CHAPTER II

ANALYSIS OF THE MANAGEMENT SITUATION SUMMARY

INTRODUCTION

This chapter describes the present condition of each Forest resource. Future demand for Forest resources, the Forest's ability to supply that demand, and the expected future condition of the resources are summarized.

Information in this chapter was drawn primarily from the Analysis of the Management Situation, approved in March of 1982. Copies of the analysis are available in the Fishlake Forest Supervisor's Office, Richfield, Utah.

A. Social and Economic Characteristics

1. Introduction

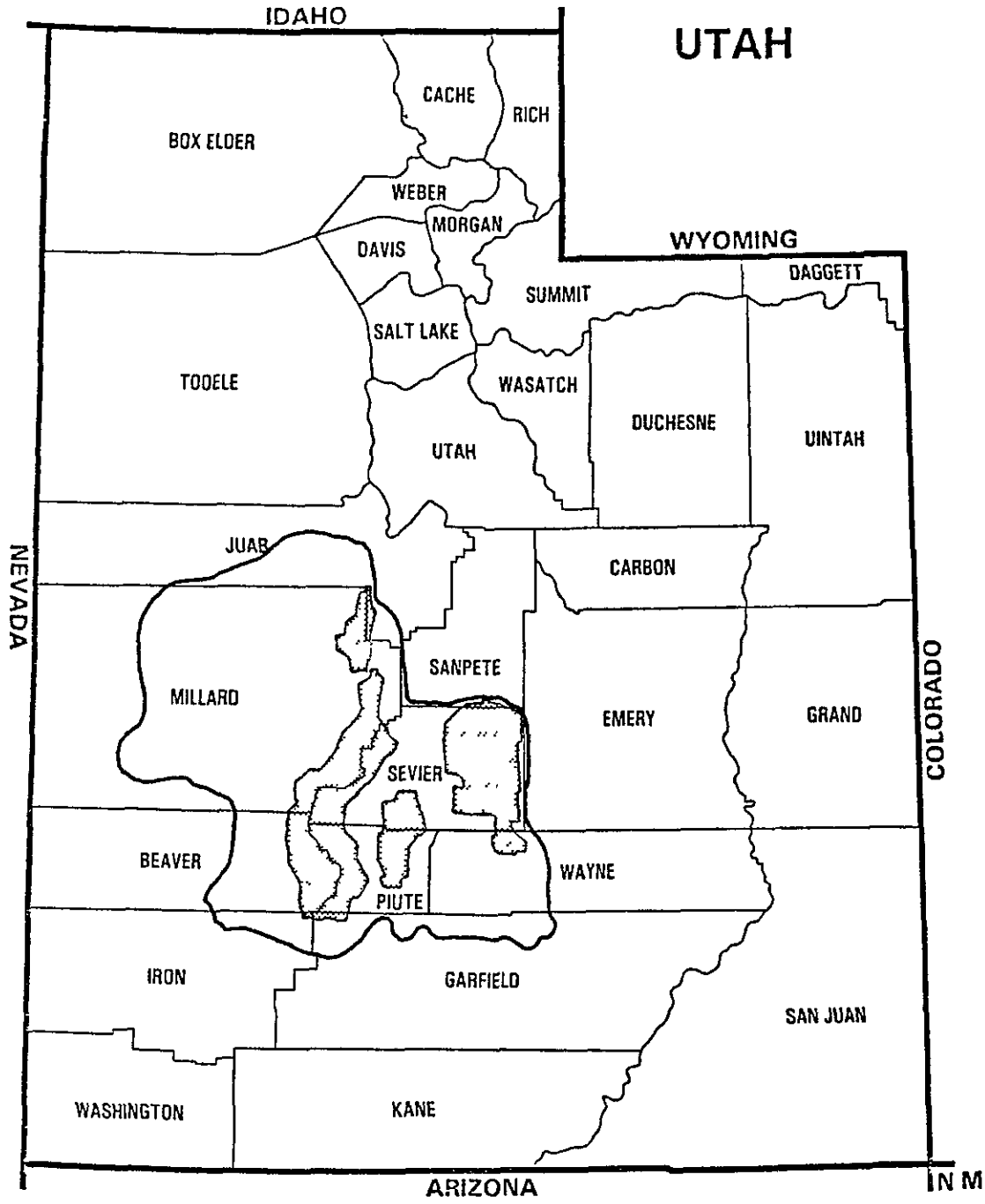
In describing the current social and economic conditions in the Fishlake Forest's Zone of Influence (see Figure II-2) and assessing potential impacts, a system called Socially Responsive Management (SRM), proposed by the Foundation for Urban and Neighborhood Development of Denver, Colorado, was used. Key to this approach is the Social Analysis Unit, which is defined as a geographical area used to describe current and possible future social, economic, and institutional conditions at the local, regional, and national level. The two units used in this Forest Plan are the Human Resource Unit (HRU) and the Social Resource Unit (SRU).

Human Resource Units are used to design, implement and monitor management actions that respond to changing social conditions at the local level. Social Resource Units perform the same function at the regional level and thus contain one or more Human Resource Units, which are the basic building blocks. The Human Resource Units are the units of social analysis called for in Estimating Social Effects: Region 4 Social Analysis guidelines for project LMP. The procedures for characterizing and delineating Human Resource Units are described in FUND, (1979).

In using the Socially Responsive Management approach to social impact analysis, seven cultural descriptors and four economic indicators are used. These are: public and their organizations, settlement patterns, work routines, communication networks, supporting services, recreational activities, and geographical boundaries. The geographical boundaries are shown on Figure II-3. The other descriptors are discussed below. The four economic indicators are: population change, employment mix, wage structure, and local labor supply. These also are discussed below.

The descriptions of the cultural descriptors and economic indicators were made by first collecting the data for the six HRU's in the Forest's zone of influence and then generalizing them to the Sevier Social Resource Unit, which contains the Beaver, Delta, Fillmore, Fremont, Piute, and Richfield Human Resoure Units.

FIGURE II - 2

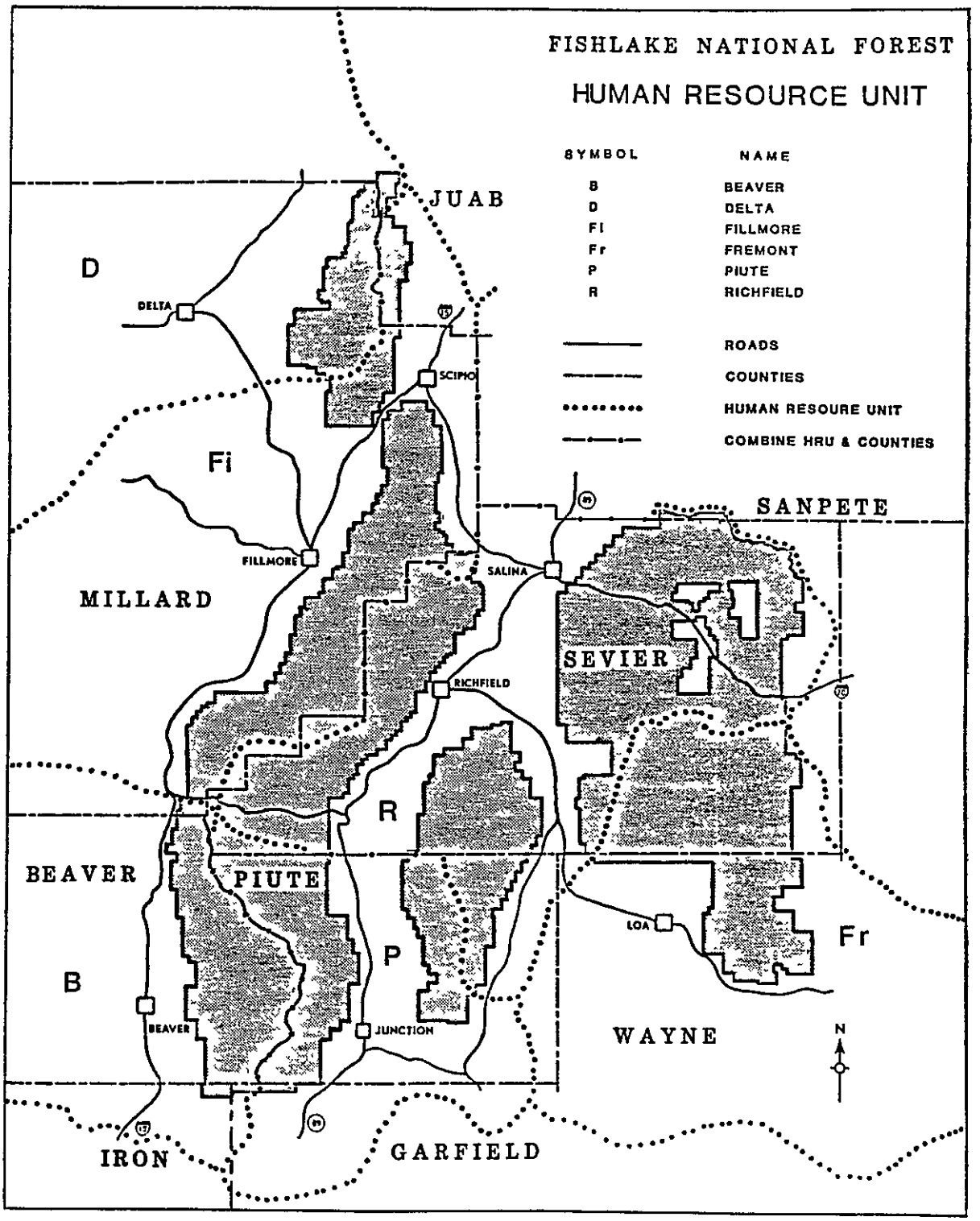


VICINITY MAP

FISHLAKE NATIONAL FOREST

—— Sevier Social Resource Unit which is the zone of influence of the Fishlake National Forest.

FIGURE II - 3


FISHLAKE NATIONAL FOREST
HUMAN RESOURCE UNIT
SYMBOL
NAME
B
BEAVER
D
DELTA
Fi
FILLMORE
Fr
FREMONT
P
PIUTE
R
RICHFIELD
ROADS
COUNTIES
HUMAN RESOURCE UNIT
COMBINE HRU & COUNTIES
JUAB
D
DELTA
SCIPIO
Fi
FILLMORE
SANPETE
SALINA
MILLARD
SEVIER
RICHFIELD
R
BEAVER
PIUTE
P
LOA
Fr
B
BEAVER
JUNCTION
WAYNE
N
IRON
GARFIELD

2. Cultural Descriptors

a. Publics and Their Organizations

The Church of Jesus Christ of Latter-Day Saints (Mormons) with its system of religious and social institutions is the major organization within the Sevier Social Resource Unit. Most of the Human Resource Units are about 85 percent Mormon; however, the Piute HRU is 68 percent Mormon. While a diversity of economic interests are represented within the church, its emphasis on family unity, conservatism, and agricultural and small business employment is a powerful influence in the area.

Livestock permittees, water users, senior citizens and local businessmen are the major publics in the area that have associations to promote their interests. Hunters, fishers, campers and picnickers are also significant publics. In the past they often lacked formal organizations to promote their interests, but they are becoming increasingly organized.

Other publics and their attendant formal and informal organizations are present in only one or two of the Human Resource Units of the Social Resource Unit. These range from the small but tightly knit groups of Asian Americans and Paiute Indians in the Fillmore HRU, to the California emigrants in the Richfield and Piute HRU's. This latter group comprises both retired people looking for a safe, amenable place to live, and former residents returning home to utilize new employment opportunities. These two groups form publics with distinct perceptions about Forest management.

b. Settlement Patterns

The Sevier Social Resource Unit was mainly settled by Mormon pioneers between 1850 and 1880. Most of these pioneers were recent European immigrants who were sent to colonize by the Mormon Church. Following church policy, the societies they created were agricultural with a tight, cohesive social structure that centered around their religion. Farmers and shopkeepers alike lived in the towns, the farmers commuting to their farms. This pattern has led to the lack of outlying farm houses typical of most of agricultural America. The towns thus had to be located near the centers of agricultural areas,which meant in valleys near water sources, usually mountain streams.

Between 1900 and the Second World War the population of most of the SRU showed a gradual increase of about 40 percent. The one exception to this trend was in the Piute Human Resource Unit, which experienced a hardrock mining boom around 1920.

Between the end of the Second World War and 1970, the SRU showed a population decline of about 20 percent as a result of the widespread migration from rural to urban areas and the lack of jobs in the area. This out migration occurred at different rates in different Human Resource Units. These population trends reversed themselves once

again starting about 1970. Thus the 1980 census showed a 33 percent growth over the 1970 one. Again, the rate of change was different for the different Human Resource Units. The Richfield Human Resource Unit had the highest growth rate, due mainly to creation of jobs in the non-agricultural sectors of government, service, and small business. In the near future, industrial jobs related to coal mining near Salina and electricity generation near Delta should bring a new wave of settlers into the Sevier SRU. These immigrations tend to diversify the culture of the Sevier SRU.

c. Work Routines

Most jobs in the Sevier area are in the government, trade, agricultural and services sectors. Because of the high percentage of government, trade, and service workers, there is only a minor seasonal change in the number of jobs. Since most of the agriculture is livestock raising, it also produces few seasonal fluctuations. With the expected increase in the mining and manufacturing sectors, the percentage of seasonal change should become even lower. However, the more industrialized economy could have multiyear fluctuations reflecting national trends.

The few changes in this lack of seasonality would be in the tourist industry, where motels, campgrounds, etc. receive more business from people traveling to such areas as Fish Lake or the nearby National Parks. In areas like the Fremont HRU, ranchers tend to harvest alfalfa in the summer and then supplement their income from other sources such as timbering in other seasons.

d. Communication Networks

Formal communication networks (newspapers, radio and television) are readily accessible to all residents of the Sevier SRU. Seven weekly newspapers are published within the SRU. There are three local radio stations. Daily newspapers, television, and several radio stations located in the Salt Lake area also cover the SRU. Because Salt Lake is the media hub for the Intermountain West, the media there are more attuned to events in outlying areas than is normally the case.

e. Supporting Services

Law enforcement is handled by police departments in the larger towns such as Beaver, Fillmore, and Richfield, and also by County Sheriff's Departments and the State Highway Patrol. The Forest has had cooperative agreements for law enforcement with the sheriffs in Beaver, Millard, Sevier, and Wayne Counties. Volunteer Fire Departments in the towns provide fire protection for private property. There is a fire protection offset agreement between the Forest and Utah Division of State Lands and Forestry for the portion of the Forest north of Interstate 70 and east of Salina. This offset agreement in turn brings in the County Fire Wardens.

Sevier County has three ambulances, while others are stationed at Beaver, Fillmore and Loa. These are manned by volunteer Emergency

Medical Technicians. Hospitals serving the area are located at Beaver, Fillmore, and Richfield, but the more difficult cases are transferred to the Salt Lake or Utah Valleys.

Government services are obtained in the county seats of Beaver, Fillmore, Junction, Loa, and Richfield.

Elementary education is provided at small community schools scattered throughout the area. High school students must commute to schools at Bicknell, Salina, Richfield, Monroe, Junction, Beaver, Fillmore, or Delta.

Informal support services are important in the area. The various programs and organizations of the Mormon Church continue to be a leading support service.

f. Recreation Activities

Agriculture-related activities such as rodeos, brandings, 4-H Clubs and county fairs provide recreation for HRU residents. Church activities and high school and community sporting events are popular and receive active support.

Local residents participate in the same recreation activities that attract non-residents to the area. The opening of the hunting seasons for deer and elk almost have the status of a State holiday rivaling July 24th. Throughout the summer, waters from the high elevation Fish Lake to the lower elevation Lake Powell are heavily used by residents and non-residents alike. Other recreational activities such as picnicking, camping, and four-wheel driving are also practiced. Many of the 116 summer homes at Fish Lake are owned by residents of the Richfield area, but increasingly they are being purchased by people from outside the Sevier SRU.

One recreation phenomenon unique to the Utah area is group camping. Church, other group outings, and family reunions that may attract over 50 people are very popular during the summer months.

