegetation and overhanging limbs should be removed at least 10 feet from the road edge. Flashy fuels such as grass should be mowed regularly.

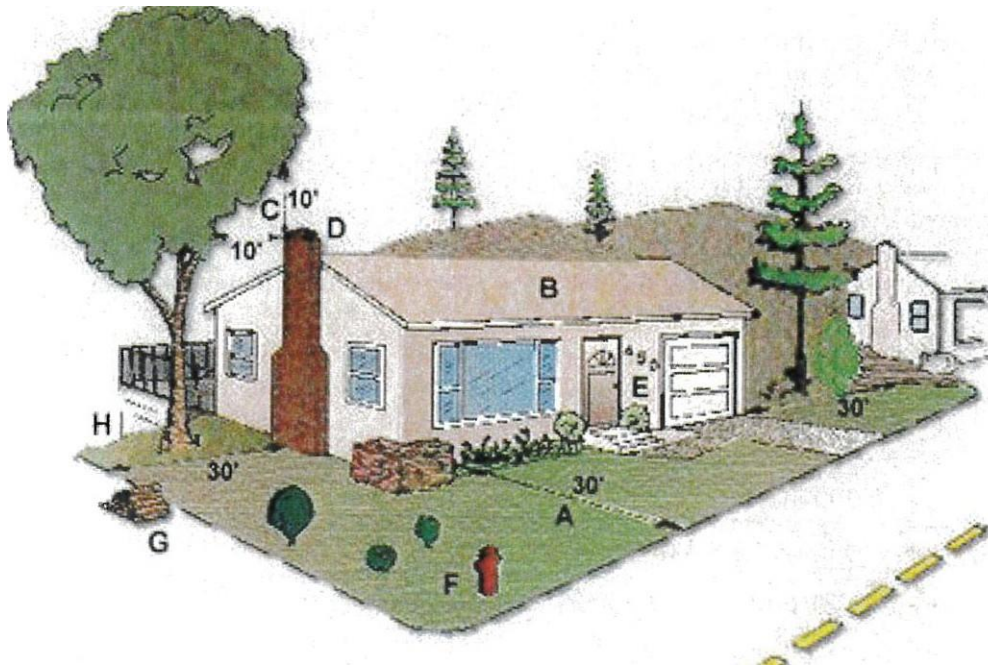
Recent winters have been wet, resulting in increases in vegetation growth that have increased the risks of wildfires. A Fire Management Plan Assessment (FMPA) that addresses the protection of all trust lands is now in place for the Agency.

In general, the following points regarding fuel conditions on the Reservation are valid.

- (1) There are people and property at risk from wildfire on the Reservation.

- (2) There are four basic fuel types present, (hardwood woodlands, conifer forest, sage/chaparral and grasslands). Sage/chaparral and grasslands represents the highest hazard, although understory saplings in the woodland type are also a concern.
- (3) Fuel management on the Reservation should consist of:
 - (a) construction of "fire safe" buffers (see Figure 1).
 - (b) along internal reservation roads, dead vegetation and overhanging limbs should be removed at least 10 feet from the road edge. Flashy fuels such as grass should be mowed regularly.
- (4) With high temperatures and winds, late August is often the most dangerous wildfire period. Residents need to be especially careful, vigilant and prepared during this time.

Figure 1. CDF Fire Safe Guidelines



- A. Maintain a "defensible" space around your home by clearing all flammable vegetation a minimum of 30 feet around structures. Clear dead leaves and branches to leave widely spaced ornamental shrubbery and trees.
- B. Clean needles and leaves from the roof, eaves and rain gutters.
- C. Trim tree limbs within 10 feet of your chimney and trim all dead limbs hanging over your house or garage.
- D. Cover your chimney outlet or flue with a spark arresting mesh screen.
- E. Make sure your address is clearly visible for easy identification in an emergency.
- F. Make sure your home is located near a fire hydrant, or that you have a water storage supply of at least 2,500 gallons for use in an emergency.
- G. Stack woodpiles at least 30 feet from buildings, fences and other combustible materials.
- H. Clear vegetation and other flammable materials from beneath your deck. Enclose undersides of elevated decks with fire resistant materials.

2000 Fuel Reduction Project

A fuel reduction plan on Tract 2 has been in preparation for implementation in 2000-2001. Several hundred acres of oak woodland understory will be hand cleared, piled and burned. This project is an important treatment of an area very prone to fire and interspersed with homes and improvements that are at risk from wildfire. White sage in Tract 2 was observed to be very decadent and is naturally highly prone to burning.

