

FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR THE
KOOTENAI NATIONAL FOREST

NORTHERN REGION
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

1987

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FINAL ENVIRONMENTAL IMPACT STATEMENT

FOR THE

KOOTENAI NATIONAL FOREST PLAN

CHAPTER III

THE AFFECTED ENVIRONMENT

This chapter describes the environment of the Kootenai National Forest that may be changed with implementation of the Forest Plan or any of the alternative plans. Section A describes the physical, biological, social and economic situation in the area. Section B describes the current resource situations on the Forest.

III. Affected Environment

This chapter describes the environment that may be changed by implementing any of the alternatives described in Chapter II. This description is presented in two sections. Section A describes the physical, biological, and socio-economic setting and Section B describes the Forest's current resource situation.

Summary of Changes that occurred between the Draft and Final EIS

More recent information has been added to the sections describing the local socio-economic situation (section A, 4), the timber resource situation (section B, 1), the facilities (roads) section (B, 2, a), mountain pine beetle-infested lodgepole pine (section B, 3, b), special areas (section B, 5, c), wildlife (section B, 6, b), and minerals (section B, 7). The section on the local socio-economic situation more accurately describes the contribution of the surrounding national forests in relation to private timberlands, and the section on the timber resource describes the portion that is "below cost". The section on roads has some updated total existing road mileages, and the section on insect and disease shows more recent information on the status of beetle-infested lodgepole pine. The special areas section provides some information on eligibility for Wild and Scenic Rivers classification for four rivers on the Kootenai Forest. The wildlife section displays a revised list of indicator species, and the mineral section portrays some more recent information about mineral potential in the Star Gulch portion of Pellick Ridge in the Scotchman Peak roadless area.

A. Physical, Biological, Social, and Economic Settings

1. General Setting

No Changes occurred between the Draft and Final EIS

The Kootenai National Forest lies in the extreme northwest corner of Montana, bordered by Idaho to the west and Canada to the North. The Forest is within the Northern Rocky Mountain physiographic province and includes the Cabinet Mountains, the Purcell Mountains, the Whitefish Range, and the Salish Mountains. These mountain ranges generally run north to south.

The Forest is dominated by two major rivers, the Kootenai and Clark Fork, along with their tributaries.

Most of the Kootenai is tree-covered with over 1.8 million acres considered capable for commercial timber harvest. Local economies are resource-based, focused mainly on timber and mining. Towns within the Forest boundary include Libby, Troy, Eureka, Noxon, and Trout Creek. The towns have a combined population of less than 20,000 people.

Outdoor recreation is considered an important aspect of living in the area with hunting, fishing, hiking, and camping being popular activities. The Forest supports huntable populations of elk, moose, bighorn sheep, mountain goats, whitetail and mule deer, black bear, and mountain lion. The Forest's rivers, streams, and lakes support fishable populations of trout, whitefish, salmon and other species.

2. Physical Setting

No Changes occurred between the Draft and Final EIS

a. Geology and Topography

The Purcell and Salish Mountains were overridden by the continental ice mass which covered much of the northeastern half of the Forest. The ice scoured and rounded these mountains and filled many of their valleys with glacial till. The Cabinet and Whitefish ranges projected above the continental ice mass where they were subjected to alpine glaciation. Glacial Lake Kootenai occupied the major valleys of the Kootenai River drainage during a late stage of the glacial epoch, leaving behind thick deposits of glacial silt.

Most of the bedrock exposed in the area belongs to the Belt Series of Pre-Cambrian age, which exceeds 40,000 feet in thickness. A small percentage of the rock is igneous. The geologic structure consists of open, north or northwest trending folds that are cut by many northwesterly trending faults.

The following table shows the slopes on the Kootenai, the amount of acres contained in the slope classes, and the percentage each represents of the Forest.