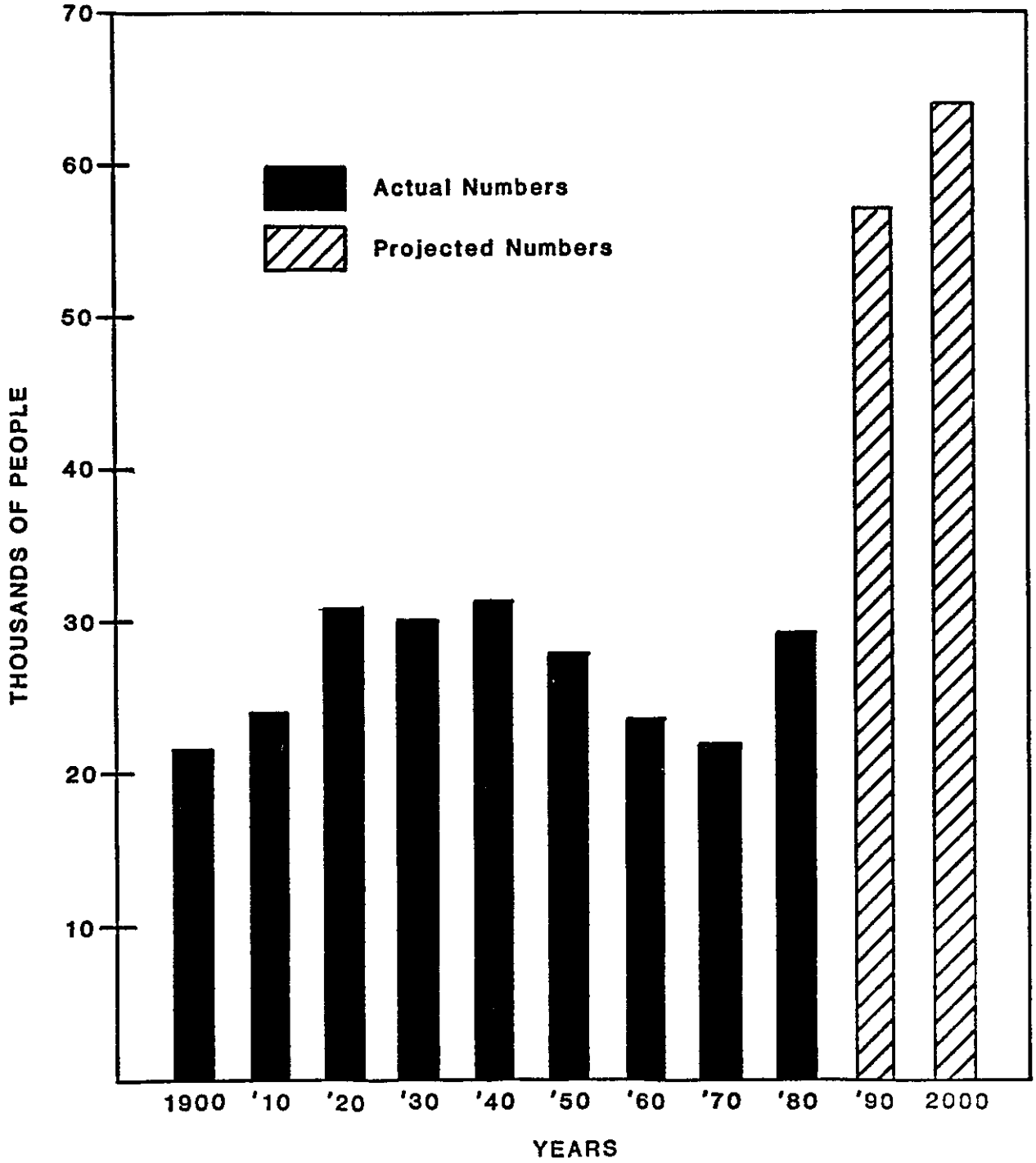
3. Economic Indicators

a. Population

The population of the Sevier Social Resource Unit (primarily the citizens of Beaver, Millard, Piute, Sevier and Wayne Counties in Utah) grew from approximately 22,000 in 1900 to 31,000 in 1940. During the next two decades the population declined from 31,000 to 23,000 due to the shift in population from rural to urban settings. Since 1970 the population has grown back to 31,000 (see Figure II-4).

FIGURE II - 4

POPULATION OF THE SEVIER SOCIAL RESOURCE UNIT



A comparison with population growth in the State of Utah shows a sharp contrast with the Sevier Social Resource Unit.

Years of Comparison	Utah	Sevier SRU
1900 to 1980	+428%	+45%
1900 to 1940	+ 99%	+45%
1940 to 1970	+ 92%	-25%
1940 to 1980	+165%	0%
1970 to 1980	+ 38%	+33%

The State of Utah has grown steadily while the population of the Sevier SRU has fluctuated in a narrow band for the past 40 years.

The next two decades should see a large population increase in the Sevier SRU. The population should reach 64,000 by the year 2000 if a minimum of planned development takes place. This 106 percent increase compares with the state of Utah's "high development scenario" population growth of 71 percent. (Utah State Planning Coordinator, 1980).

The population in the Sevier Social Resource Unit is approximately 98 percent white. Individual county percentages vary from 95.4 percent to 99.4 percent.

b. Labor and Employment

The structure of the Sevier Social Resource Unit varies by Human Resource Unit. Percentages of the total workforce by sector and HRU are shown in Table 1. The Richfield HRU has a more diverse economy and is more industrialized than the other HRU's. Piute and Fremont are both heavily dependent upon agriculture and have less diverse economies than the Richfield HRU. Delta is currently heavily agricultural but with the addition of the Intermountain Power Project that economy's structure will shift toward being more industrial.

TABLE II-1
PERCENTAGE OF EMPLOYMENT BY SECTOR
IN EACH HRU OF THE SEVIER SOCIAL RESOURCE UNIT

		HRU 1/					
		Beaver	Delta	Fillmore	Fremont	Piute	Richfield
1.	Employees on non-agricultural payroll..	68.4	58.1	71.1	47.7	56.3	74.0
	Manufacturing..	6.2	9.3	7.0	4.1	7.5	7.9
	Mining.....	4.7	3.0	3.4	4.7	2.7	1.3
	Contract Construction.....	2.2	2.4	2.5	3.9	3.4	5.9
	Transportation, Comm. & Public Utilities.....	3.4	8.2	3.1	.5	1.9	4.5
	Trade.....	19.6	17.1	17.4	6.6	3.6	20.8
	Finance, Insurance, & Real Estate.....	1.6	1.6	1.6	.6	.2	2.7
	Services.....	8.4	4.1	4.6	3.1	.5	10.4
	Government.....	22.1	12.4	31.5	24.3	36.4	20.6
2.	"All other" 2/ non-agricultural employment.....	12.6	11.6	14.2	23.4	19.7	13.1
3.	Agricultural Employment 3/..	19.00	30.3	14.7	28.9	34.0	12.9

1/ County data were disaggregated to the various HRU's. County data were supplied by Utah State Employment Security.

2/ "All Other" refers to self-employed, domestic workers, and unpaid workers in family businesses.

3/ Estimate of agricultural proprietors and agricultural laborers.

Figure 5 showing mix of employment displays the agricultural/non-agricultural ratios of the HRU's. An HRU with a rate of less than one agricultural worker to three non-agricultural workers is considered an agricultural economy. A ratio of one agricultural worker to seven non-agricultural workers is considered a non-agricultural economy. The ratios in between denote transitional economies. For the Sevier SRU as a whole the ratio is 4.5 non-agricultural to one agricultural worker which places it in the transitional area.

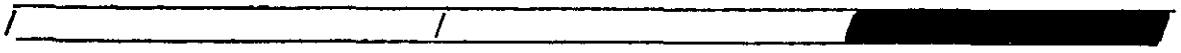
FIGURE II - 5

MIX OF EMPLOYMENT

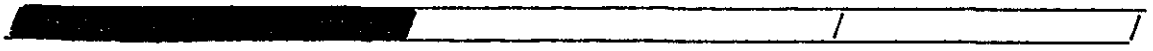
1980 data

Argricultural	Transitional	Non-Argicultural
1:1 - 1:3	1:4 - 1:6	1:7 +

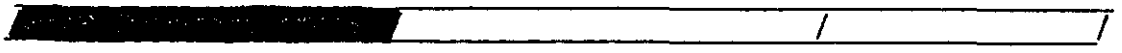
Richfield 1:6.8



Piute 1:1.9

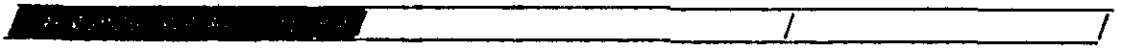


Delta 1:2.3



Fillmore 1:5.8

Fremont 1:2.5



Beaver 1:5.2

The structure of the local HRU's can and does change over time. The general tendency for the entire Sevier SRU is a shift from agricultural toward non-agricultural. For example the agricultural/non-agricultural ratios for the Richfield HRU have shifted as follows:

Richfield HRU

Year	Ratio	Characterization
1950	1:1.2	Agricultural
1960	1:3.2	Agricultural
1970	1:4.5	Transitional
1980	1:6.8	Non-Agricultural

The Richfield HRU has had sharply expanded government, trade and service sectors in the past 30 years. This tendency toward a non-agricultural economy has not been the result of large increases in manufacturing or mining, but rather the development of Richfield as a regional service center. The shift will continue as the mining sector increases in importance in the next 20 years.

The important point to remember is that change in the structural characterization toward non-agricultural can occur without significant mining or industrial development and that very significant mining and industrial development is expected in most of the Sevier SRU.

The result of the shift is an economy that is more diverse and less dependent upon Forest Service production of forest and range commodity products. The transition can be spurred by mining and oil and gas development on National Forest lands.

There are three HRU's in the Sevier Social Resource Unit that are heavily based on agriculture. For example, looking at the Fremont HRU:

Fremont HRU

Year	Ratio	Characterization
1950	1:0.5	Agricultural
1960	1:0.9	Agricultural
1970	1:1.8	Agricultural
1980	1:2.5	Agricultural

The characterization of the Fremont HRU as an agricultural economy means that the economy is heavily dependent upon National Forest production of forest and range commodity outputs. The economy is not diverse and actions taken by the Forest Service have a significant impact on this HRU.

c. Future Development

There are many projects that could potentially have a significant impact on the structure of the HRU's. The projects include:

Project	HRU	Note
Intermountain Power Project	Delta	Used for population forecast
Coal mining development	Richfield	Used for population forecast
Oil and gas development	Potentially All	Not used for population forecast
Mineral and Uranium Development	Piute	" "
	Beaver	" "
	Milford	" "
Geothermal development	Beaver	" "

d. Wages and Income

Two measures of income highlight the fact that wages and incomes in the Sevier Social Resource Unit are below average (see Tables II-2 and II-3). Measured by per capita income, the six HRU's of the Sevier SRU vary from 63 to 79 percent of the national average because of larger families. Total family income of the six HRU's ranges from 61 to 80 percent of the national average.

TABLE II-2
PER CAPITA INCOME (1977)

Area	Amount (1979 dollars)	Percent of National Average
United States	$5,751	100%
Utah	$5,135	89%
Beaver HRU	$4,431	77%
Delta HRU	$3,761	65%
Fillmore HRU	$3,761	65%
Fremont HRU	$3,640	63%
Piute HRU	$3,722	60%
Richfield HRU	$4,523	79%

TABLE II-3
MEDIAN INCOME FOR FAMILIES (1970)

Area	Amount (1970 dollars)	Percent of National Average
United States	$9,590	100%
Utah	$9,320	97%
Beaver HRU	$7,289	76%
Delta HRU	$6,819	71%
Fillmore HRU	$6,819	71%
Fremont HRU	$5,836	61%
Piute HRU	$7,486	78%
Richfield HRU	$7,668	80%

The wage scale of miners, powerplant workers, carpenters and other workers that will be the primary beneficiaries of increased development indicates that incomes will increase dramatically in the next 20 years. The Bureau of Economic Analysis predicts that Utah's per capita income will grow at the second fastest rate in the nation.

e. Local Labor Supply

Employment participation rates per 100 people over 15 years of age are as follows:

HRU	1980	1981
Beaver	60.14	59.73
Delta	62.28	60.00
Fillmore	62.28	60.00
Fremont	53.73	53.33
Piute	54.35	54.26
Richfield	63.30	62.79
State of Utah	59.49	57.95

The figures above show that only the Fremont and Piute HRU's have the capacity to increase employment and participation rates to the state averages. The rest of the HRU's participation rates are greater than the state average. The base populations of Fremont and Piute HRU's combined with the high (compared to the State) employment participation rates indicates that creation of large numbers of new jobs will require immigration of labor from outside the area.

f. Implications of Economic Analysis

The factors that influence the Sevier SRU are (1) rapid population increase in an area that has not grown rapidly during the last 40 years, (2) a transition in several HRU's from agricultural toward non-agricultural, (3) a series of prospective mining and industrial

developments that will have a major impact on the area if they are initiated, and (4) a change in the per capita incomes due to the influx of workers from development of the area.

The demands for resources from the Fishlake National Forest will vary according to the severity of the impact. In HRU's that are most influenced by this change, the Forest will see a large increase in the demand for recreation. In HRU's that remain agriculturally based, the community will continue to look to the Forest as a major source of incomes.

g. Minorities

The Census Bureau classifies the population of the Sevier SRU as follows:

TABLE II-4
POPULATION COUNTS FOR 1980 CENSUS
UTAH P.L. 94-171

	COUNTY				
RACE	Beaver	Millard	Piute	Sevier	Wayne
Total Pop.	4,378	8,970	1,329	14,727	1,1911
Percentage	100%	100%	100%	100%	100%
White	4,316	8,557	1,300	14,452	1,186
Percentage	98.6%	95.4%	99.4%	98.1%	98.7%
Black	0	1	0	0	2
Percentage	0.0%	0.01%	0.0%	0.0%	0.1%
Indian	27	137	5	178	18
Percentage	0.62%	1.5%	0.38%	1.2%	0.94%
Asian	24	135	1	20	2
Percentage	0.55%	1.5%	0.08%	0.14%	0.10%
Hispanic	85	157	17	175	24
Percentage	1.9%	1.8%	1.3%	1.2%	1.32%
Other	11	140	2	77	3
Percentage	0.25%	1.6%	0.15%	0.52%	0.16%

On April 3, 1980, Congress adopted the Paiute Indian Tribe of Utah Restoration Act (PL96-227) which allowed up to 15,000 acres of reservation land to be established in Beaver, Iron, Washington, Millard and Sevier Counties. On February 7, 1984, Public Law 98-219 designated the lands to be held in trust. This latter Act provided the Paiutes exclusive use of a tract of land on the shore of Fish Lake for two, two week periods, one is at the beginning of June and the other at the end of September.

4. Expected Future

The baseline population of the counties in the Sevier Social Resource Unit is anticipated to increase by 64 percent by the year 2000 (Utah State Planning Coordinator, 1980). This population growth is slightly more than the baseline population growth projected for the rest of the state.

The Bureau of Economic and Business Research (1981) estimated the population impact of the Intermountain Power Project (IPP) in West Millard County, the location of the Delta Human Resource Unit, will peak in 1986 at 4,027 and then decrease to 2,630 in the year 2000.

A third factor in the growth of the population of the Sevier Social Resource Unit is coal development. Allen Fawcett in Population Impacts Resulting From Coal Mining in the Six-County Area (1979) estimated a range of coal production in the Sevier Social Resource Unit of between 9.2 and 10.0 million tons a year. If the total production were 5.0 million in the year 2000, the total population of the area can be expected to increase by 7,500.

Oil and gas production is possible from the area. One million two hundred thousand acres of the Fishlake National Forest are currently under oil and gas leases and additional government and private lands are being explored. A major find could increase the population of the Sevier SRU by increased work for development of that resource. The timing and the extent of development depends on both the demand for oil and gas and the luck of the wildcatters in finding it.

Minerals such as uranium, molybdenum, alunite, gold, and silver are found in the Sevier SRU. Development of a major mine to obtain any of these resources will have a significant local impact. The timing and size of a mineral development will depend on the size of the deposits and world and national economic conditions.

Fishlake National Forest lands will be influenced a number of ways from the expected development. The need to manage mineral resources will require more time and money. The demand for recreation will increase dramatically as population and per capita incomes increase. Conflicts between recreation and other resources will increase. There will be a need for more protection of resources from trespass and vandalism.

The growth in the local economy will create many problems; it will also create an opportunity for the Fishlake National Forest to respond to that growth. If expected changing demand is responded to in a timely manner, the land can be managed with a minimum of resource damage. Several HRU's in the Sevier SRU will experience boom type growth if expected and possible development takes place. The Forest Service has the opportunity to anticipate and respond to these changes.

5. Revenue Dispersements

In lieu taxes paid to the state for distribution to local counties, resulting from Public Law 95-565, are listed in Table II-5. The payment is based upon a standard valuation of $ .10 an acre, or $ .75 an acre less certain adjustments. In either case the maximum amount paid is also based upon the population of the counties. Finally the funds must be appropriated. For example in fiscal year 1979, the total funds appropriated equaled 87.676 percent of the maximum funds payable.

TABLE II-5
IN LIEU TAXES DISTRIBUTED TO COUNTIES UNDER PL94-565

	ENTITLEMENT LAND ACREAGE (NOTE 1)		
COUNTY	FISHLAKE (ACRES)	TOTAL GOVERNMENT (ACRES)	FISHLAKE ACRES PERCENT OF TOTAL (FEDERAL ACRES)
BEAVER	137,906	1,287,605	10.7
GARFIELD	3,344	2,607,999	.1
IRON	2,297	1,220,803	.2
JUAB	20,788	1,538,094	1.4
MILLARD	306,956	3,342,691	9.2
PIUTE	188,787	350,860	53.8
SANPETE	1,941	530,743	.4
SEVIER	685,551	951,467	72.1
WAYNE	76,909	1,274,138	6.0
TOTAL	1,424,479	13,104,400	10.9

	PL94-565 PAYMENTS SECTIONS 1&3 FY 1979 - (NOTE 2)		(NOTE 3)
	TOTAL GROSS PAYMENT (DOLLARS)	FISHLAKE PROPORTION (DOLLARS)	ACTUAL FY 79 PAYMENT 87.676% PRORATED (DOLLARS)
BEAVER	199,496	21,346	18,715
GARFIELD	171,445	171	150
IRON	941,091	882	773
JUAB	245,471	3,437	3,013
MILLARD	328,000	30,176	26,457
PIUTE	57,755	31,014	27,192
SANPETE	387,968	1,552	1,361
SEVIER	393,265	283,544	248,600
WAYNE	92,562	5,554	4,870
TOTAL	2,317,053	377,676	331,131

NOTES

1. Total Government acres are from an enclosure to a letter, 1920 Land and Resource Planning, Subject: Payment in Lieu of Taxes, date October 3, 1980. The Fishlake acreage is from internal documents.

2. Total gross payments are from the same letter referenced in Note 1 above. The actual amount paid is subject to appropriation by Congress and previous years' payments, etc. The payment, subject to a maximum based upon population, is computed by taking the higher of 75 cents an acre less certain adjustments, or 10 cents an acre.

3. The actual payment was 87.676% of the total gross payment. This column is the amount that is from Fishlake National Forest. The amount was estimated by taking the total payment and adjusting for the percentage of Fishlake National Forest lands in the County.

A second source of funds to the local counties is the 25 percent payment to counties under the Act of May 23, 1908. The following table is a breakdown of 25 percent fund payments by county.