Forest Economics Benefits Assessment

Due to the absence of a nearby log buyer, conifer timber sales are severely limited despite stocking levels capable of a sustainable commercial timber sale program (see Indicated Allowable Cut above). State Board of Equalization (SBE) published the preliminary Spring 2001 stumpage harvest value schedules for San Diego County (see Table 7 below). Stumpage is the price a buyer pays to a timber owner for trees "on the stump" and includes the costs of logging and hauling. A Forest Management Deduction (FMD) fee is also deducted. These fees are a minimum of 10% of the stumpage price but can be set at a higher rate by Tribal resolution. These fees are available for the Tribe to use for specific forestry land management activities as defined in 25 USC 3103 (4). Thus, the following stumpage values on the SYIR are estimated.

Table 7. Indicated Stumpage Values on SYIR Spring 2001

<u>Species</u>	<u>SBE Area 9S</u>	<u>FMD fees</u>	<u>Stumpage</u>
Pine	\$200/mbf	20	180
Douglas-fir	100	10	90
Incense cedar	100	10	90
Fuelwood	20/cord	2	18

A positive stumpage value does not necessarily mean a buyer would bid on SYIR logs, but does provide some economic information that suggests it is unlikely.

Under the Indicated Allowable Cut level of 80.8 mbf, and an average stumpage value of \$120/mbf, an annual timber revenue of approximately \$9,700 would be possible. Timber sales of this size are generally considered too small to be commercial. More typically, a sale that captures the 15 year allowable cut of 1,210 mbf would be more feasible. If performed in the year 2015, the discounted value (10%) of such a timber sale would be around \$56,000.

A commercial woodcutting operation is certainly possible, but would require careful control of who and where cutting would be done, and record keeping to update the allowable cut numbers presented above. At \$18/cord, annual fuelwood sale revenue could be almost \$30,000. This would assume physical access and permission into areas throughout the **SYIR**. Black oak should be generally excluded from commercial woodcutting operations due to low stocking and poor regeneration of this species.

Management Alternatives

In order to recognize a range of attitudes and approaches towards management of the Reservation forest, and evaluate the trade-offs of a range of management intensities, several management alternatives have been proposed.

No Action Alternative - This alternative is one in which no change from the current level of management is proposed for the next fifteen years. No change in the current forest development, fuel treatment or wood cutting activities would be implemented. No commercial timber sales would be performed.

Preferred Alternative - This alternative would include additional fuel treatments along overgrown interior roads and firesafe clearing around the most overgrown structures. Depending on funding levels, labor and supervision might be provided by the Band and BIA. Livestock grazing would be coordinated to help reduce ground fuels and protect streams, springs and planted trees. Any project work performed near streams would be designed to avoid or mitigate impacts to water quality. The stream buffers prescribed in this report would be applied. Woodcutting would be for subsistence use, but be monitored to ensure over-harvesting is not occurring and other resources such as streams and roads are not negatively impacted. A Band member should be designated to monitor woodcutting and associated disturbances. Knowledge gained from the current planting project will be used to implement a much larger project of over 1,000 seedlings. No commercial timber sales would be performed under this alternative during the 15 year planning horizon.

Aggressive Alternative - This management alternative would entail a more extensive level of fuel treatments, including fire safe clearing around homes, woodland thinning, underbrush clearing and prescribed burning on the entire Reservation. Hardwood areas would be harvested both commercially and for subsistence use. Knowledge gained from the current planting project will be used to implement a much larger project of over 1,000 seedlings. Roughly one-half of the hardwood volume harvested would be sold yielding around \$5,000 per year. A selection harvest timber sale would be developed that would harvest approximately 1,200 mbf yielding approximately \$56,000 in revenues. Stream mitigations would be applied as described in the Preferred Alternative.

ENVIRONMENTAL ASSESSMENT

Purpose and Need for Action

The Bureau of Indian Affairs (BIA) proposes to implement a fifteen year Forest Management Plan (FMP) for the Santa Ysabel Indian Reservation (SYIR). The FMP will provide a framework for sustainable management of the forest resource, while also identifying, protecting and enhancing other forest related values such as water quality, cultural and economic needs, and wildlife considerations. Secondary goals include increased employment opportunities for Band members, enhanced access for collection of traditional materials and hunting, and BIA funding for identified projects. Also included in the FMP is a resource protection plan and a brief economic benefits assessment. If specific harvesting projects are proposed, a Forest Officer's Report will be generated by the BIA forester that will assess project specific impacts and mitigations.

The BIA is required to manage the Tribal forest resource under a sustained yield basis, and in accordance with Title III of Public Law 101-630 (the National Indian Forest Management Act of 1990). This Environmental Assessment (EA) will describe the context and intensity of a range of proposed actions, identify the nature and significance of the impacts of those alternatives to defined resources, and prescribe mitigation measures where appropriate. A preferred alternative is nominated that best meets the standard of not having the potential to "significantly affect the quality of the human environment", while still meeting the needs of the Tribe and the mandate of the Agency.