TABLE III-1			
SLOPE CLASSES			
Slope	Acres	Percentage	
0%	49,000	2	
5-20%	355,000	16	
25-40%	993,000	44	
45-55%	319,000	14	
60-75%	429,000	19	
80%+	100,000	5	
Total	2,245,000	100	

b. Soils

Soils on the Kootenai, for the most part, have been influenced by glaciation and typically have a low inherent fertility when compared, for example, to soils on the west coast. Sediment is the primary contaminant of water quality affecting, among other things, fisheries. Two of the major soil materials on the Forest that are particularly susceptible to erosion and sedimentation are the decomposed granitics and the glacial lakebed sediments. When disturbed, sediment coming from these landforms can increase significantly over natural levels.

The majority of the Forest soils (approximately 60%) are susceptible to machine compaction which can result from improper timber harvesting, slash disposal, and site preparation. Soil compaction can have a long-lasting impact on tree growth and site productivity with some estimates projected as high as a 15% loss in total potential timber volume.

c. Climate

The climate of the Kootenai has been described as "modified pacific maritime" in character, meaning that compared to the remainder of Montana, this area's climate resembles that found along the Pacific Coast. The character becomes "modified" by occasional intrusions of arctic air masses, more commonly found in the remainder of the State. Average temperatures reflect the moderating influence of the pacific air masses. Average annual temperatures range from 44 degrees F. in Trout Creek to 45 degrees F. in Libby and Eureka.

The "wet season" in the Forest usually occurs in fall and early winter. Average annual precipitation ranges from 31" in Trout Creek, 19" in Libby, to 14" in Eureka. Averages can be higher, depending on the elevation. Totals of around 110" in the higher elevations of the Cabinet Mountains have been recorded. Most of the precipitation in the higher elevations is in the form of snow.

d. Visual Setting

About 1,403,000 acres, or 62% of the Forest outside wilderness is adjacent to or readily visible from major highways or roads, recreational routes and use areas, and residential private land. Of this total, about 262,000 acres are foreground viewing areas immediately adjacent to major travel routes or populated areas and thus very sensitive to management activities which disturb the natural landscape. The remaining areas are hidden or background situations where management activities could easily blend in and appear as near natural landscape features.

3. Biological Setting

No Changes occurred between the Draft and Final EIS

a. Vegetation

Most of the Kootenai is tree-covered. Trees native to the area include western red cedar, western hemlock, western white pine, lodgepole pine, ponderosa pine, Douglas-fir, subalpine fir, grand fir, whitebark pine, alpine larch, western larch, mountain hemlock, Engelmann spruce, and juniper. Of the over 2.2 million acres on the Kootenai, about 1.8 million acres are considered capable of producing commercial timber.

Habitat types on the Kootenai are primarily in the Douglas-fir, hemlock and alpine fir series with clintonia and snowberry union as the dominant understory. Ponderosa pine/bitterbrush is found in scattered seral areas. There are also small areas of ponderosa pine habitat type in the Tobacco Plains, the West Kootenai Bench, and on the dry south slopes in the drier sites and exposures. The Troy and Yaak Ranger Districts commonly support cedar/clintonia and hemlock/clintonia habitat types. Hemlock/devil's club and cedar/lady fern are found in moist high water table bottoms on those Districts, and in the foothills of the Cabinet Mountains Wilderness. Alpine fir/menziesia is common on higher moist slopes with alpine fir/beargrass and whortleberry on the drier high-elevation sites.

At present, there are no identified rare or endangered plant species on the Kootenai.

b. Wildlife and Fish

The Kootenai supports huntable populations of elk, moose, bighorn sheep, mountain goats, whitetail and mule deer, black bear, and mountain lion. The Clark Fork elk herd on the Cabinet Ranger District is a herd of Statewide prominence. Many area residents value the presence of wildlife as an asset to a life style which is rural-oriented. Habitats range from high-elevation mountain basins devoid of trees to heavily forested cedar groves to dry, rock canyons which contain cactus and bitterbrush. At present, the Kootenai has identified habitat for three endangered and one threatened species. These are the northern bald eagle, peregrine falcon, northern Rocky Mountain wolf, and the grizzly bear, respectively. Grizzlies are yearlong residents, eagles are predominately winter residents, peregrine falcons are occasional migrants, and wolves are primarily transients from Canada. Reports of caribou have been made in the Ten Lakes area and unverified sightings have been made in the Yaak River valley bordering northern Idaho. At this time, no resident populations of caribou have been identified on the Kootenai.