TABLE II-6
25 PERCENT FUND PAYMENTS BY COUNTY

COUNTY	ACRES	FY 80 PAYMENT (DOLLARS)	FY 81 PAYMENT (DOLLARS)
Beaver	137,859	9,210.15	8,728.89
Garfield	3,344	223.41	211.73
Iron	2,297	153.46	145.44
Juab	20,788	1,388.82	1,316.25
Millard	306,956	20,507.26	19,435.70
Piute	188,514	12,594.33	11,936.25
Sanpete	1,941	129.68	122.90
Sevier	685,551	45,801.48	43,407.41
Wayne	76,909	5,138.17	4,867.69

The source of the receipts and the corresponding payments by functions are as follows:

TABLE II-7
GROSS RECEIPTS AND 25% FUND PAYMENTS BY FUNCTION

FUNCTION	FY 81 RECEIPTS (DOLLARS)	FY 81 PAYMENTS (DOLLARS)
KNUTSON-VANDENBURG	20,373	5,093
SALE AREA IMPROVEMENT		
DEPOSITS		
TIMBER	22,621	5,655
LAND USES	2,287	572
RECREATION (SPECIAL USES)	26,134	6,533
POWER	4,018	1,005
MINERALS	30,415	7,604
RECREATION	23,744	5,936
(LAND & WATER CONS. FUND)		
GRAZING	231,106	57,776
TOTALS	360,697	90,174

A far more significant source of funds to the state and the local counties comes from the Minerals Leasing Act of 1920. The state and local counties can share up to 50 percent of total receipts from lease sales, bonuses, royalties and rentals. Forty percent goes to the Bureau of Reclamation, and the remaining 10 percent of receipts goes to the U.S. Treasury.

Royalties and rentals are broken down as follows:

	FY 81 (DOLLARS)
Coal	1,351,520/year
Oil and Gas	850,000
Geothermal	23,435
Total	2,224,955/year

Oil and gas rental will increase to approximately $1,200,000 as all lands leased pay $1.00/acre/year. If any production occurs, the royalty payments from oil and gas production could contribute large sums of money to the fund.

Coal rental and royalty payments should approach $4,000,000 as the minimum royalty payment per ton increases to $1.80 or 8 percent of the value of the coal.

B. PHYSICAL AND BIOLOGIC SETTING

1. GEOLOGY

The eastern half of the Fishlake Forest is located in the High Plateaus Section of the Colorado Plateaus Physiographic Province, while the western half is located in the Basin and Range Province. Though the eastern and western halves of the Forest are different physiographically, geological differences are between the northern and southern halves. The southern half of the Forest is underlain by extrusive igneous rocks. The Tushar and Monroe Mountains are composed of Tertiary volcanics while Tertiary and Quaternary lava flows cover the area of the Forest north of Loa. The northern half of the Forest is underlain by sedimentary rocks. Most of these are nearly flat-lying Tertiary shales, limestones, and sandstones. However, the western edge of the Pahvant Range and most of the Canyon Range is underlain by moderately to steeply dipping Paleozoic sedimentary rocks.

Basin and Range type block faulting, present along the edges of several of the mountains, is responsible for much of the topography. Portions of the Forest are in the overthrust belt as Laramide thrusting is present in the Pahvant Range. Alpine glaciation in the Tushars, plateau glaciation around Fish Lake, and landsliding have also formed the present landscape.

2. CLIMATE

The Fishlake Forest is affected by two major storm paths approaching the basin from nearly opposite directions. During the winter and spring months, frontal storm systems from the Pacific Northwest predominate. During the late summer and early fall, thunderstorms move in from the south and southwest. The frontal storms move in from the north or northwest and affect mostly the north half of the Forest. The summer storms moving in from the south to southwest occur in isolated areas and are of greater intensity than the Pacific storms. The summer storms have produced as much as 2.8 inches of moisture in two hours and have the potential to produce devastating floods.

Precipitation varies from 8 to 10 inches at the Forest boundary to 40 inches at the highest elevations. Most of the precipitation received between October and April is in the form of snow. This period of precipitation amounts to about two-thirds of the yearly total at any given location.

The growing season varies from 120 days at the Forest boundary to 20 days at the higher elevations.

Sunny skies prevail most of the year. During December the Sevier Basin receives 50 percent of the possible sunshine. More sunshine prevails during the summer and fall, when the average is about 78 percent.

Wind speeds are usually light to moderate, although strong winds do occur. Tornados are rare.

3. FLORA AND FAUNA

A variety of ecosystems from high desert through transitional alpine are present on the Fishlake Forest. Riparian areas also span this range from alpine lakes and streams to desert springs and washes.

Major tree species on the Forest include aspen, juniper, pinyon pine, Engelmann spruce, alpine fir, white fir, ponderosa pine, Douglas fir, and cottonwood. Growing sites range from those relatively high in productivity, to dry grass, to barren.

Reflecting the wide range of climatic and floral types on the Forest, there is also a diversity of wildlife. Approximately 83 species of mammals, 177 of birds, 30 of reptiles and amphibians, and 16 of fish inhabit the area. The aquatic resources are numerous, with approximately 700 miles of streams and 4,500 acres of lakes and reservoirs.

Big game hunting is an extremely popular pursuit on the Fishlake. Elk and mule deer are the principal game species. Other game mammals and birds, such as sage grouse, forest grouse, cottontails, bear and mountain lion, as well as waterfowl, are also hunted. The Forest provides year-round range for deer and elk. Although the winter range extends to other ownerships in the valleys around the Forest, a high percentage of the use in a "normal year" is on the Forest.

The bald eagle, an endangered species, winters on the Forest around rivers, lakes, and major migration routes. The Forest also provides habitat for the threatened Utah prairie dog. The Forest has cooperated for several years in a recovery program and expects this to lead to an eventual removal of the Utah prairie dog from Federal listing. The Bonneville cutthroat trout is regionally listed as a sensitive species and is a candidate for Federally listed threatened status. It is found on the Forest on the west side of the Tushar Mountains and the south end of the Pahvant Range. The peregrine falcon (endangered species) also utilizes the Forest in very limited numbers. Only one active nesting area has been identified (See Forest Threatened and Endangered Plan). Another raptor of high interest is the osprey, which inhabits the Fish Lake-Johnson Valley Reservoir area. The Forest also provides habitat for the endangered Rydberg milkvetch.

C. RESOURCE ELEMENTS

The supply and demand conditions of primary resource elements are detailed under each resource section.

1. RECREATION

a. Physical Setting

The mountains and elevated plateaus between intervening valleys occupied by farms and small communities attract local and regional visitors. Evergreen and aspen trees interspersed with meadows; 76 perennial streams; and approximately 60 bodies of water, principally small reservoirs, provide a desirable summer setting.

Fish Lake-Johnson Valley, a 13,700 acre area including 2,500 acres of lake and 670 acres of reservoir, receives 25 percent of the total forest recreation use. Other popular areas are the Tushar Mountains, reservoirs with fisheries, and the other developed campgrounds and picnic sites.

The Recreation Opportunity Spectrum (ROS) is limited as there are no Primitive class nor Urban class settings. The principal opportunity class is Semi-primitive Motorized comprising 61 percent or 868,900 acres. Second is Roaded Natural which is 26 percent or 367,500 acres. Semi-primitive Non-motorized is 12 percent or 175,600 acres. Rural is not quite one percent or 12,200 acres. Motorized opportunities are the dominant feature as the combined acreage of Semi-Primitive Motorized and Roaded Natural classes (1,236,400 acres) is 87 percent of the Forest.

b. Social Setting

Average recreation use during the five year period 1979-1983 has been 1.3 million visitor days annually. Fiscal year 1983 was the first time use was estimated and reported by Recreation Opportunity Spectrum (ROS) classes.

1983 Estimated Use By ROS Classes

	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Total
M-RVD	16.2	201.8	781.0	299.2	1,298.2
Percent	1.3	15.5	60.2	23.0	100

The social setting when addressing recreation opportunities refers t the amount of contact between individuals or groups. User density i a term describing visitor interaction and is the number of recreatic visitor days per acre each season. Current user density is a follows:

1983 Estimated Use Density

	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural
M-RVD	16.2	201.8	781.0	299.2
M-Acres	175.6	868.9	367.5	12.2
RVD/Ac.	.092	.232	2.125	24.5

Except for holiday weekends, a few weekends in July and August and th deer and elk hunts, use density is generally considered low. Ther are favorite areas which are crowded. Also, campgrounds at Fish Lak will not accomodate all the visitors and "overflow" areas are mad available during these peak use periods. Camping away from favorit areas and outside of developed sites can provide opportunities fo "solitude" or being "away from the crowd" at Fish Lake. It is thi "solitude" that many visitors from adjacent communities seek. Thi helps explain why they do not want more developed sites an facilities; they want to avoid rubbing shoulders with more visitors.

c. Sites and Facilities

General public sites were first constructed during the 1930's by th Civilian Conservation Corps. Congress funded public works project during the 1960's resulting in construction and reconstruction o recreation facilities. Emphasis on pollution abatement program included construction of a sewage system with lagoons to serve site at Fish Lake. This system was completed and put into operation by th mid-1970's. Several new rest rooms were included in this constructio project. The only additional site constructed since this period ha been Piute Parking, a temporary facility constructed during the pavin of the highway between Fish Lake and Johnson Valley reservoir.

Maintenance has been inadequate because it has not been properl funded. Water systems serving the sites were installed when "runnin water" facilities were simple and springs were used as the source. Safe drinking water standards have been established since thes systems were built. Water systems need to be brought up to standar by reconstruction or replaced using a different source.

Developed Sites - Public Sector

Kind	No. of Sites	PAOT	PAOT Days
Campgrounds	19	2,765	396,500
Picnic Ground	9	782	122,000
Boating Site	1	135	17,100
Visitor Information	1	20	2,000
Total	30	3,702	537,600

Developed Sites - Private Sector

Kind	No. of Sites	PAOT	PAOT Days
Lodge-Resort	3	776	115,400
Rec. Residence	8	763	278,500
Total	11	1,539	393,900

d. Supply and Demand

Recreation opportunities are interdependent on the physical setting (land), social setting (number of people using the same land) and on the managerial setting (providing facilities and managing use). There is more than adequate land on which to construct more sites and facilities. Comparison of capacity (people per acre) data and current use indicates more use can be accomodated. However, the amount of increased use depends on the specific kinds of opportunities being sought and their location. There is less opportunity to increase use for activities requiring solitude.

Generally, the land base is considered adequate for the planning period. The challenge will be to have enough funding to manage the projected use and provide facilities. The recreation portion of proposed budgets to implement this plan will provide the following outputs and is compared to projected demand (computed in July, 1984).

Average Annual Plan Outputs and Projected Demand (M-RVD)*

Decade	1	2	3	4	5
Plan	1,327.1	1,692.7	1,788.0	1,874.4	1,953.1
Demand	1,535.1	1,860.6	2,150.8	2,441.1	2,731.6

* Includes wildlife and fish Recreation Visitor Days.

e. Trails

With the exception of some trails which are strategically located, Forest trails are generally multiple resource oriented. Livestock distribution and movement, fire management, and administrative access are important trail functions, in addition to recreational use.

Benefiting activities need to include in their programs and budget financing for single purpose and important multiple purpose trails Two-tracked roads and trails coincide in some areas. There ar situations where relocation of trails should be done to separat traffic and enhance the recreation opportunities.

A trail management review was conducted in September, 1980. Sinc then the system inventory has been reduced from 1,008 miles to 89 miles. Maintenance plans prepared since the review establish fou levels of maintenance to provide different kinds of opportunities an accomodate various amounts of use. Total forest operation an maintenance required funding in 1985 dollars is $74,000 annually.

f. Wild and Scenic Rivers

No river on Fishlake National Forest has been nominated fo classification as a Wild and Scenic River. A review of streams on th Forest indicates none is eligible. Thus none is considered i alternative formulation.

g. National Natural Landmarks

There are no existing ones on the Forest. A survey of Natural Landmark Areas of the Northern portion of the Colorado Plateau (Welsh and Others 1980) indicated seven potential National Landmarks on the Fishlake National Forest.

These seven sites are:

Bicknell - Shingle Mill Creek Alluvial Fan
Monroe Hot Springs
Niotche Creek Glacial Features
Salina Canyon Angular Unconformity
Sevenmile Cirques
Skinner Canyon Ignimbrite
Sunglow Campground

The first three sites were rated as needing further information while the latter four sites were rated as appearing to be nationally significant.

No action of the proposed Plan will impair their integrity prior to evaluation. In fact the proposed plan and other factors will work to maintain their integrity. For example, the Bicknell - Shingle Mill Creek alluvial fan and the Sunglow Campground areas were deemed to be in danger from off road vehicles. However, the plan proposes non-motorized recreation for these areas. An example of another factor is the Skinner Canyon Ignimbrite. This potential site was thought to be in danger since it could be used for material to build I-70 in Clear Creek Canyon. However, I-70 construction is now nearly complete and the area has not been used. The only other area thought to be in danger is the cones and spring site at Monroe Hot Springs. However, these features of the site are located off the Forest. None

of the other sites were thought to be in danger (Welsh and others, 1980).

h. Visual Resource

Only about 40 percent of the forest acreage has been intensively examined for visual condition or has visual quality objectives as part of unit plans. An extrapolation based on this information was made to determine visual quality objectives acreage for the Plan. Cost and manpower to do an intensive level reinventory will require programming the reinventory over a period of time. A reasonable work load considering annual budget would be to do one Ranger District each fiscal year. This would require four years to complete.

i. Cultural Resources

The inventory of proposed project areas for cultural resources has covered an estimated 75,000 to 90,000 acres (5% to 6%) of Fishlake National Forest System land. In a typical year (i.e., 1983), 40 to 50 surveys are conducted which might survey 5,000 acres and record 50 new sites.

At this rate of inventory, and FY 1983 was an average year, Target #2 (FSM 2361.02-2)--which calls for the inventory of all cultural resources on National Forest System land by 1990 --will not be met. As of November, 1983, the cultural resources program has inventoried the occurrence of 1,230 sites on surveyed sections of the Fishlake National Forest. One district and two sites, specifically the Gooseberry Historic District with 175 sites and the Aspen - Cloud Rockshelters, have been nominated to the National Register of Historic Places. Cultural resource properties, which include both the National Register nominations and the Forest inventory, represent the full spectrum of prehistoric and historic life in Utah.

Archaic campsites, belonging to groups of hunters and gatherers, are quite frequent on the Forest and begin the prehistoric chronicle of the Fishlake National Forest around 6500 B.C. The manifestations of later groups, including the horticultural Fremont (A.D. 750 - 1250), the nomadic Numic groups (A.D. 1150 - Historic Period) and the Mormon Pioneers (post-1850 A.D.), are also present on the Forest. Some properties, such as the Fremont village called Nawthis near Gooseberry Creek, promise to revolutionize both our thinking and textbooks of Utah prehistory.

Nawthis Village is typical of Fremont habitations because of 1) size, 2) diversity and 3) architectural anamolies. Nawthis may contain over 100 structures. Unlike the Five Fingers Ridge Village in Clear Creek Canyon, there is much diversity of architectural styles. This diversity is marked and includes an array of structures that are round, square, above-ground, lined, semi-subterranean, deep and shallow. In addition, the Heartbreak Hotel complex at Nawthis has revolutionalized our definitions of Fremont Culture because we find people living in above-ground, adobe-walled surface structures joined like Pueblo I (A.D. 700-900) and II (A.D. 900-1100) structures of the

Western Anasazi Tradition found further south in the Four Corners area. Prior to the excavation of the Heartbreak complex, archeologists believed that the primary domestic or household unit among the Fremont was the pithouse.

Nawthis is also unusual in that 35 radiocarbon dates suggest that the village was occupied by a large group of people during the same time period (A.D. 900-1100). The superimposition of structures at the village is also rare which supports the assumption that the village is large and populated vs. an accretion of many structures built by a number of people over time.

Associated with the floods and wetter climate of the 1983 winter and spring, a large 15 acre livestock pasture just east of the village slumped when soils liquefied and flowed downstream. The crater, which measured as much as 15 feet in depth, exposed what have been interpreted as irrigation canals radiocarbon dated to the occupation of the village. This is the first example of Fremont irrigation discovered by scientists.

In terms of management, we should not attempt to trade this isolated parcel unless it goes to an agency like Utah State Parks which will protect the site. We should make a point of periodically monitoring on-going pothunting at the site.

2. Wilderness

No areas within the Forest have been designated as wilderness by Congress in the Utah Wilderness Act of 1984 (PL98-428). Two roadless and undeveloped studies have been undertaken during the 20 years since the 1964 Wilderness Act. These studies and acreage are listed as follows:

ROADLESS AREA REVIEW & EVALUATION (RARE) STUDIES

STUDY	No. of AREAS	ACRES	REMARKS
RARE I	24	447,860	Three "new study" areas selected totaling 86,840 gross acres.
RARE II	25	603,764	Fishlake High Top, 18,810 acres recommended for designation.

Prior to the Utah Wilderness Act of 1984, the Forest planning process had developed an inventory of lands meeting the minimum definition of wilderness, and qualified for wilderness evaluation per NFMA Regulation 219.17. The inventory contained 36 roadless areas, totalling 735,320 acres Forest-wide. This inventory and description of each area is filed with the Forest's planning records.

The Utah Wilderness Act of 1984 designated 749,500 acres state-wide as wilderness. It is estimated that these areas, in addition to the

areas that existed prior to the Act, will meet the anticipated demand for wilderness during the first planning period. At the end of this period, and during the Forest plan revision, the need for additional wilderness will be evaluated.

Management direction in this plan is in conformance with the Utah Wilderness Act.

3. Wildlife and Fish

The Fishlake is one of the most important wildlife and fisheries Forests in the state of Utah. Hunter use of all key game species is very high, while the percentage of statewide habitat is among the highest for all species except mountain goat and moose. In addition, some of the highest proportions of the statewide populations of mule deer, mountain lion, and bear inhabit this Forest. The Fishlake mule deer population is one of the largest in the national Forest system.