Description of the Affected Environment

General Area Description

The approximately 15,530 acre Santa Ysabel Indian Reservation (SYIR) is comprised of three non-contiguous tracts (called Tracts 1, 2 and 3), and is located in north central San Diego county California, approximately 25 miles east of Escondido (see Location Map). There are approximately 115 structures located on the reservation, which include a Tribal administrative building, a school and residences. Tract 3, which is the largest, fronts State Highway 79, and all tracts are accessible via a network of all-season county and Bureau roads.

Air Quality and Noise

The closest climate station to the SYIR is at nearby Henshaw Dam (Station id 043914). Climate is influenced heavily by the Volcan Mountains on the east side of the SYIR. This ridge effectively draws moisture from eastward moving weather systems before reaching the dry Anza Borrega Desert to the east. Precipitation averages around 25 inches per year (+/- 4" in snow). Average annual monthly temperatures range from 39 to 74 degrees F. In general, the SYIR experiences warm dry summers and mild, sometimes wet winters. Winds alternate between moderate daytime onshore breezes to weak offshore winds at night. Pollution generated in coastal areas can get blown inland and are often trapped in areas around Ramona.

The Santa Ysabel Reservation is located in the San Diego Air Basin (SDAB), and the nearest air quality monitoring station is in Escondido, approximately 20 miles southwest of the

SYIR where O_3 , CO , NO_2 and PM_{10} are all monitored. The San Diego Air Pollution Control District (APCD) is the agency responsible for the administration of federal and state air quality laws. The SDAP does not have jurisdiction over Reservation activities, but the BIA does require a smoke management plan be developed in consultation with the APCD before any prescribed burning is performed. Over the past 5 years, neither federal or state standards for CO , or NO_2 were exceeded. For PM_{10} between 1994-1998, federal standards were not exceeded. O_3 (ozone) levels exceeded federal standards one day in 1995.

When compared statewide, this basin is classified as a federal and state "serious nonattainment area" for ozone and a "maintenance area" for carbon monoxide, and a "nonattainment area" for particulate matter. This suggests that there are climatic and pollution factors that can cause increases in the concentration of air pollutants. Burning of vegetation as part of any fuel or forest management activities must be done in the context of a fairly sensitive air basin, and mitigations should be designed to minimize any cumulative effects to this resource.

Ambient noise levels in and around the Reservation are generally very low. Most noise emanates from vehicles using the highway and internal roads, gunfire from hunters and recreational shooters and aircraft. The large size of the SYIR will minimize the chance for exposure of residents to any project related noise, and any such potential impacts would be identified and mitigated on a project specific basis. No management activities proposed in this FMP would generate any noise in close proximity to any populated areas.

Soils and Topography

Soils associated with the forested areas on the Reservation consist primarily of Holland sandy loam, Crouch rocky loam and Tollhouse rocky loam. There are some areas of acid igneous rock land in Tract 1 that support some sparse tree cover. Non-forested areas are mostly underlain with the Tollhouse and Sheephead rocky loams (see associated GIS soils data).

Topography is generally moderate and steep throughout all three tracts. Elevations range from 2,000 feet on the southern edge of Tract 2, to over 5,700 feet at Pachecho Peak on Tract 3. Tract 1 has very steep canyon lands that drain southward into Bloomdale Creek. Tract 2 has some fairly gentle ground on the northwest portions bisected by Scholder Creek. Tract 3 is comprised of a portion of the Volcan Mountains, and aspect is generally to the west. A distinct canyon runs to the northwest which contains Carrizo Creek which flows to Lake Henshaw. The remainder of Tract 3 drains southwesterly into Santa Ysabel Creek.

Water Resources

The Reservation tracts fall within five different planning watersheds (see Planning Watershed Map). When aggregated, these watersheds total 259,000 acres. The 15,530 acre Reservation represents approximately 6 % of this area. See Planning Watersheds map.

In 1981, a Water Resources Report was written for the SYIR (USGS O-F Rep. 81-342). At the time, there were 32 separate live springs and 29 wells identified. Water was tested and deemed suitable for domestic and agricultural use.

In the Spring of 2000, Council members were discussing increasing water storage capacity with a new tank above the Tribal Center on Tract 3. There has also been an ongoing effort to develop the large spring on the south side of Tract 3 for commercial bottled water. At some point a bulldozer blazed a road to near the spring source.

Wildlife and Fisheries

A query was made of the United States Fish and Wildlife Service (FWS) data base for federally listed endangered, threatened, and proposed species that may occur in the general area of the SYIR. A response from USFWS appears in the Appendix. As the letter states, when a specific project is proposed, a qualified biologist should be consulted. This information is summarized in the table below. A thorough inventory for applicable species and /or habitat will be conducted and appropriate consultation required under 16 USCA 1531 et. seq.(the Endangered Species Act) shall be completed prior to any significant ground disturbing activity.