Nongame species are numerous and include a variety of songbirds, weasel, mink, beaver, otter, flying squirrel, and porcupines. to name but a few.

The rivers, streams, and lakes on the Kootenai support populations of rainbow, westslope cutthroat, bull, and brook trout, and mountain whitefish. A white sturgeon population is located just below Kootenai Falls and a ling fishery exists along portions of the Kootenai and Tobacco Rivers. Lakes on the Forest support populations of rainbow, brook and cutthroat trout; yellow perch; largemouth and smallmouth bass; sun-fish, and kokanee salmon. The numerous high-mountain lakes on the Forest contain rainbow, cutthroat, and brook trout. Because trout are the predominant species on the Forest, they are used as the indicator fish species.

Primary productivity of most of the Forest's streams and lakes is low compared with those waters found in the remainder of the Northern Region. This is due to low alkalinity and low water temperatures that locally prevail.

4. Social/Economic Setting

Summary of Changes between the Draft and Final EIS

A summary of the analysis of the relative contribution of the surrounding National Forests to the total timber supply in the area is presented. In general, the national forests contribution will increase but will probably not make up the total difference that may occur from an anticipated decline on adjacent private timberlands.

a. Economic Situation

In 1981 the manufacturing (mostly lumber) and Federal Government (mostly Forest Service) sectors accounted for 1,969 jobs in Lincoln County. Using an economic base multiplier of 2.41 (Haugen, 1983) indicates that these sectors are linked to 4,745 of the 6,643 total jobs in the County in 1981. Thus it can be said that over 70% of the jobs in Lincoln County directly or indirectly exist because of the wood products industry. Sanders County is in a similar situation.

Local economic dependency on the wood products industry is linked to timber sales on the Kootenai National Forest, whose landownership pattern occupies 73% and 23% of the land areas in Lincoln and Sanders Counties, respectively. (Additional National Forest land from the Lolo National Forest is situated in Sanders County, making the actual percentage of National Forest landownership in Sanders County 58%). Over the past ten years (1976-1985) the National Forests (Kootenai, Lolo, Flathead and Idaho Panhandle) have contributed about 373 MMBF per year from lands in the secondary impact area (Flathead, Lincoln and Sanders Counties in Montana and Bonner and Boundary Counties in Idaho). Private lands contributed about 353 MMBF while State lands contributed about 28 MMBF per year in the five-county area.

Local economic activity is dependent upon how all land owners manage their property. Negative socio-economic impacts can occur if the amount of timber being processed changes rapidly. Of particular concern to the public that commented on the DEIS, was the potential for decreased timber supplies in the area. This topic is addressed elsewhere (Development of Response to Public Comments - Timber Supply Situation, Haugen, July 24, 1986, Planning Records of the Kootenai National Forest) and summarized in Appendix B of this EIS.

The general conclusion of the analysis was that all the National Forests in the area will be contributing more volume (when all volume including posts, poles, pulp and other products is considered) than they have in the past, but that private lands will not be likely to sustain past harvest levels into the future (note letter 72 in Appendix E). If future supplies from private timber lands decline more than 25% below the historical harvest level, there will be a net reduction in total timber supply in the five-county area.

Any declines will not be evenly distributed throughout the area. A county with the largest percentage of private timber harvest (Sanders) can be expected to see proportionately larger declines in total harvest than a county with the largest percentages of National Forest lands (Lincoln). Relative mill efficiencies will become more important as mills surrounding Lincoln county try to offset the haul-cost advantage of mills in Lincoln County.