Four threatened or endangered species, the peregrine falcon (endangered), the bald eagle (endangered), the Utah prairie dog (threatened),and the Rydberg milkvetch (threatened), live in or utilize this Forest. In addition, two mammal, five birds, one fish, two reptile, and nine plant species are classified as "sensitive" by the Regional Forester.

An estimated 306 species of wildlife and fish inhabit the Fishlake National Forest. These are predominantly birds (177 species) and mammals (83 species). In addition there are 30 species of reptiles and amphibians, 16 species of fish, 8 of upland gamebirds, 5 big game, and 2 small game species. Approximately 120 species make primary use of riparian habitat. Forty species use old-growth forest types as primary habitat.

a. Management Indicator Species (MIS)

National Forest Management Act Regulations direct the National Forests to identify Management Indicator Species (MIS). FSM 2621.1 states:

"...Wildlife, Fish, and Plant Species (or groups of species) shall be selected to assure the maintenance of viable populations of existing native and desired non-native plants and animals; to facilitate the attainment of RPA habitat capability goals; and to represent area specific issues, concerns, and opportunities."

Two categories of MIS have been established for this Forest Plan, one for ecological indicators and another to represent species of high interest. Ecological indicator species, or guilds of species, were selected using the following criteria:

1. A strong (but not exclusive) affinity for a vegetative type.
2. A life cycle which is keyed to a vegetative type.
3. Sensitivity to habitat change.
4. Relative ease of monitoring, i.e., easily recognized and adequate numbers.

5. Somewhat representative of other species which use the same vegetation type.

Ecological indicator species and their obligate vegetative types or special habitat needs are listed in Table II-8A.

TABLE II-8A
ECOLOGICAL INDICATOR MIS
(FISHLAKE NATIONAL FOREST)

	SPECIES	VEGETATION TYPE OR HABITAT NEED	ESTIMATED POPULATION
1.	Goshawk	Mature (old growth) conifer	Unknown
2.	Cavity Nesters*	Snags (standing dead trees)	Unknown
3.	Riparian Dependent Guild**	Riparian communities	Unknown
4.	Sage Nesters	Mature sagebrush (varies as different sage species vary)	Unknown
5.	Macroinverte-brates	Streams (water quality)	N/A
6.	Resident trout***	Streams, lakes and reservoirs	Unknown

* Includes primary & secondary species (to be monitored on a case by case basis).

** This guild includes the species dependent upon the various niches of vegetation communities found in riparian zones, ie., tall deciduous trees, willows, riparian shrubs, riparian grasses.

*** Includes brown, brook, cutthroat, rainbow and lake trout (to be monitored on a case by case basis).

Species which are categorized as high interest MIS are listed in Table II-8B. They were selected because of their threatened, endangered or sensitive status, social or economic importance, or high public interest.

TABLE II-8B
HIGH INTEREST MIS
(FISHLAKE NATIONAL FOREST)

	SPECIES	VEGETATION TYPE OR HABITAT NEED	ESTIMATED POPULATION
1.	Elk	General and winter range	2,000*
2.	Mule deer	General and winter range	25,000*
3.	Bonneville cutthroat trout	Cool, clear water with high oxygen content	5,500
4.	Rydberg's milkvetch	Harsh sites at upper elevations	4,000

* Population based on the animals currently occupying the winter range found on the Forest.

Other species which were considered as MIS, but which were not selected because planned management activities would not significantly impact them are listed in Table II-9.

TABLE II-9
SPECIES CONSIDERED FOR MIS
BUT NOT USED

SPECIES	REASON FOR CONSIDERATION	VIABLE POPULATION	ESTIMATED POPULATION	TREND
1. Am. bald eagle	Endangered species	Yes	Migratory (unknown)	Up
2. Peregrine falcon	Endangered species	Yes	Migratory (unknown)	Static
3. Utah prairie dog	Endangered species	Yes	Transplanting stage	Up
4. Sage grouse	Economically important, hunted	Yes	Unknown	Static
5. Northern flying squirrel	Sensitive	Yes	Unknown	Unknown
6. Mtn. bluebird	Sensitive	Yes	Unknown	Unknown
7. Turkey	Economically important, hunted	Unknown	Transplanting Stage	Unknown
8. Cottontail rabbit	Economically important, hunted	Yes	Unknown	Up
9. Snowshoe hare	Economically important, hunted	Yes	Unknown	Up
10. White-tailed jack-rabbit	Ecological indicator, declining	Unknown	Unknown	Down
11. Forest grouse (ruffed and blue)	Hunted	Yes	Unknown	Static
12. Merlin	Sensitive	Yes	Unknown	Unknown
13. Osprey	Locally rare, high interest	Unknown	1-2 pairs	Static

It is believed that the species in Table II-9 and the rest of the species on the Forest will be well represented by the species listed in these two categories of MIS. In category two, elk, a species which has a high public interest, is wide-ranging throughout the Forest, and has wide ranging habitat needs, will represent many species of wildlife. As the Forest manages for elk habitat needs, it will adequately provide for both horizontal and vertical diversity of vegetation. In so doing other species will also be taken care of, because their requirements are usually found within the various niches of good elk habitat. When good quality elk calving grounds are provided, species which utilize the pole or sapling sized aspen or conifer and the ecotone between mountain brush and trees are also taken care of.

The same concepts apply with other wide-ranging species, such as deer, resident trout, and the riparian guild. The latter two can be used to represent aquatic and semi-aquatic species. When riparian habitats are improved the waterside vegetation diversity will provide niches for species found there. When water quality is managed to maintain a high biotic condition index for macroinvertebrates, other aquatic species will benefit.

Special habitat needs which can't be met by the above concept have been provided for by the use of MIS for special habitats, such as cavity nesters, riparian guild, sage nesters, and old growth conifer dependent species.

Several species -- bighorn sheep, otter, grizzly bear, wolves, marten, mink, and lynx -- once existed on the Forest but do not at the present time. Existing population levels of management indicator species are below their habitat capabilities. Maximum potential levels of terrestrial indicator species populations can be obtained with management techniques which will change vegetative ecological succession. Exceptions would be species dependent upon old growth sagebrush and timber. Reduction of conifer and pinyon-juniper invasion, modification of existing timber and pinyon-juniper stands, improvement of riparian zone vegetation, and rejuvenation of aspen and mountain brush will improve conditions for MIS. Trends of significant vegetative types as they relate to specific habitats associated with MIS are shown in Table II-10. Estimated population trends are also depicted. Aquatic MIS will not reach maximum potential populations with proposed management; however, population levels are expected to increase.

TABLE II-10

COMMUNITY TYPES AND THEIR CURRENT TRENDS*
POPULATION TREND OF MANAGEMENT INDICATOR SPECIES**

MANAGEMENT INDICATOR SPECIES	ASPEN	CONIFER	MEADOW	SAGE-BRUSH	MOUNTAIN BRUSH	PINYON-JUNIPER	RIPARIAN	AQUATIC	POPULATION TREND	SELECTION*** CRITERIA
Mule Deer	-	+	-	X	X	+	-		+	2 & 4
Elk	-	+	-	X	X	+			+	2 & 4
Rydberg's Milkvetch	-	+					-		X	1 & 3
Bonneville Cutthroat Trout								X	+	1,2 & 3
Resident Trout								-	X	2,3,& 4
Macroinvertebrates								X	X	3 & 4
Sage Nesters				-					-	3 & 4 sage nester
Cavity Nesters	-	-			-	-	-		-	3 & 4 snags
Riparian Guild							-		-	3 & 4
Goshawk		-							X	3 & 4-old growth conifer

* Habitat trends for species: - = Decreasing; x = Static; + = Increasing; "Blank" = Non-applicable.
** Population trends for species: - = Decreasing; X = Static; + = Increasing; "Blank" = Non-applicable.
*** 1 - Species on State and Federal Lists classified as Threatened, Endangered.
2 - Species commonly hunted, fished or trapped.
3 - Species with special habitat needs.
4 - Species whose population changes are believed to indicate effects of management of other species.

b. Threatened, Endangered, and Sensitive Animal Species

Certain wildlife and fish species that inhabit or utilize the Forest have been classified as sensitive (s), threatened (t), or endangered (e), by Federal agencies as follows:

U.S. Fish & Wildlife Service (U.S.F.W.S.): bald eagle (e), peregrine falcon (e),Utah prairie dog (t).
U.S.D.A. Forest Service (R-4): northern flying squirrel (s), merlin (s) mountain bluebird (s), western bluebird (s), Bonneville cutthroat trout (s), and Utah mountain kingsnake (s).

The bald eagle is a winter migrant utilizing the Forest as hunting and feeding grounds, usually near water sources. No roost areas have yet been identified on the Forest.

The peregrine falcon has historically nested on the Forest, primarily in the vicinity of cliffs adjacent to Bicknell bottoms in Wayne County. If the efforts of the Division of Wildlife Resources and the Peregrine Fund identify this Forest as a potential reestablishment site of this species, the Forest will cooperate in providing the habitat. At the present time no falcons are believed to be nesting on the Forest and are only occasionally seen during migration.

The Utah prairie dog has been reestablished on two sites on the Forest. These relocations are part of an effort to establish viable populations in accordance with the recovery plan for this species. Recent efforts have resulted in a downlisting of the species from endangered to threatened. The Forest will continue to cooperate in providing, and enhancing, habitat for this species.

The status of the merlin on the Forest is poorly understood. However, it is currently believed to be only a rare visitor to appropriate Forest habitats.

The mountain and western bluebirds are present throughout the Forest in various habitats. The Forest has recently cooperated with the U.S.F.W.S. in a bird house placement study to determine use by bluebirds in a coal study area. Population data are unavailable, but these two species appear to be well established as breeding species on the Forest.

The Bonneville cutthroat trout is listed as a sensitive species. This species inhabits four small streams on the Forest where it appears to be doing well. There are future plans to reintroduce the cutthroat into other streams on the Forest.

The Utah mountain king snake has been observed on the Forest. Population data are unavailable, but it is believed to be a well established breeding population.

c. Threatened, Endangered, and Sensitive Plant Species

There are 11 species of sensitive plants and two threatened species (Astragalus perianus and Townsendia aprica) on the Forest. The sensitive species are: Astragalus consobrinus, Castilleja parvula, Draba sobolifera, Epilobium nevadense, Eriogonum ostlundii, Najas caespitosus, Penstemon parvus, and Penstemon wardii. In addition, several other sensitive species occur on lands adjacent to the Forest.

Habitat for threatened and sensitive species may occur within grazing allotments. When this happens, allotment management plans will recognize and provide for the protection of these species. Sites for the threatened species have been located and mapped. They occur on small areas on the Tushar and Monroe Mountains.

d. Other Species of Special Interest

Species which are not classed in any of the above categories, but which are of special interest because of special management needs or their potential for controversy, include: mountain lion, bear, beaver, coyote, bobcat, fox, and muskrat.

These species can be classed as furbearer, predator, habitat manipulator, or sport trophy dependent upon individual viewpoints of the people involved with them. However, they are considered to be an important part of the Forest ecosystem and are to be managed as such.

e. Aquatic Habitat

Sixty-six streams, representing over 380 miles of aquatic habitat, and 49 lakes and reservoirs, providing more than 4200 acres of aquatic habitat, are known to support resident trout populations on the Fishlake National Forest. Although this habitat includes a Class I lake fishery (the highest valued waters in the state) and a Class II reservoir fishery, the majority of aquatic habitats on the Forest are producing trout at less than their potential.

The average stream rated on the Forest has a habitat condition rating of less than 50 percent of optimum based on poor pool quality, lack of streamside vegetation, and high levels of silt.

Nearly half of the lakes on the Forest, representing 80 percent of the total lake surface area, are thought to be producing trout below their potential as the result of frequent winter kills, fluctuating water levels, or competition from nongame fish.

Fishing use on the Forest has increased an estimated 23 percent in the past ten years. Overall dispersed recreation use on the Forest, which includes fishing, is expected to increase at least 30 percent from 1980 to 1990 and 130 percent from 1980 to 2030. During this same time period, under current management, fishing opportunities on the Forest will remain constant or may decrease due to new and continuing impacts from road construction, energy development, timber harvest, and livestock grazing.

Trout production and fishing opportunities in Forest lakes and streams could be increased significantly by improving aquatic habitat conditions. Many opportunities exist to improve stream and lake fisheries through better resource coordination and management as well as direct habitat improvement.

f. State Agency Objectives

Joint objectives of the Forest Service and Utah Division of Wildlife Resources for big game on the Fishlake Forest are 82,600 deer and 3,400 elk. These objectives are for the summer range which is entirely within the proclaimed Forest boundary. Since only 90 percent of the elk winter range and 29 percent of the deer winter range is on the Forest, the Forest's winter range habitat objectives are 3,060 elk and 23,954 deer. Implementation of this plan should provide habitat for these numbers of deer and elk . Other short term objectives include the reestablishment or establishment in available habitat of selected species such as bighorn sheep, turkey, upland game species, and the expansion of Bonneville cutthroat trout populations. Long term objectives include reestablishment of pine marten and possibly moose.

Other objectives include providing a harvestable surplus of furbearers and providing relief from depredating wildlife commensurate with management of the species for viable populations and as components of the ecosystem.

TABLE II-11
UTAH DIVISION OF WILDLIFE RESOURCES OBJECTIVES
FOR MULE DEER BUCK HARVEST BY HERD UNITS
(BASED ON STATED OBJECTIVES FOR HARVEST + OR - 15%)

HERD UNIT	OBJECTIVE*	5 YEAR AVERAGE (1980-1984)
Salina (43)	2,250	2,128
Fishlake (44)	600	560
Last Chance (45)	300	228
1000 Lake (46)	300	237
Monroe Mountain (48)	1,500	1,634
Marysvale (49)	600	363
Oak Creek (53)	750	522
Fillmore (54)	1,100	900
Kanosh (55)	1,900	1,443
Beaver (56)	1,600	1,554
Fishlake National Forest	10,900	9,569

* Objective applies to total area of herd unit including BLM and private lands.

TABLE II-12
UTAH DIVISION OF WILDLIFE RESOURCES
OBJECTIVES FOR ELK (WAPITI)

HERD UNIT	OBJECTIVE*	ESTIMATED POPULATION	AVG. HARVEST**
Fishlake (14)	-	1,500	298
Monroe Mountain (26)	-	200	8
Beaver Mountain (24)	-	150	20
Pahvant (28)	-	150	8
Total for Fishlake NF	3,400	2,000	334

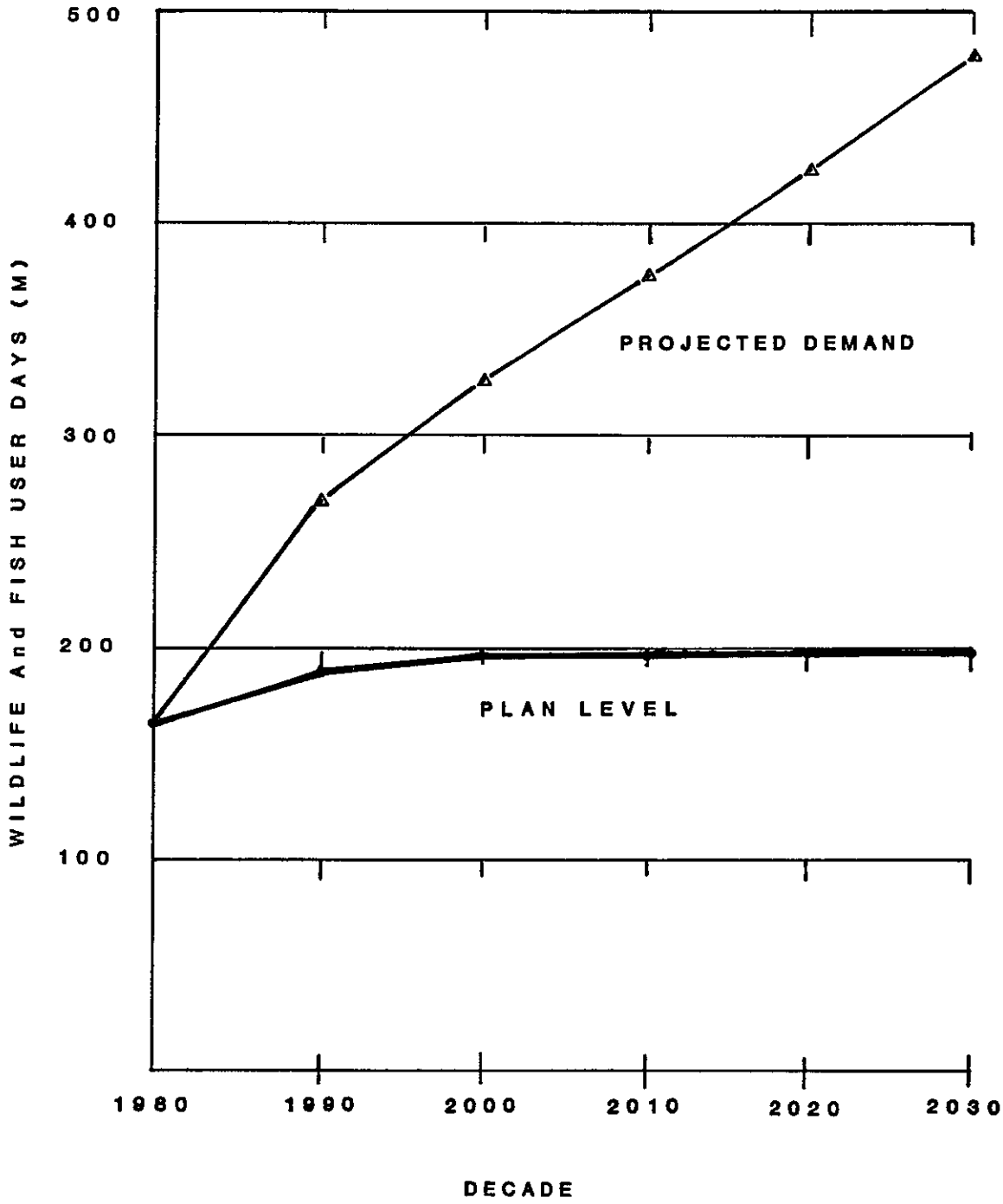
* Based on 1979 R-4 objective for entire Fishlake National Forest.
** Includes bulls and cows for last 5 years or less, dependent upon how many years the unit has been hunted.

g. Wildlife Demand

This proposed Forest plan will meet the demand for big game animals as expressed in the DWR objectives for deer and elk. These objectives are for 3,400 elk and 82,600 deer summering on the Forest. It will also meet the habitat requirements of the Utah prairie dog recovery plan. There are no similar objectives for fish or other terrestrial wildlife.