Table 8. List of Proposed, Threatened, or Endangered Species Potentially Occurring In the Area of the Santa Ysabel Indian Reservation, San Diego, California

Common Name	Scientific Name	Status
<i>Plants</i>		
San Diego thorn-mint	<i>Acanthomintha ilicifolia</i>	T
Nevin's barberry	<i>Berberis nevinii</i>	E
Encanita baccharis	<i>Baccharis vanessae</i>	T
Slender-homed spine flower	<i>Dodecahema leptoceras</i>	E
San Bernardino bluegrass	<i>Poa atropurpurea</i>	E
<i>Invertebrates</i>		
Quino checkerspot butterfly	<i>Euphydryas editha quino</i>	E
Laguna Mountain skipper	<i>Pyrgus ruralis lagunae</i>	E
<i>Amphibians</i>		
Arroyo toad	<i>Bufo microscaphus californicus</i>	E
Mountain yellow-legged frog	<i>Rana muscosa</i>	PE
<i>Birds</i>		
Southwestern willow flycatcher	<i>Empidonax trail/ii extimus</i>	E
Bald Eagle	<i>Haliaeetus leucocephalus</i>	PD
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	T
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E
<i>Mammals</i>		
Stephen's kangaroo rat	<i>Dipodomys stephensi</i>	E

Abbreviations: E=endangered; PE=proposed endangered; T=threatened; PT=proposed threatened; **PD** = proposed for de-listing

See Appendix for a listing of sensitive species.

Cultural Resources

The SYIR has been partially surveyed for cultural resources as part of several different projects over the years, The following three reports were provided by BIA Riverside.

An Assessment of Cultural Resources Located on Portions of the Santa Ysabel Indian Reservation, San Diego County, California. University of California, Riverside, Archaeological Research Unit. UCRARU #382 1978. This report identified 23 prehistoric sites on the 2,625 acres surveyed. All of these site were considered potentially eligible for nomination to the National Register of Historic Places. Most of these sites were associated with winter and upland village complexes and satellite workshop areas.

Archaeological Reconnaissance of a Portion of Santa Ysabel Indian Reservation, Santa Ysabel, California. WESTEC 1980. This report covers 4,300 acres in southern portions of Tract 3 and

recorded 52 prehistoric and 9 historic cultural sites. Of these sites, 9 prehistoric and 2 historic sites were considered significant enough to be potentially eligible for nomination to the National Register of Historic Places.

As part of the proposed 2000 fuel treatment project on Tract 2, Tierra Environmental Services conducted a cultural survey in 2000 on the 1,920 acre project area. 44 cultural resources were identified and all appeared to represent Native American use and occupation of the area during both historic and prehistoric times. None of the sites have been evaluated for eligibility for listing in the National Register of Historic Places.

The large number of sites identified make it imperative that any forestry related projects include archaeological surveys and appropriate mitigations (see Environmental Assessment).

Recreation, Visual and Public Safety Resources

Recreational uses on the SYIR consist mainly of hunting, OHV driving and woodcutting. All of the surrounding terrain provides an attractive visual backdrop for SYIR residents. On clear days the ocean is visible from high on Tract 3, as are the lights of San Diego on clear nights. Smoke generated from fuel treatments and blackened hillsides will create temporary impacts to this resource.

Public safety is most threatened by wildfire and structure fires. Fuel treatments as currently proposed and described in the Management Alternatives would reduce this risk, facilitate fire suppression activities, and increase deer use and populations.

Socio-economic Setting

The following information for Santa Ysabel Reservation was taken from a March 2000 Indian Labor Force Survey and reports for the 1999 calendar year.

Table 9. SYIR 1999 Labor Force

Tribal Enrollment	<16 yr old	16-64 yr old	>64 yr old	16-64 yr Not Avail. For Work	16-64 yr <u>Employed</u>	16-64 yr Employed Below Poverty Line
942	139	805	50	60	32	11

Tribal government and off-site jobs in and around the town of Santa Ysabel are the primary sources of employment on the Reservation. There are currently no known on-Reservation enterprises or industries. Unemployment is very high (95%), and most employment opportunities are located off-reservation.

Table 10. SYIR Housing Inventory

Tract	Units	Units Occupied	Members
I	8	5	10
2	20		
3	83		230

Forest Resources (Timber, Fuels, Insects, Roads)

Acreage's of the predominant cover types are summarized in Table 4 of the FIA. For the purposes of the inventory and management, there are four predominant cover types present: mixed conifer forest (Bigcone Douglas-fir/Coulter pine/incense cedar/true fir forest); black oak/live oak stands; chaparral/sage areas; and grasslands. Table 5 shows the distribution of the BIA land classes for the 15,530 acre Reservation. 2,020 acres of the reservation forest is considered to be unreserved, accessible, commercial timberland, and 4,879 acres are considered commercial woodland.