Solid estimates of harvest from private lands in the future are not available so the actual impacts of these changes are presumptive. In addition the possibility exists that significant new mining activity will occur in the Rock Creek area (Sanders County) in the next several years. These potential scenarios make it safe to describe the future socio-economic structure in the area as "dynamic" rather than "static". This overall changing situation is beyond the scope of the Forest Plan and this EIS, but the above discussion is provided to provide a more vivid description of the type of socio-economic situation that exists and will exist in this area.

While, a recent resurgence in mining activity has contributed to the diversification of the local resource-based economy, the wood products industry still dominates the local economy and that industry is significantly dependent upon the Kootenai National Forest for its supply of raw materials. The important point to note is that the local economies are natural resource-based and this resource base is strongly influenced by National Forest landownership patterns and policies.

b. Social Situation

Recent public opinion surveys taken in Lincoln County reveal that most people live in the area because of the natural environment and the small-town atmosphere (Western Analysis, Socioeconomic Baseline Study - Kootenai River Hydroelectric Project, Volume 1, Social Life, undated - circa 1981). People characterize themselves as independent and self-reliant and admire those traits in others. Outdoor recreation is considered an important aspect of living in the area with hunting, fishing, hiking, and camping being popular activities.

There are four population centers within the Forest. The Libby area is the most prominent and contains 67% of the population in Lincoln County. The other are the Eureka-Fortine, Troy-Yaak-Bull River, and Noxon-Trout Creek areas.

The population of Lincoln County, according to the 1980 census, is 17,752, a -1.7 % change from the 1970 census. Flathead and Sanders Counties have a population of 51,966 and 8,675, respectively. Table III-2 shows the populations of the affected counties and the unemployment rate compared to Statewide figures.

TABLE III-2
 POPULATION, EMPLOYMENT AND INCOME
 FIVE-COUNTY REGION *

State and County	Population	% Change 1970-1980	Unemployment Rate	Per Capita Income
<u>Montana</u>				
Lincoln	17,752	-1.7	11.3%	\$7806
Sanders	8,675	22.3	10.9%	\$7336
Flathead	51,966	31.7	7.5%	\$9143
Statewide	786,690	13.3	7.0%	\$9544
<u>Idaho</u>				
Bonner	23,499	50.7	10.9%	\$7712
Boundary	7,248	32.2	9.7%	\$7781
Statewide	943,935	32.4	7.3%	\$8937

* Sources: Population - 1980 Census; % Change 1970-1980 derived from 1980 Census; Unemployment - Bureau of Labor Statistics (December 1984); Per Capita Income - Regional Economic Information System, Bureau of Economic Analysis (1982).

The social zone of influence is composed of Lincoln and Sanders Counties, Montana, with portions of Flathead County, Montana, and Bonner and Boundary Counties, Idaho also included. Lincoln and Sanders Counties are characterized as two of the most economically depressed areas in Montana, ranking the highest in unemployment and consistently low in per-capita income and employment growth. Because the economies of the five-county impact area are closely tied to the wood products industry, the high unemployment is generally attributed to the overall dynamics of the national lumber market as well as the seasonal nature of the logging industry.

The social zone of influence is composed of the following subareas:

Libby - Contains 67% of the population of Lincoln County (12,000) and is economically dependent on the woods products industry. Because of the proximity of the Forest and the local dependency, much interest is expressed by the public in Forest activities and management plans.

Troy-Yaak-Bull River Valley - Independent logging and the ASARCO (Troy) mine are the primary occupations in this area. The Bull River Valley is a popular recreation area attracting much use in the summer. Concerns most often expressed deal with availability of timber, the local economy, and recreation.

Eureka-Fortine - This area includes more grazing and farming because of the suitability of the Tobacco Valley for these activities. Timber is also important especially Christmas tree production. Issues most commonly expressed concern timber, recreation, viewing, and wilderness or nonwilderness for the Ten Lakes Montana Wilderness Study Act Area.