While this plan will produce DWR's big game objectives, it may not produce desired harvest levels if population grows at a high level senario. Figure II-6 shows the projected 290 percent growth in demand for a high growth senario compared to the 6 to 17 percent growth provided by the Forest plan. These projections are based on the current success ratio. If demand increases as shown in figure II-6 the success ratio could fall below a minimally acceptable level for the public.

FIGURE II-6



PLAN And DEMAND COMPARISON

h. Habitat Improvement

The Forest's program of habitat improvement for the last two years has been directed toward big game winter range improvement.

Habitat improvement for the last two years is as follows:

Improvement	Acres	Numbers
Vegetation Manipulation (chaining, burning & cutting)	4,243	
Lake Habitat Structures		4
Stream Protection Fencing		1.5 miles
Stream Habitat Structures		88
Water Developments		2
Water Source Modifications (egress/exit ramps for water access)		16
Nest Boxes		70

Other efforts have been directed toward planting willows. Plan implementation will shift the emphasis of habitat improvement from projects that benefit big game winter range improvement to increased emphasis on fisheries, other game and non-game species habitat improvement, while maintaining the progress made in big game habitat management.

4. RANGE

Fishlake National Forest lands provide important forage for grazing animals. In 1980, over 1.3 million Forest acres were included in grazing allotments. Currently, approximately 639,856 acres are suitable for livestock grazing. Suitable grazing acres vary, depending on the class of livestock being grazed.

The Forest manages 76 range allotments; 59 are under some form of intensive management. Approximate permitted animal unit months used on the Forest by cattle and sheep since 1943 are shown in Table II-13.

TABLE II-13
APPROXIMATE PERMITTED ANIMAL UNIT MONTHS
ON FISHLAKE NATIONAL FOREST

YEAR	SHEEP	CATTLE	TOTAL
1943	75,616	148,572	224,188
1944	74,142	145,697	219,839
1947	48,787	126,808	175,595
1948	46,353	120,699	167,052
1949	42,366	114,244	156,610
1950	41,096	113,756	154,852
1951	40,029	115,797	155,826
1952	40,877	116,407	157,284
1964	35,530	116,023	151,553
1965	34,682	115,458	150,140
1966	35,962	112,724	148,686
1968	35,420	116,415	151,835
1969	35,247	119,321	154,568
1970	32,917	111,764	144,681
1971	33,387	112,499	145,886
1972	32,640	113,154	145,794
1973	29,504	110,365	139,869
1977	24,089	127,604	151,693
1978	22,208	120,243	142,451
1979	19,248	118,052	137,300
1980	20,769	121,618	142,387
1981	19,440	121,064	140,504
1982	19,517	118,294	137,811
1983	18,792	120,597	139,389
1984	18,811	118,089	136,900

Demand for grazing exceeds available capacity. This trend will continue as more grazing land is converted to other uses and as long as the cost of grazing on the Forest does not increase to a point that it is no longer economical for the rancher.

Current management does not attain maximum production potential due to the need to provide for multiple resource management for soil, water, wildlife, riparian habitats, recreation, timber, etc. The maximum level of production (163,600 AUM's) would require substantial funding and changes in the management of other resources. Without such funding and with multiple resource considerations given for this plan, output for the year 2030 will be 131,000 AUM's.

Under current management direction, grazing numbers would decline slightly. Current management direction provides for attaining favorable forage production with stable or upward trends.

Implementation of this plan will result in about a four percent decrease in the second decade in the numbers of permitted livestock

from current numbers. From 1978 to 1982 actual use averaged 132,600 AUM's and varied from 130,000 to 135,000 AUM's. The reduction in grazing numbers is due to three factors:

First, some grazing areas have low productivity, high livestock numbers, poor conditions, or downward trends. In order to meet the Forest's goal of providing favorable forage production with stable or upward trend, these acres need to be evaluated, and measures must be taken to stabilize trends and improve conditions.

Second, many revegetation projects need to be maintained or their benefits will be lost. Current grazing capacities were based on outputs during the most productive periods for those projects. They need adjustment to reflect current production levels. Structural improvements are also in need of maintenance or rebuilding; many are currently non-functional.

Third, a trend of conversion from sheep to cattle operations has resulted in fewer suitable grazing acres and a need for more intensive management. With fewer acres being suitable for grazing, utilization of harvestable forage has declined.

The range grazing use (livestock) objectives established by the Region are as follows:

Year	1981	1982	1983	1984	1985	1986-1990	1991-2000	2001-2010	2011-2020	2021-2030
MAUM's (Avg.) Annual	147	150	153	156	158	160	163	165	167	169

Current outputs are below the Regionally assigned output levels. These targets can not be achieved under the plan.

Grazing management is shared between the Forest Service and the grazing permittees. The Forest issues grazing permits that specify the type and number of livestock and the season of use. Allotment management plans outline the use and development of each allotment on a long-term basis. Operating plans outline annual direction. Allotments are inspected by the Forest Service for use, condition, and compliance with grazing permits, the allotment management plan, and the annual operation plan. The permittee is responsible for herding, salting, and doctoring his livestock and for maintaining improvements on his allotment.

On some allotments timing of use is critical. Since there is a limited amount of big game winter range which often is used by livestock during the spring grazing period, the amount of time that livestock can spend on these areas is restricted. On some allotments, livestock management will be changed to insure that range readiness has been achieved and to protect big game winter range.

Because riparian area management has become a major concern in recent years, management practices are being implemented which will correct

many past abuses. This includes some adjustment in livestock numbers, fencing some spring areas, and using different grazing systems. In addition, better salting procedures and proper placement of key structural improvements will improve riparian area management. This will result in improved water quality onsite and downstream.

There are 11 species of sensitive plants and two threatened species on the Forest. In addition several other sensitive species occur on land adjacent to the Forest. Habitat for these species may occur within allotments. Where this happens, allotment management plans will recognize and provide for the protection of these species. Sites for the threatened species have been located and mapped.

The Forest cooperates with permittees and Animal Damage Control, Animal and Plant Health Inspection Service, USDA in controlling predators to reduce losses of livestock. The Forest Service makes recommendations to Animal Damage Control for each grazing allotment as to the need for control, methods to be used, and special precautions needed. The current program of control has consisted primarily of shooting coyotes from a helicopter in the winter. Some trapping and calling is also practiced. Control efforts are directed toward allotments where need is demonstrated.

Wild and free-roaming horses and burros do not exist on the Fishlake.

Noxious weed control is directed mostly at Scotch, musk, and Canada thistle infestations. These occur on the Fillmore, Beaver and Richfield Districts. White top and toad flax are also of concern, together with some poisonous plants that occur on all Districts. Past control efforts have helped prevent spread of these plants. Cooperation with county weed control agencies has been beneficial in past and current control efforts. Several hundred acres are being treated yearly.

Grasshopper and cricket infestations are cyclic on the Forest together with black bug infestations on many introduced range grasses. These insects take a major toll on forage in areas of concentration. The total quantity of forage available for livestock and wildlife is greatly reduced together with a reduction in quality. Leafy materials are stripped, leaving the coarser stems.

The value of coordination on allotment management has been demonstrated on the Oak Creek Cooperative Management Area. The area encompasses 316,500 acres about 15 miles north of Fillmore. It includes 117,200 acres managed by the Forest Service, 109,850 acres of private lands, 59,800 acres administered by the BLM, and 29,750 acres of State land. Cooperative management has allowed work to be performed regardless of land ownership. Examples are: chaining and spraying projects covering several land ownerships; pipelines supplying water to National Forest, BLM, and private land from single spring sources; and fences placed in more manageable locations, rather than following ownership boundaries.

5. TIMBER

a. Land Suitability

Some 386,635 acres have been classified as tentatively suitable forest land on the Fishlake National Forest. This acreage was determined in accord with regulations in 36 CFR 219.14. Suitability criteria are discussed in Appendix B (page B-1).

b. Existing Siutation

Approximately 770 thousand acres of the Fishlake's 1.4 million acres, or 55 percent, are forested. Of these forested acres, about 50 percent are tentatively suitable for timber production. The Forest is selling between 2.5 and 3.0 MMBF (million board feet) annually. Due to the recent depressed lumber market, annual harvest has dropped from just over 2 million to slightly under a million board feet.

Current harvesting is on average slopes under 40 percent. Tractor logging is the only skidding method in use, but recently purchasers have expressed interest in cable logging steeper slopes.

Cutting practices have changed considerably over the years. In the early seventies spruce sales with extensive clearcutting were sold. Since 1977, the use of clearcutting has been reduced, with large spruce clearcuts no longer prescribed. Group selection, shelterwood, and small clearcuts are presently being prescribed in spruce.

Localized infestations of mountain pine beetle in ponderosa pine and Engelmann spruce beetle have inflicted light losses for several years. A moderate infestation of spruce budworm is present primarily in Douglas fir on the Beaver District. Dwarf mistletoe infects much of the Douglas fir and ponderosa pine. Rots are common in old growth spruce and aspen.

c. Supply and Opportunity

The maximum long term sustained yield is 16.3 MMBF, consisting primarily of conifer species. This plan allows an annual harvest of 3.0 MMBF in the first decade and 8.3 MMBF during the balance of the planning period. The forest lacks a major market for aspen. Nearly 236 thousand acres of aspen may be managed for timber with development of a market. This could lead to intensive management of the aspen resource. Another potential intensive management opportunity is the use of genetically improved planting stock.

The Fishlake National Forest Firewood Management Action Plan estimates the fuelwood supply to be 1,076,680 cords, as follows:

TYPE	TOTAL CORDS
Dead	968,060
Activity Fuels	43,730
Annual Mortality	53,590
Livewood Available	6,300
Total	1,076,680

Average annual allowable sale quantity and timber sale program quantity for the first decade is shown in table II-14 .

TABLE II-14
ALLOWABLE SALE QUANTITY AND TIMBER SALE PROGRAM QUANTITY 1/
(Annual Average For First Decade)

Harvest Method	Allowable Sale Quantity 2/ Sawtimber (MM CF)	Other Products (MM CF)
Regeneration Harvest:		
Clearcut	.37	---
Shelterwood and Seed Tree		
-Preparatory cut	.22	---
-Seed cut	---	---
-Removal cut	---	---
Selection	---	---
Intermediate Harvest:		
Commercial Thinning	---	---
Salvage Sanitation	.01	---
Totals	.60	---

	Additional Sales 3/ Sawtimber (MM CF)	Other Products (MM CF)
Total for all harvest methods	---	2.4

Allowable sale quantity 0.6 (MMCF) 3.0 (MMBF) 4/
Timber sale program quantity 5/ 0.6 (MMCF) 3.0 (MMBF) 4/

1/ To be expressed to nearest .1 MM board and cubic feet.
2/ Includes only chargeable volumes from suitable lands.
3/ Includes only nonchargeable volumes from suitable and/or unsuitable lands.
4/ Based on local unit of measure.
5/ Total of allowable sale quantity and additional sales.

The estimated maximum amount of firewood that can be supplied on a sustained basis, once the dead accumulation is gone, is 108,620 cords. Based on these estimates, it appears that a continuous supply of firewood will be available for both personal and commercial users. Firewood near existing roadways has become scarce in some areas and this trend will continue.

Christmas tree harvest over the last decade averages about 6,000 trees annually. In the last three years annual Christmas tree sales have totalled nearly 10,000 trees.

Opportunity exists in a number of areas (particulary in isolated white fir stands) for management of Christmas trees. For several years the Fishlake has been a leading Forest in the Intermountain Region in Christmas tree sales and in dollar value received from these sales.

d. Demand

Average annual production of timber over the last 29 years is 1.7 MMBF. Within this period there have been large fluctuations in annual harvest, ranging from a high of 6.6 MMBF in 1973 to a low of 120 MBF in 1967. Demand for timber is expected to slowly increase throughout the planning period (Fishlake AMS page 55).

As a result of the recent energy concern and high energy costs, firewood consumption has increased considerably. The following table shows a continual increase in personal use firewood from 1977 thru 1982. In 1983 use leveled off, partially due to easing of the energy situation and users becoming aware that gathering their own fuelwood was not as inexpensive and recreational as they thought.

FREE USE PERMITS FOR FIREWOOD

YEAR	VOLUME (MBF)
1977	3,581
1978	3,579
1979	7,098
1980	5,476
1981	10,110
1982	11,140
1983	5,856*

* Charge firewood program in effect half the year produced 2,804 MBF for a total firewood harvest of 8,660 MBF in 1983. Based on this history, the demand for firewood is estimated at 17,000 cords annually (8,500 MBF per year).

All of the quality Christmas trees the Forest has offered for sale have been purchased. Therefore, the demand for Christmas trees exceeds 10,000 trees, but the exact amount is unknown.

e. Present and Future Condition

Growing stock inventory, annual net growth, and age class distribution for suitable softwood lands are shown in table II-15. The productivity classification in table II-16 contains a potential growth estimate of all suitable and unsuitable lands.

TABLE II-15
PRESENT AND FUTURE FOREST CONDITON
(SOFTWOOD *)

	UNIT	SUITABLE LAND
PRESENT FOREST:		
Growing stock inventory	MMCF	114.0
	MMBF	570.0
Annual Net Growth (Mortality loss included)	MMCF	.7
	MMBF	3.5
FUTURE FOREST (2035):		
Growing stock inventory	MMCF	58.3
Annual Net Growth (Mortality loss included)	MMCF	2.4

AGE CLASS DISTRIBUTION

AGE CLASS (YEARS)	PRESENT FOREST (1985)	FUTURE FOREST (2035)
10	1670	18166
20	--	10004
30	--	11462
40	--	3796
50	--	1670
60	128	--
70	--	--
80	--	--
90	6020	--
100	--	128
110 - 140	37796	6020
150 +	22358	16726
TOTAL	67972	67972

* Inadequate information available to determine for hardwood.

TABLE II-16
TIMBER PRODUCTIVITY CLASSIFICATION

Potential Growth (cubic ft/ac/yr)	Suitable Lands (acres)	Unsuitable Lands * (acres)
Less than 20	0	490,134
20-49	0	146,701
50-84	69,697	60,972
85-119	10,275	0
120-164	0	0
165-224	0	0
225 +	0	0
TOTAL	79,972	697,807

* Extrapolated

f. Rotation Ages

Rotation ages to be applied vary by timber class and silvicultural methods:

(1) Hardwood (aspen)	80 years
(2) Softwood	
Clearcut (artificial regeneration)	110 years
Clearcut (natural regeneration)	150 years
Two Step Shelterwood	120 years
Three Step Shelterwood	130 years

6. WATER

a. Water Yield

Forest land produces an average of 611,000 acre feet of water annually. Of this, about 80 percent is delivered to the Great Basin and 20 percent to the Colorado River Basin.

Demand for water in the Sevier and Colorado Rivers already exceeds supply. As population increases and development continues, patterns of water use will change. The potential of the Forest to increase water yield by feasible means is limited. Since the Fishlake has only scattered timber resources and much of its aspen type is on potentially unstable soil, the prospect of increasing water yield by vegetative manipulation (timber harvest) is very poor. In vegetative

types at lower elevations than the conifer and aspen belt, vegetativ manipulation lacks the potential to produce increased yield, as littl moisture is available in excess of evapo-transpiration demand fo these precipitation zones.

The maximum amount of water that can be produced would result from th complete removal of timber including both conifer and aspen on slope less than 40 percent. Available water would increase from 611,00 acre feet per year in 1980 to 636,000 acre feet per year in 2030 for total potential increase of 24,400 acre feet. This assumes the timbe vegetation would be kept from re-establishing and brush species woul be kept from invading. A complete timber removal program is no feasible. Therefore the actual production potential is much lower By implementing this plan, water yield might increase by 177 acre fee per year over natural through timber harvest. State and private land within the National Forest boundary supply about 57,300 acre feet o water annually. Per unit area yields are comparable to the yield produced from National Forest lands as the private and state lands ar located randomly within the Forest, except for the interior exclusion in the Salina Creek drainage.

b. Water Uses

Major uses of water produced on the Forest are irrigation, livestoc watering, domestic use, timber production, suitable flows for fisher ies, maintenance of riparian habitats, fire control, wildlife, recrea tion, and energy production. All water originating on the Forest i in high demand. It is used on the Forest, as well as downstream b non-Forest users. Eighteen local communities get all or part of thei municipal water from within the Forest boundary. Four other communi ties have water sources adjacent to the Forest boundary.

The reported consumption of water for domestic use in 1980 was 8,48 acre feet. By the year 2000 that volume is expected to increase t 17,570 acre feet per year. Proportional increases are expected fr 2000 to 2030. An additional unmeasured volume of water is used a campgrounds, recreation residences, resorts, and administrative site on the Forest. The demands for water for these uses are expected t be proportional to domestic use. Wildlife on the Forest consum additional water. Livestock grazing on the Forest requires 285 acr feet of water per year. This quantity is not expected to chang appreciably.

The newly constucted Intermountain Power Project will use 44,700 acr feet of water per year. The demands for other industrial uses ar expected to increase. These demands do not include instream flo needs.