The 2000 inventory estimates 16,187,000 net board feet of conifers present on the SYIR. Per acre stocking of conifers was estimated at 2,920 board feet gross and (2,360 bd ft/ac net, which is the per acre volume after deductions are made for damage and defect on the entire 6,990 forested area of the reservation). Hardwood volume, mostly canyon liveoak was estimated at 32,450,000 cubic feet (or 253,500 cords), or 4,640 cu ft/ac. (See Tables 2 and 6)

Plan**Table 2. 2000 Per Acre Conifer Volume Estimates**

Diameter	trees/ac	bd ft gross	¾def	bd ft net
white fir				
12-20"	0.06	7.29	0.0	7.29
22-28"	0.14	99.45	32.32	67.07
30+	0.04	106.29	8.49	97.40
Total	0.25	213.03	19.72	171.78
Incense cedar				
12-20"	1.98	219.30	8.22	201.66
22-28"	0.96	390.64	12.05	343.39
30+	0.32	446.63	13.45	386.55
Total	3.28	1056.57	11.84	931.61
Coulter pine				
12-20" #	0.33	51.47	11.76	45.64
22-28"	0.16	57.16	5.26	54.24
30+	0.14	173.81	15.03	147.56
Total	0.63	282.44	12.41	247.45
big cone Douglas-fir				
12-20" #	0.65	72.76	18.05	59.63
22-28"	0.40	177.75	19.77	142.61
30+	0.46	1113.29	27.49	807.23
Total	1.50	1363.80	25.97	1009.48
All softwoods				
12-20" #	3.00	350.83	10.3	314.23
22-28"	1.60	724.99	16.2	607.32
30+	0.97	1840.05	21.85	1438.75
Total	5.67	2915.87	19.04	2360.31

Forest Condition

No pests were observed while conducting the forest inventory. There has been a history of insect and drought related tree mortality and decline on the reservation which was mentioned by Tribal members during scoping meetings. Ozone pollution can be a contributing factor to reduced tree vigor which increases vulnerability to pests. There are documented beetle infestations, annosus root rot and dwarf mistletoe on Coulter pine in the area around Julian as recently as 1992 (USDA 1994). On Coulter pine, likely pests include:

Western Pine Beetle (*Dendroctonus brevicomis*)
Pine Engraver Beetle (*Ips* spp)
Annosus root rot (*Heterobasidion annosum*)
dwarf mistletoe (*Arceuthobium* spp)

On fir and Bigcone Douglas-fir, the primary forest health issues are death and decline due to fir engraver beetle, true mistletoe and annosus root rot. True firs were cruised that showed decline likely due to root rot and other pocket rot fungi (probably *Fomes pini*). Tree vigor can

be compromised when conifers are growing in close proximity to hardwoods which are infected by *Annellaria* root rot (*Annellaria melea*), although none was observed.

On fir and Bigcone Douglas-fir, likely pests include:

Fir engraver beetle (*Scolytis ventralis*)
Annosus root rot (*Heterobasidion annosum*)
Pocket rot (*Fomes pini*)
True mistletoe (*Phoradendron bolleanum* spp)

Careful monitoring, timely tree salvage, and complete slash treatment are all essential elements in maintaining forest health on the Reservation. This region north of Julian has a history of drought (and possibly ozone) related pest problems. Any significant tree decline or mortality observed, should be reported to BIA foresters in Riverside as soon as possible.

Many of the factors affecting hardwoods are directly a result of human intervention. The most significant and obvious human impact has been clearing and cutting for fuelwood. Failure of black oaks to regenerate following fuelwood operations in several locations have resulted in a reduction of this species. Even if trees are left following development, landscaping irrigation and obstructions to surface root aeration such as top fill or asphalt severely stress these trees, allowing them to fall victim to *Annellaria* root disease (*Phytophthora spp.*), and endemic defoliators such as the Pacific tent caterpillar. Although considered drought tolerant, oaks can show significant decline and mortality from prolonged drought conditions, which can also come about from alterations to the water table as a result of land grading. *Septoria* leafblight (*Septoria spp.*) has caused some defoliation to black oaks in the coastal ranges in past years (USDA, 1996), but this pathogen generally only results in visual impacts and no long term effects or die-back to this species have been observed.

Fuels

Fuel loading (i.e. fuels on the ground) in the conifer cover type was visually estimated at between .5 and 2 tons per acre, most of which is in flammable understory saplings and flashy needle and duff layers. The open grass and chaparral areas have up to an estimated 5 tons per acre of flammable fuels, and large areas of white sage on Tracts 2 and 3 carry an estimated 3 - 5 tons per acre of very volatile ground fuel. Hardwood stands carry an estimated 1-3 tons per acre of downed limbs and understory vegetation. Ladder fuels are most prevalent in the hardwood stands and risk of crown fires are greatest in this type. No fire history was found during research and field work but wildfire is known to have passed through the valley in historic times. A large fire burned up from Henshaw Lake in the 1980's, and evidence is still visible on the northern portions of Tract 3. Approximately 1,800 acres on Tract I were proposed for fuel treatment in 1999-2000. A fire Management Plan is currently in review with the BIA and will provide more detailed data on fuel loading and treatment options.