Noxon-Trout Creek - Located in Sanders County along the Clark Fork River, this area is largely dependent on the timber industry. Issues most often expressed include timber, wildlife management, water quality and the effect of mining on the wilderness.

The regional zone of influence includes roughly the area between the Forest boundary and the nearest large urban areas, namely Kalispell-Missoula (Flathead & Missoula valleys) and the Sandpoint - Coeur d'Alene, Idaho - Spokane, Washington area (Spokane valley). The primary importance of the Forest to this area is for recreation. Areas such as the Cabinet Mountains Wilderness, Ten Lakes Scenic Area, Koocanusa Reservoir, and the Yaak Valley attract approximately 413,700 RVDs per year which represents over 40% of the total Forest use. Most of the timber from the Kootenai is processed in this immediate regional zone, in Columbia Falls, Montana and Moyie Springs, Idaho.

The national zone of influence is not significantly affected in terms of changes in Forest outputs for levels of management. National interest in the Kootenai revolves largely around wildlife and wilderness values, evidenced by interest group involvement in the planning process.

The Kootenai Forest contains land that is subject to treaty rights for the Flathead/Kootenai-Salish Indian Tribes. These treaty rights provide for hunting and fishing. In addition, certain sites are still in use by Native Americans exercising their rights under the American Indian Religious Freedom Act.

In 1982-83, the Kootenai Forest returned to the U.S. Treasury about \$11,400,000, primarily from harvesting timber (\$11,300,000). The remaining revenues (\$100,000) were derived from grazing and special use fees. Details on Fiscal Year 1985 are presented in the next section.

These returns are of local significance because 25 percent is earmarked for return to the States for distribution to the counties in which the National Forest is located. The more timber that is harvested, the more money is returned to the County. Lincoln County has consistently received the highest share of 25 Percent Payments of any county in Montana. Increased revenues could also occur with the discovery of oil and gas in the future. Fifty percent of these revenues would be returned to the states, in contrast to the 25 percent payment received for timber.

In 1983, the Kootenai Forest's expenditures were approximately \$23,600,600. This includes the appropriated budget costs allotted to the Forest, capital investment expenditures, and "credits" awarded to timber sale purchasers for the construction of roads. Details on 1985 expenditures are provided in the next section.

In Fiscal Year 1986 the Forest employed 342 permanent and as many as 144 temporary employees at one time. "Temporary" includes employees hired during the summer season. In addition, 25 volunteers contributed work.

Budgets are subject to the priorities of Congress and the Administration. Budget also affects the size of the work force. Commitments made in terms of project work, are based on available budgets and work force levels. Adjustments in one or the other may affect the Forest's ability to provide the goods and services projected.

B. Current Resource Situation

This section describes the current condition of the Forest in terms of each of the program elements with which the Forest Service is involved: timber, facilities, protection, recreation, wilderness, wildlife and fish, minerals, land ownership, soil and water, cultural resources, range, energy, human and community development, air quality and visual quality.

Summary of Changes between the Draft and Final EIS

Some additional and more recent information is presented in the sections on Timber, Facilities and Protection. The section on Timber describes the amount of timber that is "below cost". The Facilities (roads) section presents the total existing road mileage as of January 1, 1986, and the section on Protection displays more recent information on the spread of the mountain pine beetle in existing lodgepole pine stands on the Kootenai Forest.