No waters on the Forest have been classified as "Outstanding Natura Resources."

c. Water Quality

The nature of National Forest management makes it more susceptible to non-point sources of water pollution than to point sources. Grazing, timber harvest, and dispersed recreation all have the potential to contribute sediments and other pollutants to streams. Presently, the only known point source on the Forest is the SUFCo coal mine in Convulsion Canyon.

Monitoring has shown that water quality on the Forest is generally high. Water leaving the Forest meets State standards of quality for designated uses. Some water bodies within the Forest boundaries do not meet state standards for cold water fisheries, due to natural factors and management impacts. Sediment is probably the most common pollutant on the Forest. There is no state standard for this parameter.

With implementation of this Plan, soil loss will decrease as the long term goals of management activities are met. This will improve water quality and watershed condition.

d. Water Rights

Until the Membres River Decision, the Forest claimed use of needed water through the reservation doctrine, and very few water rights were established through State procedures. Since that decision, national direction has been to obtain water rights through established State procedures. Currently the Forest is participating in State water adjudications on the Beaver and Eastern Colorado River basins.

Approximately 2,500 water uses have been identified on the Forest. A Forest goal is to obtain valid rights to all water used. Statements of Water User's Claims to Diligence Rights are being prepared on all uses where this procedure is valid, and they are being submitted to the State Engineer. Where Diligence Rights are not applicable, water rights will be acquired by purchase or appropriation.

e. Instream Flows

The Forest Service Manual directs Forests to determine and obtain instream minimum flows in accordance with the reservation doctrine, where applicable. Where reservation is not applicable, water rights will be obtained in accordance with State law. Where neither the reservation principle nor State law can be used to secure a legal right to maintain instream flows, quantification of needed flows will be made as a basis for management decisions in future proposals for water diversions.

f. Wetlands and Floodplains

There are approximately 34,600 acres of riparian areas on the Fishlake National Forest. These lands were identified by interpretation of color and infrared aerial photography and transferred to 7 1/2 minute

quadrangle maps. Riparian areas and wetlands are important components of the landscape, both because of their sensitive nature, which is recognized in Executive Order 11990, and because of the wide variety of uses occurring on them. The need to manage these areas wisely will increase as populations of surrounding valleys increase, accelerating demands for water, recreation, and wildlife.

The condition of riparian areas on the Forest ranges from very poor to good. Causes of this variation are the location and use of individual areas.

The following table shows the disaggregation of the acreage of riparian areas:

RIPARIAN ACREAGES

RIPARIAN AREAS	ACRES
1. Wetlands	6,500
2. Aquatic Zones	4,400
3. Stream courses	
a. Conifer	7,300
b. Deciduous	11,600
c. Open	4,800
TOTAL	34,600

Executive Order 11988 defines floodplains as those areas inundated by 100-year floods. They occur along each drainage of the Forest and include bottomlands and alluvial fans at the mouths of canyons. Most of the Forest's floodplains have not been mapped. In general, they coincide with riparian areas, which have been mapped. Riparian areas will often be larger than floodplains, since the former extend 100 feet horizontally from either bank of a stream or body of water. In narrow canyons or along first order streams, 100-year floods will not extend this far.

g. Floods of 1983 and 1984

During the spring runoff periods of 1983 and 1984 the Forest sustained considerable flood and landslide damage. The water content of the snowpack in the spring of 1983 was about 500 percent of normal. That of 1984 was about 300 percent of normal. Further compounding the problem in 1983 was a cold spring season that delayed any gradual melting before hot weather arrived at the end of May. This resulted in floods on the main streams leaving the Forest which have an estimated 25-50 year recurrence interval. Not only the magnitude but also the two to six week duration of these floods caused considerable damage. Water levels in 1984 were not as high, but the removal of stream-side vegetation during 1983 led to higher than expected erosion and damage during the 1984 floods.

Not only did these two flood events differ in terms of their duration from the more common summer thunderstorm events, but they also differed in terms of increasing magnitude in the downstream direction. Since vast areas of a given watershed were contributing meltwater, as opposed to a few tributaries as in the case of a summer storm, the main streams leaving the Forest had higher magnitude events than did their tributaries. In many cases the valleys of these main streams also provide transportation routes onto the Forest. Road damage was in excess of four million dollars.

Rising groundwater tables and saturated soil conditions resulting from above average precipitation during 1983 and 1984 led to several hundred acres of landslides and debris flows. Studies (Godfrey in press) suggest that this amount of landslide activity has a 200 year recurrence interval. These landslides and debris flows not only damaged federally-owned facilities on the Forest, but also did several hundred thousand dollars worth of damage to Utah Power and Light power lines that cross the Forest.

The combined result of the flooding and landslides was considerable damage to roads, trails, recreation facilities, range facilities, watersheds and fisheries on the Forest. Over the two year period there was $4,145,000 damage to Forest roads and $200,000 damage to Forest trails that qualified for Emergency Relief to Federally Owned Roads from the Federal Highway Department. Damage to facilities and resources that was not covered by emergency funding is estimated as follows:

Recreation Facilities	$223,000
Range Facilities	67,000
Roads	500,000
Watershed	211,000
Fisheries	1,473,000

7. MINERALS

a. Mineral Land Suitability

1. Availability

Approximately 97% of the Forest is open to mineral exploration and development under the mining and leasing laws. The lands removed from appropriation under these laws and the lands which are encumbered or are being managed in such a way as to constitute a defacto withdrawal from mineral development are listed below.

a. Land withdrawn from operations of the mining law but not the leasing laws.

1.	Recreation sites	6,634
2.	Administrative sites	3,406
3.	Roadside zones	1,447
4.	Watershed protection areas	880
	SUBTOTAL	12,367

b. Land encumbered but not formally withdrawn from operations of the mining and leasing laws.

1.	Partridge Mtn. Research Natural Area	1,200
2.	Areas being studied for research natural area status (Bullion Canyon, Upper Fish Creek-Mt. Baldy, and Belknap Cirque)	3,100
3.	Areas determined as unsuitable for stipulated methods of coal mining.	None
	SUBTOTAL	4,300

c. Lands with reserved or outstanding rights 4,072

TOTAL 20,739

No Forest lands are constrained or removed from mineral appropriation by special legislation.

1. Capability

The Forest Service does not determine which areas are capable of mineral or energy production. Present technology and economics preclude extraction of some known mineral deposits. The Forest cannot predict new uses or needs for various minerals or mineral commodities. The difficulty in predicting where new mineral deposits may be found leads to the conclusion that areas capable of mineral or energy exploration and development may someday include the entire Forest regardless of the present status of the lands.

3. Suitability

Special designations and conditions present may allow mineral activities only with certain types of restrictions. Exploration for and production of minerals and energy resources from available acreage may be further reduced through stipulations and requirements to protect other resources and uses.

The physical characteristics and known resource needs of an area are used to determine constraints to be applied in future activities. After environmental assessments are complete, restrictions may be imposed on mineral activities to protect wildlife, soil, steep slopes, water quality, and visual resources.

b. Current Management Direction

The policy of the Forest is to integrate the development of mineral resources with the use and conservation of other Forest resources.

The Mining Law of 1872 consolidated earlier laws and established the rights of citizens to explore, claim, and mine certain minerals wherever they are found on public domain lands. This includes National Forest lands which have not been withdrawn. The minerals covered by this law are called locatable minerals. Congress removed certain minerals from the jurisdiction of the 1872 law and made them leasable minerals under the Mineral Leasing Act of 1920, the 1947 Mineral Leasing Act for Acquired Lands, and the 1955 Multiple Surface Use Act. The Materials Act of 1947 and the 1955 Mining Act gave the Forest Service the authority to sell certain common minerals (sand, gravel, and similar materials) called "saleable minerals".

All minerals owned by the United States and available for exploration and development are subject to disposal under one of these three categories--locatables, leasables or saleables.

For locatable minerals, any person proposing to conduct operations that might significantly disturb a surface resource must file a Notice of Intent and an Operating Plan with the District Ranger.

Permits, licenses, or leases for leasable minerals (oil, gas, coal, geothermal, phosphate) are issued by the Department of Interior. The Forest has the opportunity to perform environmental analysis, recommend action, list stipulations, and propose requirements for rehabilitation. On acquired lands, the Forest Service has authority to deny permits, licenses, and leases.

Saleable minerals are managed by the Forest Service. Permits are issued for use of these materials in accordance with Forest Service policy.

c. Current Situation

The Forest includes parts of two physiographic provinces--the Basin and Range and the Colorado Plateau Provinces. As presently recognized, the Tushar Mountains, Pahvant Range, and Canyon Mountains are within the former province and the remainder of the Forest within the latter.

Principal mineral deposits in the Basin and Range Province are arranged in three zones or belts, one of which crosses the Forest and runs through the Tushars and southern part of the Sevier Plateau. This mineralized area is the eastward continuation and terminus of the mineral belt extending westward through Beaver County, Utah, and into the Pioche region of Nevada. The rock types and structures are favorable for metallic deposits because of igneous intrusive bodies. Five of the six mining districts within the Forest are located within this belt. The sixth is located at the north end of the Forest in the Canyon Mountains.

In contrast to the complex geologic structures and deposits present in the Basin and Range Province, the mineral resources of the Colorado Plateau Province are primarily those associated with sedimentary rock.

Following is a discussion of the various categories of minerals on the Forest.

1. Locatable Minerals

Significant amounts of gold, silver, copper, lead, zinc, mercury, alunite, uranium and sulfur have been produced mainly from the Tushar Mountains. During the period of 1868 through 1963, a total gross value of about ten million dollars, based on December, 1965, prices was produced by these commodities. Unknown amounts of lead, silver, limestone and dolomite have been produced from the north end of the Forest in the Canyon Mountains during the same period. Activities for hardrock minerals have increased from 59 cases in 1977 to 97 in 1981.
Presently, limestone, shale, and quartz are being mined by open pit methods in the north part of the Canyon Mountains near Leamington. Starting in 1980, approximately one million tons of raw materials per year have been mined and used to produce an annual amount of approximately 650,000 tons of portland cement. Operations are expected to continue until 2025. The plant and mine is the largest cement producing operation in Utah and will provide cement for use throughout the West.

Gold, silver, copper, lead, and zinc are being produced in small amounts from the Bullion - Cottonwood and the Kimberly areas of the Tushar Mountains. Ore production during 1981 was between 7,000 and 8,400 tons. A total of 31 operating plans for prospecting and exploration for precious metals were processed during 1981. Prospecting and exploration for uranium occurred at 34 places on the Forest during 1981.

An uncommon form of kaolin clay is mined from three sites within the Forest. Two of the sites are located in the Mill Creek drainage on the north end of the Tushars and the third is near Box Creek. Mining is by open pit methods and has occurred during the past 12 years. Approximately 3,000 tons of material were removed from one of the Mill Creek pits during 1981.

Dendrite is being mined at the rate of 5 to 10 tons per year in the North Fork of North Creek drainage on the west side of the Tushars. Activity has been occurring for about 5 years.

Other mineral commodities, including alunite, fluorspar, molybdenum, sulfur, and gypsum, have generated prospecting and exploration activities in the Tushars and the Sevier Plateau areas. A total of 20 operating plans associated with these minerals were processed in 1981. No revenues to the Federal Government, in the form of rental fees or royalties, are generated by the locatable minerals. The 1872 Mining Law provides that: "..all valuable mineral deposits in lands belonging to the United States...shall be free and open to exploration and purchase...".

2. Leasable Minerals

Coal is the only leasable mineral produced on the Fishlake. Coal resources within the Forest underlie the southeast edge of the Wasatch Plateau and are included in the Salina Canyon coal field and portions of the Wasatch Plateau and Emery coal fields. The reserves are approximately 1693.6 million tons, which underlie approximately 220,527 acres within the Forest. Forest lands identified as potentially minable but presently not leased for coal development are approximately 81,534 acres. These potentially minable lands contain an estimated reserve of 1,515 million tons which are recoverable by underground mining methods. The coal quality is described as low sulfur and low to medium ash. (See "Coal Lands Review and Fishlake National Forest", April, 1984 in Appendix O).

There is one active coal mine on the Forest at the present time, located in the Convulsion Canyon area of the Wasatch Plateau. It produces 2.2 million tons per year and production is expected to continue until 2005. It has five Federal coal leases covering a total of 6,773 acres. About 5,860 acres are administered by the Fishlake National Forest, 743 acres by the Manti-LaSal National Forest, and 164 acres by the Richfield District of the Bureau of Land Management. Approximately 640 acres of fee land (coal and minerals privately owned) is connected with the operation.

Even though no other coal mines are active at this time, an additional 12,214 acres of the Forest are under lease to two energy companies. Core drilling operations are presently being conducted by these companies. The U. S. Geological Survey is conducting a continuing drilling program to define the coal resources of unleased lands. An average of 32 holes per year have been drilled since 1977 on the Forest.

Coal activity planning, in preparation for additional lease sales, i being done in coordination with the Bureau of Land Management. Thr lease tracts involving about 423 acres of the Forest were evaluated i the Uinta-Southwestern Utah Coal Region Environmental Impac Statement.

Total receipts from coal lease conveyances, including bonus payments royalties, and rentals for fiscal year 1981, were $1,351,520.

Much of the Forest has a moderate potential for oil and gas, particu larly the overthrust area of the Basin and Range Province. Over 1. million acres or 85 percent of the Forest was under lease for oil an gas development as of 1981. The major blocks of land not under leas are the upper elevations of the Tushars, Thousand Lake Mountain, ar the area east of Bicknell, Utah. During the five year period o October, 1976, through September, 1981, an average of 52 leases pe year were issued for the Forest. The average for the previous fiv year period was 80.

Oil and gas exploration has been by surface seismic methods or sho holes less than 100 feet deep. An average of 267 miles of seismi exploration per year was permitted between 1977 and 1981. Thi involved an average of 16 permits per year. Fifty-two percent of th seismic surveys are in the Pahvant and Canyon Mountains, 23 percen each on the Fishlake and Wasatch Plateaus, and 2 percent on the nort end of the Tushars.

Since 1958, 15 wells have been drilled on the Forest. None are prc ducing wells. Funds generated from oil and gas activities (leas rental fees and prospecting permits) for fiscal year 1981 totale $880,415.

The potential for geothermal resources exists in an area of the Fores beginning in the Cove Fort-Sulphurdale area and extending eastward t the west edge of the Sevier Plateau near the town of Monroe. Sixtee leases containing 22,728 acres of Forest land occur in Cove Fort-Sul phurdale area and one lease containing 707 acres of Forest land i present in the Monroe area. These leases were issued in 1975 for term of 20 years. Applications for adjoining lands are presentl being evaluated.

A considerable amount of geophysical exploration, including dee wells, was conducted in the Cove Fort-Sulphurdale area between 197 and 1979 in quest of geothermal resources. In one well hot water wa discovered and tested to have a high potential for low temperatur non-electrical application. A second well hit hot water but was no tested for production. A third well was abandoned because of drillin problems.

In 1983 and 1984 three wells were drilled near Sulphurdale. Hig pressure steam was hit at a depth of 1,170 feet. These wells ar being tested and plans are being developed to generate electricit with the steam.

No geothermal activities other than casual exploration have occurred on the Forest near Monroe. Two deep wells drilled outside the Forest near Monroe in 1979-1980 tested favorably for use in heating and other direct applications. No utilization of the resource has been made.

The money paid into the U.S. Treasury for geothermal lease rental fees for fiscal year 1981 totalled $23,435.

In 1977 the Forest received several applications for prospecting permits for potassium. There has been no follow up on these applications.

3. Saleable Minerals

The Forest contains significant amounts of sand and gravel, building stone, and light-weight aggregate. The amount of sand and gravel removed in selected years and their estimated values follow:

1977	$ 243	7,300 Tons
1978	$ 89	2,670 Tons
1979	$6,235	187,060 Tons
1981	$ 78	2,350 Tons

Presently, there are six permits authorizing removal of up to a total of 65,000 cubic yards per year. Of these only one is a commercial permit where the material removed is for resale. The remainder of the material has been removed by Federal or State agencies without charge for use in road construction and maintenance.

Small amounts of building stone are sold each year from various sites around the Forest. No large-scale or commercial operations exist.

A light-weight aggregate is abundant in the Clear Creek Canyon area. Large amounts are being used in construction of I-70 through the canyon.

d. Future Demand

The U.S. Bureau of Mines estimates mineral demand will increase until the year 2000. This is coupled with an increasing need for the demand to be met domestically. Prediction of mineral activity is risky and can be inaccurate. Confidential company information, economics, changing concepts of mineral localization, new techniques of exploration, and other factors can bring exploration to a new area or shift it from an existing area.

1. Energy Minerals

Coal activity is expected to increase gradually in the future. Addi tional leasing is expected in the northeast corner of the Forest a indicated from the expressions of interest received for that area i January, 1982. The existing, non-producing leases on the Forest ar expected to be in production by 1990. Considerable oil and gas acti vity is expected through 1997. On the ground activity has include the entire Forest, except for the Tushar Mountains. Most seismi prospecting has been on the Pahvant and Canyon Ranges.

The Cove Fort-Sulphurdale and the Monroe-Joseph areas have bee designated as Known Geothermal Resource Areas (KGRA's). Activity i and adjoining these KGRA's is expected to increase as technolog improves and the extent of the resource is defined.

Uranium occurs in the Tushar Mountains. Continued exploratory work i expected due to the recent U.S. Geological Survey report indicatin the area has high potential for uranium.

2. Non-Energy Minerals

High prices and increased demand for gold and silver have renewe interest in these precious metals. The Tushar Mountains have both, found in association with lead, zinc, and copper. Continued smal scale activity is expected.

Base metal occurrences, particularly if accompanied by precious metal, will continue to attract exploration interest to their vicinity. It is expected the Tushar Mountains will be impacted by this trend until 1990.

Demand for molybdenum is predicted to be high, which might lead tc activity in the Tushar Mountains.