Potential Impacts and Proposed Mitigations by Alternative

Air Quality and Noise

No Action Alternative - With an approved smoke management plan, any burning done under this alternative should not result in any significant negative impacts to air quality. Likewise, impacts to noise will be minimal provided fuel clearing (on Tract 2) is not done near residences.

Preferred Alternative - Additional fuel treatments under this alternative might also negatively impact air quality if an approved smoke management plan is not developed. Sound from subsistence woodcutting would generally be dissipated by distance and not be a significant negative impact to this resource.

Aggressive Alternative - Because of the higher level of fuel burning in this alternative, there is a higher risk of causing significant negative impacts to air quality. Chipping of some of the cleared vegetation would help reduce emissions, and also provide mulch to reduce erosion. The proposed fuel clearing near residences would generate more noise for short periods of time, but would have significant positive impacts in terms of reducing fire hazard to habitations. Noise (and dust) from vehicles and equipment would also be increased under the increased level of harvesting proposed.

Soils

No Action Alternative - Proposed fuel treatments are to be done by hand crews, and will not cause soil compaction. Areas cleared of vegetation will have higher rates of surface erosion due to the loss of cover, but piles will be burned, leaving ground litter intact (not so if broadcast burned), also, larger diameter oaks will be left uncut, providing additional ground cover. Continued unregulated woodcutting will likely continue to cause soil erosion on blazed roads unless they are waterbarred or otherwise treated to reduce soil movement during rain events.

Preferred Alternative - Like the No Action alternative, soils will be exposed in this alternative due to fuel treatments and unregulated woodcutting. The difference in this alternative is that more areas will receive fuel treatments, and woodcutting will be monitored for impacts to stocking, roads, water resources etc. This should help mitigate soil losses from this activity. Any work performed around watercourses must include erosion control measures such as contouring and mulching (with chipped vegetation), as well as the application of the prescribed stream buffers.

Aggressive Alternative - The commercial harvesting under this alternative will require the development of a Forest Officer's Report that will contain project specific discussions of the impacts of commercial harvesting to this resource. Therefore, impacts will be below significant levels once specific mitigations are implemented. Increased fuel clearing will also increase the potential for soil loss from erosion, and will be discussed on a project specific level. Soil compaction should be avoided by limiting any harvesting equipment from operating during wet during wet soil conditions.

Water Quality

No Action Alternative • Like the potential impacts to soil described above, areas cleared of vegetation will have higher rates of sediment movement into streamcourses due to the loss of cover, but piles will be burned, leaving ground litter intact (no so if broadcast burned), also, larger diameter oaks will be left uncut, providing additional ground cover. Continued unregulated woodcutting will likely continue to cause sediment movement on blazed roads unless they are waterbared or otherwise treated to reduce erosion during rain events. Cattle in spring areas will continue to impact water quality without better control.

Preferred Alternative • The proposed fuel treatment work, especially if in proximity to watercourses, have the potential to cause negative impacts to water quality. By applying the stream buffers, spreading chip mulch when available, and avoiding in-stream work, these impacts should remain insignificant. Any grazing near springs and streams must be carefully monitored. The Band may want to consider fencing springs in the Windy Canyon area of Tract 3. Planting of oak, especially near riparian areas will increase the sediment filtering capacity of riparian zones, and help maintain water quality. Monitoring and coordination of grazing will also help reduce impacts to water quality.

Aggressive Alternative • As with the preferred alternative, potential impacts to water quality must be mitigated. Fuel work and other management activities in and around streams may provide opportunities to improve fencing, which would limit access and bank damage by live stock. The proposed harvesting would be performed pursuant to BIA PRO Logging Practices, and would include a discussion of cumulative effects and project specific mitigations which would include stream buffers, water barring of roads and skid trails, and marking rules designed to maintain significant tree canopy levels. A similar level of environmental review should be required for all hardwood harvesting, ensuring that potential negative impacts remain less than significant.

Wildlife and Fisheries

No Action Alternative • Past and continuing levels of woodcutting having negatively impacted black oak stocking which is an important component of wildlife habitat on the SYIR. Continued negative effects will occur without closer control on this activity. Grazing near streams and woodcutters' "blazed" roads likely contribute to negative impacts to aquatic species. On the other hand, some conifer stands on Tract 3 have not been managed at all, and some stringers of old growth Douglas-fir and snags which are important habitat elements have been allowed to develop in the absence of harvesting. Owls were heard on several occasions during field visits. Due to the absence of planned conifer harvesting, wildlife in these areas should not be impacted under this management alternative.. Conversely, continued unregulated woodcutting will continue to impact associated species.