1. Timber

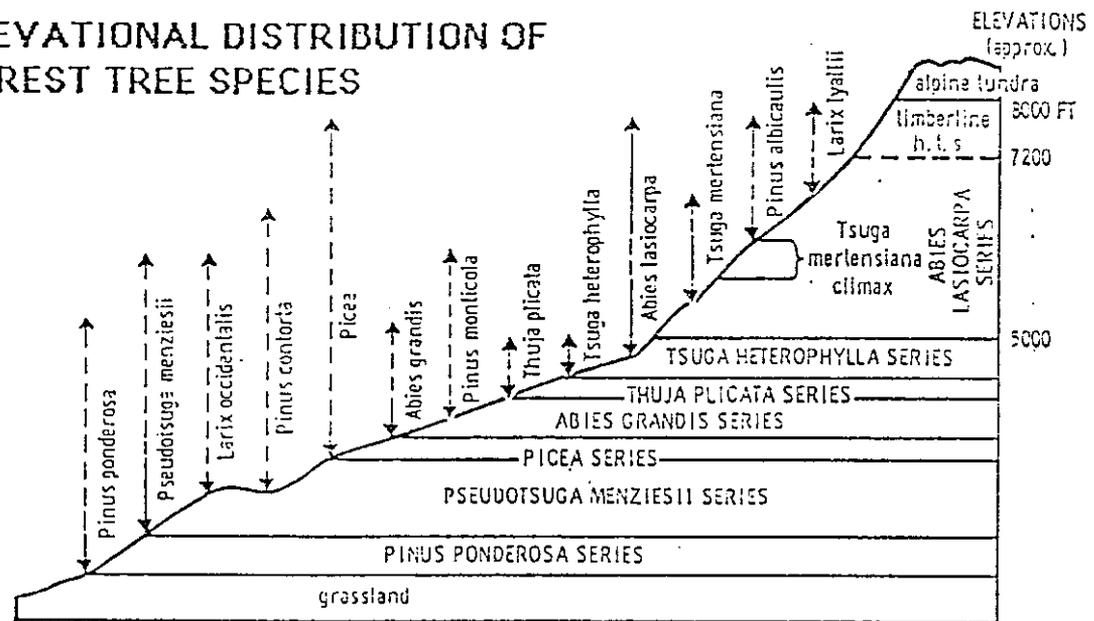
Summary of Changes between the Draft and Final EIS

The costs and receipts for timber sales for 1985 are presented which indicates that costs exceeded revenues.

Montana's forests are both extensive and diverse. Forest covers nearly one-fourth of the state, about 23 million acres (Figure III-2). The northwestern forest region of Montana, which includes the Kootenai National Forest, has an abundance of Pacific Coast forest species that are less common or absent elsewhere in the state. Moist maritime air masses typically funnel through this area on their way inland from the Pacific Coast providing abundant rain and snowfalls and generally humid, cloudy conditions except in mid-summer. These air masses also bring the relatively mild winter temperatures that are necessary for survival of many of the coastal species. Figure III-1 shows a typical elevational distribution of species on the Kootenai National Forest. Additional information on timberland suitability is available in Appendix B.

FIGURE III-1

ELEVATIONAL DISTRIBUTION OF FOREST TREE SPECIES



Distribution of Forest trees in an area of the Kootenai drainage in north-western Montana. Arrows show the relative elevational range of each species; the solid portion of the arrow indicates where species is potential climax, dashed portions shows where it is seral. (Arno, 1979)

Timber resources on the Forest are located for the most part on moderate to high growth potential sites due to the influence of maritime weather patterns. The stands are grouped into three categories for planning purposes based on habitat-type growth potentials. The majority of acres fall into growth potentials of 50 cubic feet per acre per year or more.

Commercially important tree species on the Forest include ponderosa pine, white pine, Western hemlock, Douglas-fir, lodgepole pine, western larch, Engelmann spruce, grand fir, subalpine fir, and western red cedar. About 83% of the Forest, or 1,872,000 acres, is considered biologically capable of producing commercial timber. Analysis has shown that the most timber that can be produced under long-term sustained yield would be 455 MMBF per year on 1,788,000 acres (see Chapter II, Section B of this EIS). This potential is derived from the Timber Benchmark which maximizes the timber potential while meeting all minimum management requirements such as threatened and endangered species recovery. In comparison, the Current Direction Benchmark allows timber harvesting on 1,426,000 acres with a long-term sustained yield of 334 MMBF. The locations of tentatively suitable timberlands are shown on Figure III-3.