Demand for limestone, sand and gravel, crushed stone, kaolin clay and lightweight aggregate is expected to continue.

Demand for gypsum from the Forest is not expected to materialize within the near future due to more accessible deposits of considerable size outside the Forest.

8. PROTECTION

a. Fire

1. Existing Situation

The present fire management policy requires suppression of wildfires on all areas of the Forest, with the exception of those occurring within the Beehive Peak Fire Management Area. Under specified conditions, fires in this area may be managed according to prescription, to accomplish predetermined objectives. The Fire Management Area covers 275,000 acres of the Fillmore Ranger District. The ten year average (1974-1983) fire occurrence is 35 fires per year (26 lightning and 9 man-caused). The average annual acreage burned during that period was 3,134 acres.

The Forest's fuel management program is relatively small due to the low fuel loading and abundance of natural fuel breaks. Fuel reduction is accomplished primarily through the use of planned ignitions under prescribed fire conditions. Prescribed fire is also used to accomplish wildlife habitat improvement (increasing habitat diversity and available palatable forage), range improvement (increasing palatable forage), and insect and disease control.

2. Expected Future Situation

The number of fires is expected to increase in the future because of increased use of the National Forest for recreation, wood gathering, and mineral related activities.

Although the Beehive Peak Fire Management Area Plan will no longer be valid when the Forest Plan is implemented, the application of predetermined prescriptions for management of fires will increase. Prescriptions to deal with fires which occur as a result of unplanned ignition have been prepared for a much greater area of the Forest than that previously covered by the Beehive Peak Plan.

b. Air Quality

1. Existing Situation

The National Clean Air Act requires that airsheds be designated under one of three classes:

Class I - Only minor air quality deterioration
Class II - Permitted moderate deterioration
Class III - Permitted deterioration up to National Ambient Air Quality Standards

Presently, all of the Fishlake National Forest is designated as Class II. Air quality is managed on the Forest to ensure compliance with the Clean Air Act Ammendment of 1977 (PL. 95-95). The Forest Service's responsibility in this regard is to protect air quality and related values.

Air quality on the Forest is generally excellent. At times during the dry summer months, vehicular traffic produces dust which temporarily reduces the air quality. Smoke impact from fires is slight, since most are small and burn a short time.

The State of Utah has been divided into three air quality basins for purposes of using the clearing index system. The Forest is included in areas 1 and 3. Area 1 includes those valleys less than 6500 feet above sea level, west of the Wasatch Mountain Range, and extending south through the Wasatch and Aquarius Plateaus to the Arizona border. Area 3 includes all valleys and areas more than 6500 feet above sea level.

Air quality data for each of these areas is obtained from the following sites:

Area 1 - Salt Lake City Airport and Chalk Creek Weather Station

Area 3 - Remote Automated Weather Station east of Monroe, Utah

The present Utah Air Conservation Regulations require a clearing index of 500 or greater before prescribed burning can occur.

2. Expected Future Condition

Future air quality is not expected to decrease significantly on the Forest. The increase in wood burning for home heating in communities adjacent to the Forest will have a minor effect. A large coal fired power plant, the Intermountain Power Project, is presently under construction 11 miles north of Delta, Utah. The impact of this plant on the air quality of the Forest should be minimal due to the prevailing southwesterly winds. Occasionally, wind patterns may shift to the northwest and north, which may carry pollutants over the Forest. The environmental impact statement for that project states that emissions will not exceed existing Class II Air Quality Standards.

Management activities may cause a temporary change in air quality. The change will be in the form of increased dust, odor, and smoke. None of these activities is expected to cause a violation of State Air Quality Standards.

c. Insects and Disease

1. Existing Situation

Insect and disease occurrences continually pose a threat to timber and range resources of the Fishlake National Forest. Although most occurrences have been endemic, localized, and of short duration, the Engelmann spruce beetle, mountain pine beetle, dwarf mistletoe, and a number of decay pathogens have caused considerable damage. Dwarf mistletoe continues to reduce growth and inflict some mortality in Douglas fir and ponderosa pine. Heart rots are causing deterioration in many overmature Engelmann spruce and aspen stands.

Pest outbreaks that affect rangelands are not frequent. They usually occur in localized areas and are easily detected in the early spring. Two major insect pests that affect rangelands are the Mormon cricket and the grasshopper. Infestations have been treated only in areas where they have reached epidemic proportions.

2. Expected Future Condition

Insect and disease damage is expected to remain at present levels.

The Forest's vegetative diversity minimizes epidemic insect and disease losses. The largest uniform timber types are aspen and Engelmann spruce. Insects and diseases which might cause extensive losses within these types are of foremost concern. Proper timing for treatment of logging and road building debris and the maintenance of species diversity through cultural treatments will reduce the danger of insect build-up. Other preventative measures which will be taken include surveys to detect and monitor insect and disease activity and commercial and precommericial thinning. More information concerning the prevention and control of root, butt, and bole rots is needed.

d. Law Enforcement

The Forest Service is charged with enforcing Federal laws on National Forest System land. This responsibility cannot be delegated to state or local law enforcement agencies. Forest personnel cooperate with state and local officials in enforcing state and local laws. The Sisk Act provides authority to reimburse local law enforcement agencies for the protection of persons using National Forest System lands.

1. Existing Situation

Personnel on the Forest have minimal law enforcement training. Vandalism to property and equipment is frequently not promptly reported nor adequately investigated. Fuelwood, post, pole and Christmas tree loss is considerable. Vehicle use in closed areas, littering, and archeological artifact theft and destruction are common.

2. Future Situation

The Fishlake Forest Law enforcement situation will include:

a. Forest employees better trained in law enforcement.
b. Improved reports and statistic keeping.
c. Increased risk to Forest personnel collecting and transporting greater amounts of user fees.
d. Increased probability of theft from collection boxes.
e. Increased resource damage caused by off-road-vehicles.
f. Insufficient facilities to accommodate increasing numbers of visitors will contribute to increased conflicts between visitors and increased resource damage.

g. Trespass onto National Forest System lands by adjoining land owners and others.
h. Continuing thefts of Forest products.

9. LANDS

a. Existing Situation

1. Classification

The following (Table II-17) shows the distribution of ownership of lands within the Fishlake National Forest by county:

TABLE II-17
DIVISION OF OWNERSHIP OF LAND IN
FISHLAKE NATIONAL FOREST BY COUNTY

County	National Forest Land (Acres)	Private & State Inholdings (Acres)	Total
Beaver	137,906	6,393	144,299
Garfield	3,344	0	3,344
Iron	2,297	0	2,297
Juab	20,788	21	20,809
Millard	306,956	14,421	321,377
Piute	188,787	15,320	204,107
Sanpete	1,941	0	1,941
Sevier	685,551	64,975	750,526
Wayne	76,909	79	76,988
TOTAL	1,424,479	101,209	1,525,688

2. Research Natural Areas (RNA's)

The Fishlake National Forest now administers one established Research Natural Area (Partridge Mountain). This area of 1200 acres is located in the Canyon Range in the northwestern portion of the Forest. It was established in 1979 and represents Society of American Foresters Types 210 (Interior Douglas fir) and 239 (Pinyon-juniper). Kuchler types 20 (Spruce-fir - Douglas fir forest), 23 (Juniper-pinyon woodland) 37 (Mountain mahogany-oak scrub), and 38 (Great Basin sagebrush) are also represented.

3. Land Exchange, Rights-of-Way, and Landline Location

a. Land exchange - From the mid 1970's through fiscal year 1984, the Forest has acquired 3,390 acres through the land exchange program while disposing of 3,032 acres. During the same period 5.5 acres were acquired through donation.

b. Rights-of-Way - The Forest right-of-way program has been very active in recent years. Since 1981, some 133 rights-of-way have been acquired. These are classified as:

1. Acquired outright through purchase or donation - - 9
2. State of Utah assignment - - - - - - - - - - - - - - 1
3. Other than linear (Repeater sites) - - - - - - - - 2
4. County declarations- - - - - - - - - - - - - - - - - 115
5. Land exchange program- - - - - - - - - - - - - - - - 6

c. Landline Location - Most of the property lines between National Forest and other ownerships have not been resurveyed and posted to National Forest standards. Accomplishment has been completely dependent upon available funds. In the period 1979 through 1981, 28 corners were remonumented and 31.6 miles of boundary line were resurveyed and posted.

4. Special land uses

As of early 1982, there were 384 special use permits on the Forest, of which 79 were free-use. These permits authorize use of 7,454.2 acres and 1,186.4 miles of rights-of-way. They vary in size from 0.1 acre to 625.6 acres, and 0.1 mile in length to over 51.9 miles. Improvement values range from less than $100 to more than $3,000,000. Uses are by individuals, interest and sports groups, corporations, cooperatives, and public agencies.

STATUS OF LAND USE ACTIVITIES
as of NOVEMBER 1983

Type	Cases	Acres	Miles
Agriculture	10	352.2	.1
Industrial Uses	23	205.7	54.5
Recreation Uses	137	162.6	.0
Research, Study & Training Uses	7	81.3	.0
Transportation Uses	34	2,483.7	108.5
Utilities & Communication Uses	68	1,928.7	214.4
Water Uses	105	2,240.0	145.0

There are also three existing Federal Energy Regulatory Commission (FERC) licenses for hydroelectric power plants. There are two pending FERC applications for exemptions from licensing for hydro projects. If exemptions are granted, these activities will be covered by special use permits.

b. Expected Future Situation

1. Classification

It is expected that the present land ownership pattern will not change significantly. No major Forest boundary changes have been proposed. However, boundary changes between National Forest and Bureau of Land Management lands have been discussed. Should these changes materialize, significant increases in National Forest ownership would occur.

2. Research Natural Areas (RNA's)

Two areas in the Tushar Mountains are being evaluated for inclusion in the Research Natural Area program. Both areas represent alpine, subalpine and mountain systems. A draft establishment report has been prepared for Bullion Canyon and another is being prepared for Upper Fish Creek.

a. Bullion Canyon. Approximately 1380 acres in portions of sections 6 and 7, of T.28S.,R.4W., and in sections 1, 2, 11, 12, 13, and 14 of T.28S.,R.5W., Salt Lake Meridian.

b. Upper Fish Creek. Approximately 1720 acres in portions of [protracted] sections 28, 29, 32, 33, and 34 of T27S R5W, and [protracted] sections 4 and 5 of T28S R5W, Salt Lake Meridian.

3. Land Exchange, Rights-of-Way, and Landline Location

a. Land Exchange - The land exchange program is expected to increase substantially in the future. Although exchanges for private lands will remain close to the present level, exchanges with the State of Utah are expected to increase. Most of the 30,000 acres of State of Utah lands within the Forest boundary are in blocks of 640 acres or less which are surrounded by National Forest lands.

b. Rights-of-Way - The Forest right-of-way program is expected to remain at its present high level until rights-of-way are acquired to cover all existing roads on the Forest Development Road system. Most of these should be acquired early in the planning period. The program will decrease substantially once the backlog is eliminated.

c. Landline Location - The landline location program will increase substantially. The program will be designed to eliminate the large backlog of unposted boundaries. Because of the uncertainty of funding in this area, no prediction for completion of the program can be made.

4. Special Land Uses.

It is expected that demand for special use permits will continue to increase, especially in energy, transportation, water, and industrial uses. The increase is a function of development of private lands within the Forest and energy developments.

10. SOILS

a. Existing Situation

The history of soil condition closely parallels the history of grazing use. Grazing by domestic livestock reached a peak during the period 1890 to about 1910. The mountain ranges were heavily overgrazed, resulting in devastating floods. With the creation of the Forest Reserves in the early 1900's, a control on grazing was started. Soils previously subjected to severe erosion by heavy grazing eventually began to respond and produce more forage. Since the early 1900's, soils and vegetation have improved in condition.

During the 1950's and 60's, some of the areas still not satisfactorily recovered were treated to hasten recovery. Treatments included seeding, contour furrowing and trenching, Dixie harrowing, and elimination of livestock use.

Problem areas and conditions still exist, but overall the soils and vegetation have improved remarkably from the conditions present in the early 1900's. Table II-18 shows the results of a recently completed watershed condition inventory which identifies areas needing remedial work:

TABLE II-18
WATERSHED CONDITION INVENTORY

District	Acres Identified On Aerial Photographs	Acres Field Verified	Remaining Acres to be Verified
Fillmore	3,510	2,700	810
Loa	10,525	6,825	3,700
Beaver	2,883	2,883	0
Richfield	9,584	3,070	6,514
Total	26,502	15,478	11,024

The acres delineated are areas immediately adjacent to gully networks identifiable through area photo interpretation. Sheet erosion and unstable streambanks are not evident on aerial photos and have not been completely inventoried. When these areas are checked on the ground, acreages will undoubtedly increase.

The major cause of the deteriorated watershed condition on the Fores is overgrazing. Approximately 95 percent of the inventoried acreage requiring soil restoration is the result of overgrazing. combination of restoration structures, reseeding, fertilization, an grazing adjustments is needed to restore and protect the soil an water resources. In addition, proper stocking rates are bein established. Protective fencing is provided on some treated area together with deferment of grazing until vegetative cover i established.

Regulations require the quantification of soil loss or sedimentatio in development of this plan. These result in approximations whe dealing with a unit of land as large as the Forest. Analysis area were established by stratifying by major vegetative types and tw slope classes. Average current rates of soil loss were determined an expressed for each vegetative type and slope class. These data wer then entered in the FORPLAN model to compute total soil loss pe decade. A preliminary list of threshold rates was established as Forest Standard. Future changes in soil loss resulting from change in management can be evaluated against this standard. The threshol values will be validated by monitoring.

Table II-19 gives the summation of soil loss by vegetation type and slope for the Forest.

TABLE II-19
SOIL LOSS BY VEGETATIVE TYPE AND SLOPE CLASS

Vegetative Type	Slope	Acres	Soil Loss Yds3/ac/decade	M Yds3/decade	Ac.Ft/decade
Ponderosa Pine	All	13,000	30	390	242
Meadow	<40	17,000	20	340	216
Conifer	>40	57,000	10	570	353
	<40	70,000	5	350	217
Sage/grass	>40	235,000	40	9,400	5,828
	<40	33,000	30	990	614
Mtn. Brush	>40	180,000	30	5,400	3,348
	<40	152,000	25	3,800	2,356
Aspen	>40	186,000	10	1,860	1,153
	<40	81,000	5	405	251
Pinyon-Juniper	>40	256,000	50	12,800	7,936
	<40	114,000	40	4,560	2,827
Barren	>40	28,000	60	1,680	1,042
Total Soil Loss				42,545	26,383

The soil and water resource improvement targets established by the Region are as follows:

Year	1981	1982	1983	1984	1985	1986 1992	1991- 2000	2001- 2021	2011- 2020	2021- 2030
Acres	160	252	344	436	526	506	485	482	480	479

Current soil restoration outputs are below the Regionally assigned output levels. It is highly unlikely that these targets can be achieved under the plan that is being implemented.

b. Future Situation

By implementating this plan, soil conditions will improve. This will result from the use of improved grazing standards and guidelines, additional protection for riparian areas, soil and water treatments on high priority watershed areas, and range structural and non-structural treatments. On-site soil losses will be reduced through improved ground cover, which should decrease overland flow with associated sheet and rill erosion.

11. FACILITIES

a. Present Situation

Facilities on the Fishlake National Forest include roads, bridges, administrative sites, buildings, dams, and water and sanitation systems. They require considerable time and money for operation and maintenance. There has been large investment in these facilities to enable the development, protection, and use of Forest resources.

1. Roads

There are approximately 1,408 miles of system roads on the Fishlake National Forest. In addition there are 2 to 3 times this mileage of non-system roads and wheel tracks. The non-system mileage increases annually. The Forest's transportation system includes roads, trails, bridges, and major culverts. The present system is substandard. Much of the system received additional damage from the floods of 1983 and 1984. Steep grades, sharp curves, variable widths, rough surfaces, inadequate sight distances, few passing areas and turnouts, inadequate drainage and lack of surfacing material are characteristics of the existing system. Lack of comprehensive planning and a lack of maintenance are additional problems.

The roads are classified as arterial, collector, or local, depending upon their uses and the land area accessed by them. Standards vary from relatively high speed, double lane asphalt to natural surfaced single lane roads suitable for four wheel drive vehicles. Access to the Forest is generally fair to good, as most areas are within three miles of some type of road. Access is limited during the winter and spring by mud and snow. Heavy use is made of the system during holidays, weekends, and hunting and fishing seasons.

Basic road types are:

Type of Road		Classification	
Primitive	930 Miles	*Arterial	262 Miles
Graded & drained	414 Miles	Collector	349 Miles
Gravel surfaced	30 Miles	Local	797 Miles
Hard surfaced	34 Miles		
	1,408 Miles		1,408 Miles

* Includes State and Federal Highways.

The miles of non-system roads have never been maintained. Most of these roads are causing resource damage, are hazardous to travel, and should be closed.

Proposed mileage and priorities for construction and reconstruction of the arterial and collector roads on the Forest are shown in Appendix J, assuming a 40 year rotation life of a given facility. Costs for a replacement schedule of this magnitude would be too large for present budgets and would depend on funding from outside the normal Forest allocations.

Approximately 700 miles of collector and local roads are maintained annually. About 300 miles of collector roads are in such poor condition that they cannot be adequately maintained. With the exception of recently constructed timber purchaser and oil and gas roads, most local roads are primitive, poorly located, and difficult to maintain. They will continue to deteriorate, cause resource damage, and become a safety hazard. Many should be reconstructed. Others should be closed.

Usually only 2-4 miles of local road are constructed each year, while up to 2 miles of the collector system are reconstructed or receive heavy maintenance annually. The remainder of the system is deteriorating because of inadequate maintenance.

The Forest has 28 bridges and major culverts on the inventory. Twelve of the bridges are new or in good condition and need only minor maintenance. Ten need repairs or maintenance. Six need to be replaced. Two new bridges need to be built. Several bridges and culverts have been damaged or destroyed by recent floods and are scheduled for replacement.