Preferred Alternative • A thorough inventory for applicable species and /or habitat will be conducted and appropriate consultation required under 16 USCA 1531 et. seq. (the Endangered Species Act) shall be completed prior to any ground disturbing activity. Increased monitoring of woodcutting and grazing may provide opportunities to limit impacts to associated terrestrial and aquatic species. Some wildlife such as deer may benefit from herbaceous regrowth in the areas treated for fue and hardwood sprouts in woodcutting areas will provide browse for 5-10 years. Care must be taken to stay well out of the riparian areas (in-stream) so that vegetation canopy is

not significantly reduced. Water temperatures can increase without adequate tree cover, and many fish and associated species can be negatively impacted. Populations of cavity nesters, including bats, small mammals, birds, etc. could be negatively impacted under this alternative as older trees with defects may be removed as hazards or for firewood. Where possible, snags should be retained, and damage avoided during any management activities. Fisheries (such as they are) will be protected if water qualities are protected under the Bureau Guidelines and prescribed stream buffers. None of the proposed treatments would result in the removal of any existing habitat for any listed species. Fuel treatments will increase early seral stage plants which may have habitat value.

Aggressive Alternative - Impacts would be similar to the preferred alternative, and require the same ESA review. The high level of harvesting proposed in this alternative would create the greatest likelihood of negative impacts to this resource. Mitigations would be proposed at the project level, and be designed to keep impacts below significance. Old growth conifer stands on Tract 3 are very difficult to access, and are probably more valuable to the Band as habitat and watershed. It is recommended that these areas not be harvested, and maintained for habitat.

Cultural Resources

No Action Alternative - Although the entire SYIR has not been surveyed for cultural resources, there are numerous features known to exist. Subsurface artifacts are also likely to be present. Because ground disturbing activities are proposed in this alternative as a result of the fuel treatment project, the potential exists that undiscovered features could be impacted. The limited extent of the planting project would create only a slight chance of impacting this resource. A survey has been done as part of the current fuel treatment project, and mitigations written into the work specifications. Continued unregulated cutting of black oak for firewood will result in the loss of this important cultural species for many generations. The small planting project that has been approved will not significantly increase black oak stocking, but will provide valuable information about planting success as well as increasing the awareness of the problem.

Preferred Alternative - Because the ground would be disturbed as a result of both fuel treatment projects and woodcutting, the potential exists that undiscovered features could be impacted. Concurrence by the State Historical Preservation Office (SHPO) that a project will not affect cultural resource sites is required under 36 CFR Part 800 prior to any ground disturbing activities. If features are discovered during operations, all operations will stop in the area, and the BIA Archeologist will be notified. The increased level of black oak planting in this alternative could eventually have a positive effect on stocking and growth, provided funding and interest continues.

Aggressive Alternative - Because more acreage would be treated in this alternative including upland conifer stands, the chance of impacting undiscovered cultural features is greater than under the preferred alternative. The requirements stated in that alternative would also apply. Mitigations would be applied that would preclude any impacts to this resource.

Recreation, Visual and Public Safety

No Action Alternative - Under this alternative, a fuel treatment project on Tract 2 will result in a visual impact to residents in the area. The treated areas will revegetate with herbaceous growth

within several years, reducing this impact with time. Recreational improvements may occur as deer and other game browse these areas. Public safety will be improved as the fire hazard will be reduced in the vicinity of the treatment area. The absence of fuel treatments elsewhere on the SYIR will result in a decrease in public safety as the risk of wildfire will increase with time.

Preferred Alternative - The impacts described for the no action alternative would be similar for this alternative. The increased level of fuel treatment would have a greater potential impact to visual resources, but also have a larger positive effect by reducing the fire risk to residents. Woodcutting has inherent dangers and would increase under this alternative as more cutting would be done. Public safety could be negatively affected if people are too close to active clearing operations. Children especially need to be restricted from project sites (especially after hours), and vehicles need to observe speed limits when passing through residential areas. Vehicle activities in this alternative would not combine with or conflict with any other known activities to create a significant impact.

Aggressive Alternative - Because of the higher levels of harvesting and burning proposed, visual impacts under this alternative are greatest. Selection silviculture is proposed for both conifers and hardwoods, which will minimize the visual effects by leaving many trees uncut. Prescribed burning can result in scorch damaged tree crowns and mortality if not properly implemented. Blackened ground will only be visible for one or two seasons afterward. Implications to recreational potential would be similar to the preferred alternative. Public safety near timber harvests would be more at risk due to the higher intensity proposed. Logging trucks moving through the reservation would have to be monitored for safe operation and Band members notified when and where hauling is planned. Vehicle activities in this alternative would not combine with or conflict with any other known activities to create a significant impact. Recreation opportunities could be increased due to increased access provided by logging roads and trails.