2. Administrative Sites, Buildings and Support Facilities

Most structures on the Forest are classified as administrative, are over 40 years old, and are of wood construction. They have been kept in fair to good repair over the years.

More emphasis is being placed on maintaining guard stations to save on travel costs. Maintenance is limited to health, safety, and energy items on high-use sites. Most buildings have deficient electrical and

culinary water systems. Currently only one of twelve sites has a system meeting current state standards for culinary water.

3. Dams

There are 54 dams on the Forest. These range from small structures for flood control, irrigation and electrical generation to major reservoirs. Most of these dams are on special use permit and are maintained by the owners. The Forest Service and the Utah State Engineer's Office cooperate on the inspection of these dams with permittees doing the necessary maintenance. No new dams are contemplated at present, but several modifications of existing structures are underway or programmed. This includes restoration for safety and resource protection of several dams recently breached.

4. Trails

There are about 900 miles of system trails on the Forest plus a number of non-system trails. Most are in need of improvement to correct erosion problems. Many trails on the recreation system are used primarily for livestock movement, which is causing damage. Severe damage has occurred to many trails due to the 1983 and 1984 flooding. The Forest has applied for emergency funds to make needed repairs.

5. Water Systems

The Forest has 31 inventoried sites with culinary water systems. Most culinary systems are in need of major reconstruction to comply with current state standards. Six of these systems are being rebuilt as part of the Job's Bill program. In addition there are a large number of range water systems for livestock and wildlife use. More of these systems have been built in recent years. These systems have opened new areas for livestock production and help distribute livestock more evenly on the Forest.

6. Solid Waste Disposal

Currently the Forest operates a system of solid waste collection and disposal. A 25 cubic yard packer truck collects waste from recreation and administrative sites for disposal at a central land-fill near Richfield, Utah.

7. Sanitation Facilities

Forest operation of recreation sites has prompted development of sanitary facilities to prevent pollution of water and soil and provide user comfort and privacy. Most of these facilities are in developed recreation sites although some are in dispersed recreation areas. Considerable investment has been made in facilities to handle human waste in a manner meeting State and Federal standards. Maintenance is expensive but necessary.

8. Radio and Communication Sites

The Forest is currently upgrading its communications system. Several new repeater sites are being built for a microwave system that is being installed. Development and maintenance of these sites is not considered to be a major impact on existing lands since most access is already developed and the actual sites are quite small.

b. Future Situation

1. Roads

Proposed mileage and priorities for construction and reconstruction of the arterial and collector roads on the Forest are shown in Appendix J assuming a 40 year rotation life of a given facility. Costs for a replacement schedule of this magnitude would be too large for present budgets and would depend on funding from outside the normal Forest allocations.

No new arterial or collector roads will be constructed in the first decade. After the first decade only 1 mile will be constructed in each future decade. However, many existing arterial and collector roads will be improved to meet demands through road betterment. About 13 miles of road betterment is planned to be accomplished annually in the planning period. Some local roads will also be included in the betterment program.

Local road construction will be limited to about 1 mile for the first decade and slightly more in the other four decades. Timber purchaser road construction will amount to six miles per year during the first decade. As the timber program increases in the remaining decades, purchaser road construction will increase proportionately.

Maintenence needs will be determined through a traffic monitoring program.

2. Administative Sites, Buildings, and Support Facilities

Several new buildings will be constructed to house communications equipment. Also, increased work space, office space, housing and warehousing space will be needed to accommodate increased activities.

3. Dams

No new dams are contemplated, but reconstruction and enlargement of eight existing dams is planned to improve fisheries and recreation opportunities. These projects will increase potential water storage in the project area. There will be localized ground disturbance and increased soil erosion at borrow sites while these projects are being completed. Borrow areas will be revegetated as quickly as possible to minimize long term effects.

4. Trails

About one mile of new trail will be reconstructed or constructed annually during the first decade. This will increase to 2.5 miles per year in subsequent decades. The planned increase in trail maintenance activity and the planned construction and reconstruction program should accommodate projected demands for dispersed recreation. Trails used primarily for the movement of livestock will be inventoried and managed as range facilities.

5. Water systems

All Forest Service owned culinary water systems will be improved to comply with current standards for safe drinking water during the first decade.

6. Other

Other facilities, such as sanitation and communication systems, will be expanded to meet anticipated needs.

12. ENERGY TRANSPORTATION CORRIDORS

a. Current Situation

Table II-20 lists rights-of-way for transmission lines over 66 kilovolts (kV) that pass into or through the Forest. No rights-of-way exist on the Forest for oil, gas or coal slurry pipeline over 10 inches in diameter; interstate communication lines or electronic sites; or railroads.

Federal, State, and Interstate highways crossing the Forest are listed in Table II-21.

As per Regional plan direction, if a transportation, transmission, or pipeline route is to serve an end use on the Forest, they are not considered potential corridors. Strips of land may be designated energy corridors when they contain existing rights-of-way and have the potential for future energy transmission systems.

Tables II-22 and II-23 provide analysis of existing energy and transportation rights-of-way.

b. Future Demands

Demands for expansion of existing transportation and transmission rights-of-way or the designation of new rights-of-way on the Forest are based on the Western Regional Corridor Study for the State of Utah. (May 1, 1980).

From the present to year 1990, the utility companies involved in the corridor study have proposed the following energy transportation additions to existing transportation and transmission right-of-way locations on the Forest:

- One coal slurry pipeline within or adjacent to the Interstate 70 right-of-way in Salina Canyon.

- One coal slurry pipeline adjacent to the Sigurd-Cedar City 230-kV transmission line right-of-way portion located south of Beaver, Utah.

- One 345-kV transmission line from Lynndyl, Utah, to Mona, Utah, via Leamington Pass.

- One natural gas pipeline within and/or adjacent to the Interstate 15 right-of-way at Scipio Pass; and

- One 230-kV transmission line adjacent to the Sigurd-Cedar City 230-kV transmission line right-of-way.

These proposed energy transportation rights-of-way could meet the expansion criteria for proposed designated corridors as presented on Tables II-22 and II-23 i.e., the proposed transportation facilities could be constructed within the corridor designations as stated in Tables II-22 and II-23.

From the present to year 1990, one new energy transportation corridor has been proposed for the following uses and location:

- One 69-kV transmission line from the Sigurd-Emery 345-kV line to the Skutumpah Coal Mine.

The location follows an existing 25-kV line up Convulsion Canyon to the Acord Lakes area. The proposal is to upgrade the existing line to 69-kV and extend it to the Skutumpah Mine. The line would serve two coal mines and a summer home area.

The utility companies involved in the corridor study also proposed two new transportation rights-of-way on the Forest for years 1990 to 2020. One proposal has its route location adjacent to an existing State highway while the other proposal has its route location outside of the existing transportation and transmission routes discussed above. These proposals are as follows:

- One railroad right-of-way from the Alton Coalfield to Price via the general location of State Highways 62, 24, and 72. (U-72 location would be the only location on the Forest.)

  This proposed energy transportation right-of-way could meet the expansion criteria for a designated corridor as presented in Table II-20 for State Highway 72, i.e., the proposed transportation facilities could be constructed within the corridor designation as stated for U-72.

- One 500-kV transmission line right-of-way from Green River, Utah,to the Alton Coalfield via the north slopes of Thousand Lake Mountain and the Awapa Plateau. Potential corridor designation for this location would depend on a comparative analysis done for the proposed new route versus the existing State Highway 72 route.

TABLE II-20
EXISTING ENERGY TRANSPORTATION SYSTEMS
OCCUPYING POTENTIAL UTILITY CORRIDOR ROUTES ON THE
FISHLAKE NATIONAL FOREST

Name	Location Beginning-Ending	Size	R/W Width (Feet)	Length (Miles)	Acres
Sigurd-Cedar City (UP&L)	From Sigurd substation to Cedar City via Clear Creek Canyon Area	138-kV	75	15.14	137.62
Sigurd-Nevada State Line (UP&L)	From Sigurd substation to Ely, Nevada, via Round Valley & Scipio Pass	230-kV	120	7.83	113.89
Sigurd-Cedar City (UP&L)	From Sigurd substation to Cedar City via Sevier Valley/Circleville	230-kV	110	8.34	111.18
Huntington-Sigurd (UP&L)	From Huntington Power Plant at Huntington, Utah, to Sigurd substation via Salina Canyon/Gooseberry Valley	345-kV	130	23.45	369.53
Emery-Sigurd (UP&L)	From Hunter Power Plant at Castledale, Utah, to Sigurd substation via Salina Canyon/ Gooseberry Valley	345-kV	130	23.44	369.40
Lynndyl-Mona (IPP)	From IPP Power Plant to Mona, Utah, via Leamington Pass	345-kV	150	2.77	50.36

TABLE II-21
EXISTING FEDERAL, STATE, AND INTERSTATE HIGHWAYS
OCCUPYING POTENTIAL UTILITY CORRIDOR ROUTES

Name	Location	R/W Width (Feet)	Length (Miles)	Acres
Interstate 70 (I-70)	Salina Canyon	550	23*	1,533*
Interstate 70 (I-70) (Approximately 10.0 miles still under construction)	Clear Creek Canyon	550	13*	867*
Interstate 15 (I-15)	Within one mile of National Forest for approximately 6 miles at Scipio Pass	--	--	--
State Highway (U-13)	Clear Creek Canyon	200	7*	170*
State Highway (U-24)	Torrey, Utah, to Fruita, Utah	132	0.7	11.2
State highway (U-25)	Fishlake	400	6*	290*
State Highway (U-72)	I-70 (Salina Canyon) to U-24 at Loa, Utah	132*	18*	288*
State Highway (U-132)	Leamington, Utah, to Nephi, Utah	132	0.34	5.45
State Highway (U-153)	Beaver, Utah, to Junction, Utah	32	26.10	417.6

* Approximate figures.

TABLE II-22
ANALYSIS OF EXISTING ENERGY TRANSPORTATION
RIGHTS-OF-WAY LISTED ON TABLE II-20

Analysis of Situation	a)Are ROW's suitable for retention and designation as a corridor?	b)Are ROW's to be designated as corridors capable of being expanded within identified environmental constraints and, if so, how much?	c)Will ROW's meet local, regional, national needs and are they located t serve energy load center requirements. If not, will new corridors be established?
Sigurd-Cedar City 138-kV	Yes. Probably other high voltage (IIV) and extra high voltage (EVH) lines will cross the Forest in this location.	Yes. A designated corridor could accommodate up to two additional IIV or EVH lines prior to a requirement for line upgrading. (Distance between lines limited to 1000 feet or less)	Corridor would mee regional needs and would be located t serve existing energy load centers.
Sigurd-Nevada State 230-kV	Yes. Probably other high voltage (IIV) and extra high voltage (EVH) lines will cross the Forest in this location.	Yes. A designated corridor could accommodate up to two additional IIV or EVH lines prior to a requirement for line upgrading. (Distance between lines limited to 1000 feet or less)	Corridor would mee regional and nat'l needs and would be located to serve existing energy load centers.
Lynndyl Mona 345-kV	Yes. Probably other high voltage (IIV) and extra high voltage (EVH) lines will cross the Forest in this location.	Yes. A designated corridor could accommodate up to two additional IIV or EVH lines prior to a requirement for line upgrading. (Distance between lines limited to 1000 feet or less)	Corridor would mee regional and nat'l needs and would be located to serve existing energy load centers.

TABLE II-22 (con't)
ANALYSIS OF EXISTING ENERGY TRANSPORTATION
RIGHTS-OF-WAY LISTED ON TABLE II-20

Analysis of Situation	a)Are ROW's suitable for retention and designation as a corridor?	b)Are ROW's to be designated as corridors capable of being expanded within identified environmental constraints and, if so, how much?	c)Will ROW's meet local, regional, national needs and are they located to serve energy load center requirements. If not, will new corridors be established?
Sigurd-Cedar City 230-kV	Yes. Probably other high voltage (IIV) and extra high voltage (EVH) lines will cross the Forest in this location.	Yes. A designated corridor could accommodate up to two additional IIV or EVH lines prior to a requirement for line upgrading. (Distance between lines limited to 1000 feet or less)	Corridor would meet regional and nat'l needs and would be located to serve existing energy load centers.
Huntington-Sigurd 345-kV	Yes. Probably other high voltage (IIV) and extra high voltage (EVH) lines will cross the Forest in this location.	No. Potential for widening ROW limited by restrictive terrain. Upgrading existing line should be done to meet power production and delivery requirements.	Existing ROW will meet the needs of projected power production from energy load centers.
Emery-Sigurd 345-kV	Yes. Probably other high voltage (IIV) and extra high voltage (EVH) lines will cross the Forest in this location.	No. Potential for widening ROW limited by restrictive terrain. Upgrading existing line should be done to meet power production and delivery requirements.	Existing ROW will meet the needs of projected power production from energy load centers.

TABLE II-23
ANALYSIS OF EXISTING HIGHWAY RIGHTS-OF-WAY
(POTENTIAL ENERGY TRANSPORTATION CORRIDORS)
LISTED ON TABLE II-21

Analysis of Situation	a)Are ROW's suitable for retention and designation as a corridor?	b)Are ROW's to be designated as corridors capable of being expanded within identified environmental constraints and, if so, how much?	c)Will ROW's meet local, regional, national needs and are they located to serve energy load center requirements? If not, will new corridors be established?
I-70 Salina Canyon	Yes, but ROW and adjacent terrain would be only suitable for pipeline ROW's.	No. Restrictive terrain would limit location of energy transportation ROW's to the highway ROW width.	Would meet local, regional and nat'l needs and would be located to serve future energy load centers.
I-70 Clear Creek Cyn.	Yes. Corresponds with Sigurd-Cedar City 138-kV Transmission line. (See table C).	Yes. (See discussion on Table C for Sigurd-Cedar City 138-kV transmission line).	Would meet regional needs and would be located to serve existing energy load centers.
I-15 Scipio Pass	Yes. Probability exists that interstate energy transportation ROW's will be constructed along this route.	Highway ROW fully occupies Scipio Pass Area. Proposed energy transportation ROW's would have to be located outside of the highway ROW.	Would meet regional and nat'l needs and would be located to serve energy load centers.
U-13 Clear Creek Cyn.	No. This route is adjacent to a more suitable transportation ROW, i.e., Sigurd-Cedar City 138-kV.	Highway ROW occupies a narrow and steep canyon. Environmental constraints preclude expansion for energy transportation ROW's.	Limited potential corridor space would preclude use of route for regional and nat'l energy transportation needs.

TABLE II-23 (con't)
ANALYSIS OF EXISTING HIGHWAY RIGHTS-OF-WAY
(POTENTIAL ENERGY TRANSPORTATION CORRIDORS)
LISTED ON TABLE II-21

Analysis of Situation	a)Are ROW's suitable for retention and designation as a corridor?	b)Are ROW's to be designated as corridors capable of being expanded within identified environmental constraints and, if so, how much?	c)Will ROW's meet local, regional, national needs and are they located to serve energy load center requirements? If not, will new corridors be established?
U-24 NE of Torrey	No. Proximity of Capitol Reef Nat'l Park precludes this ROW as a potential corridor.	Highway ROW occupies a narrow and steep canyon. Environmental constraints preclude expansion for energy transportation ROW's.	Limited potential corridor space would preclude use of route for regional and nat'l energy transportation needs.
U-25 Fish lake	No. This highway serves a particular end use on the Forest and does not coincide with existing and proposed energy transportation ROW's.	Highway ROW occupies a narrow and steep canyon. Environmental constraints preclude expansion for energy transportation ROW's.	Limited potential corridor space would preclude use of route for regional and nat'l energy transportation needs.
U-72 Salina Canyon to Loa	Yes. Probability exists that energy transportation ROW's will be constructed along this route.	Terrain adjacent to highway ROW would not restrict location of energy transportation ROW's. Corridor width of 1 mile could be accommodated.	Would meet local and regional needs and would be located to serve energy load centers.
U-132 Leamington to Nephi	Yes. Probability exists that interstate energy transportation ROW's will be constructed along this route.	Existing uses adjacent to ROW would require that energy transportation ROW's will be located 1/2 to 1 mile north or south of the highway.	Would meet local, regional and nat'l needs and would be located to serve energy load centers.

TABLE II-23 (con't)
ANALYSIS OF EXISTING HIGHWAY RIGHTS-OF-WAY
(POTENTIAL ENERGY TRANSPORTATION CORRIDORS)
LISTED ON TABLE II-21

Analysis of Situation	a)Are ROW's suitable for retention and designation as a corridor?	b)Are ROW's to be designated as corridors capable of being expanded within identified environmental constraints and, if so, how much?	c)Will ROW's meet local, regional, national needs an are they located t serve energy load center requirements? If not, will new corridor be established?
U-153 Beaver to Junction	No. This highway serves a particular end use on the Forest and does not coincide with existing and proposed energy transportation ROW's.	Existing uses adjacent to ROW would require that energy transportation ROW's will be located 1/2 to 1 mile north or south of the highway.	Would meet local, regional and nat' needs and would b located to serve energy load centers.

D. RESEARCH NEEDS

Research needs identified during the planning process include t continuation of the work on the Oak Creek Cooperative Manage Area. The Intermountain Research Station needs to continue thei involvement in this project. A second research need is t determination of the growth volumes occurring in the pinyon-junip woodland. Previously thought to be a low value area, this planni effort has shown the pinyon-juniper woodland to have potential val for commercial wood products, Christmas trees, firewood, wildlife, a range. It is possible that commercial timber sales will be made fr this area in the future. Regulation 36 CFR 219.3 defines forest la as land at least 10 percent occupied by forest trees of any siz Thus the pinyon-juniper woodland could be considered commercial fore land in the future.

These research needs may be supplemented by additional nee identified during the plan monitoring and evaluation activities.