Socio-economic

No Action Alternative - Because no revenue generating activities are proposed under this alternative, there will be no direct economic benefits to the Band. Unregulated woodcutting and grazing may provide some revenues to Band members, but no information was available to quantify this.

Preferred Alternative - Only subsistence woodcutting is proposed, so as with the no action alternative, no revenues would be generated in this alternative. Fuel treatment and planting projects would provide short-term employment opportunities for Band members. Contracts awarded for this work can stipulate the training and use of Band members.

Aggressive Alternative - The allowable cut under this alternative could generate almost \$60,000 in sawlog and fuelwood revenues over the 15 year planning period. In addition, woodcutting would provide employment for Band members. Contracts awarded for management work can stipulate the use of Band members.

Forest Resources (Timber, Fuels, Insects, Roads)

No Action Alternative - Uncontrolled tree cutting will continue on the SYIR, possibly causing impacts to water quality, soils and habitat. Fuel loading will continue to increase in areas not proposed for treatment. Vehicle traffic in this alternative would not combine with or conflict with any other known activities to create a significant impact. As stated above, as black oaks are cut without control, this species will become a smaller proportion of the hardwood stands. The success of the pilot planting project will depend a great deal on the handling of the seedlings, and the ability to protect them from browsing by cattle and deer. Roads will continue to receive maintenance, but blazed roads created by woodcutters will likely continue to spread into potentially sensitive areas.

Preferred Alternative - Because subsistence woodcutting will be monitored, impacts to black oak stocking should be minimal. Additional planting will further enhance this resource. Fuels will be reduced under this alternative as an expanded fuel treatment program would be implemented. Impacts from insects and diseases, although not currently significant, will be monitored and treatments (if any) proposed by BIA foresters if needed. Roads will continue to be maintained, and monitoring of woodcutting should help identify problems with woodcutters roads. A member of the Band should be designated to conduct reconnaissance level monitoring, and notify BIA when significant problems are found.

Aggressive Alternative - This alternative proposes sustainable commercial and subsistence woodcutting and timber harvesting. Formal timber sale preparation will require project specific road and crossing maintenance and possible upgrading. With the use of prescribed burning, the reduction in fuels would be higher than described in the preferred alternative. Conifer timber sales would provide opportunities to apply silviculture that can reduce the effects of drought related pests such as bark beetles. The planting of black oaks should help reverse the current trend of lower stocking.

Consultations and Information Sources

Jolinda Valle	Santa Ysabel Project Manager
Arlene Linton	Santa Ysabel Tribal Secretary
Yolanda Osuna	Santa Ysabel Tribal Council
Victor Paupa	Santa Ysabel General Manager
Victor Paupa Jr	Santa Ysabel Tribal Member
Max	Santa Ysabel Tribal Member
Mary Beth Najera	BIA Forester SCA
Gil Stewart	BIA Forester SCA
Gerald Jones	BIAFMOSCA
Chip Aguilar	BIA Road Officer SCA
Frances Muncy	BIA Tribal Operations Officer SCA
Tim Moriarty	BIA Forest Resources Planning
Ron Recker	BIA, Assistant Area Forester PRO
John LeBlanc	Forestry Adviser, UC Coop Extension

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<http://www.ncg.nrcs.usda.gov/soils> (Soils Descriptions)
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APPENDIX**Acronym Glossary**

BAER	Burned Area Emergency Rehabilitation
BIA	Bureau of Indian Affairs
BIAM	Bureau of Indian Affairs Manual
DOQQ	Digital Ortho Quarter Quadrangle
DRG	Digital Raster Graphic
EA	Environmental Assessment
FIA	Forest Inventory Analysis
FMP	Forest Management Plan
GIS	Geographic Information System
PRO	Pacific Regional Office of the Bureau of Indian Affairs
SHPO	State Historic Preservation Office
FWS	United States Fish and Wildlife Service
WHR	Wildlife Habitat Relations

Scoping

Scoping History

On June 6, 2000, Joe McGuire and Travis Britton of Pacific Meridian Resources met with Band members Jolinda Valle, Arlene Linton, Yolanda Osuna, Victor Paupa, and BIA forester Mary Beth Najera at the SYIR Tribal Center. Prior to this meeting a forest management questionnaire was prepared and distributed to interested Band members. Five completed questionnaires were returned. Responses were used to help develop management alternatives.

General comments from meeting

People were generally concerned about possible overcutting of black oaks, and mortality in black oaks from beetles on Tract 2. They mentioned a USFS pathologist had investigated a few years back. There were also concerns about mortality in pines from beetles on Tract 3 two years earlier. There was some expectation that the BIA foresters in Riverside were going to provide an improved pine for planting but they had not seen this yet. They mentioned that approximately 200 head of cattle are grazed on Tracts 1 and 2, and that there is a lot of trespass despite the reservation being gated and posted.

**Pacific Area Office BIA Logging Practices
USFWS Letter 4/12/200
Questionnaires**