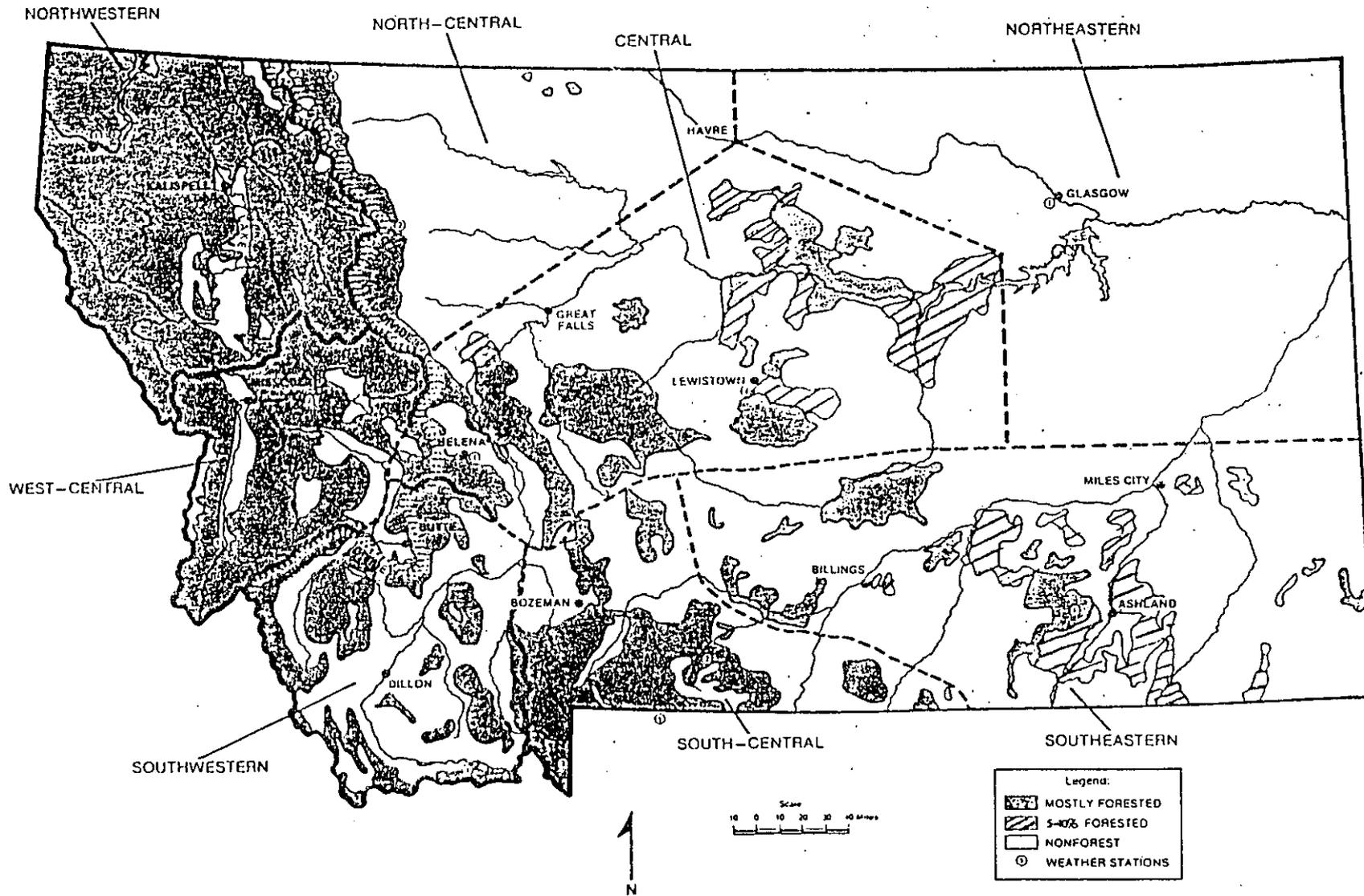
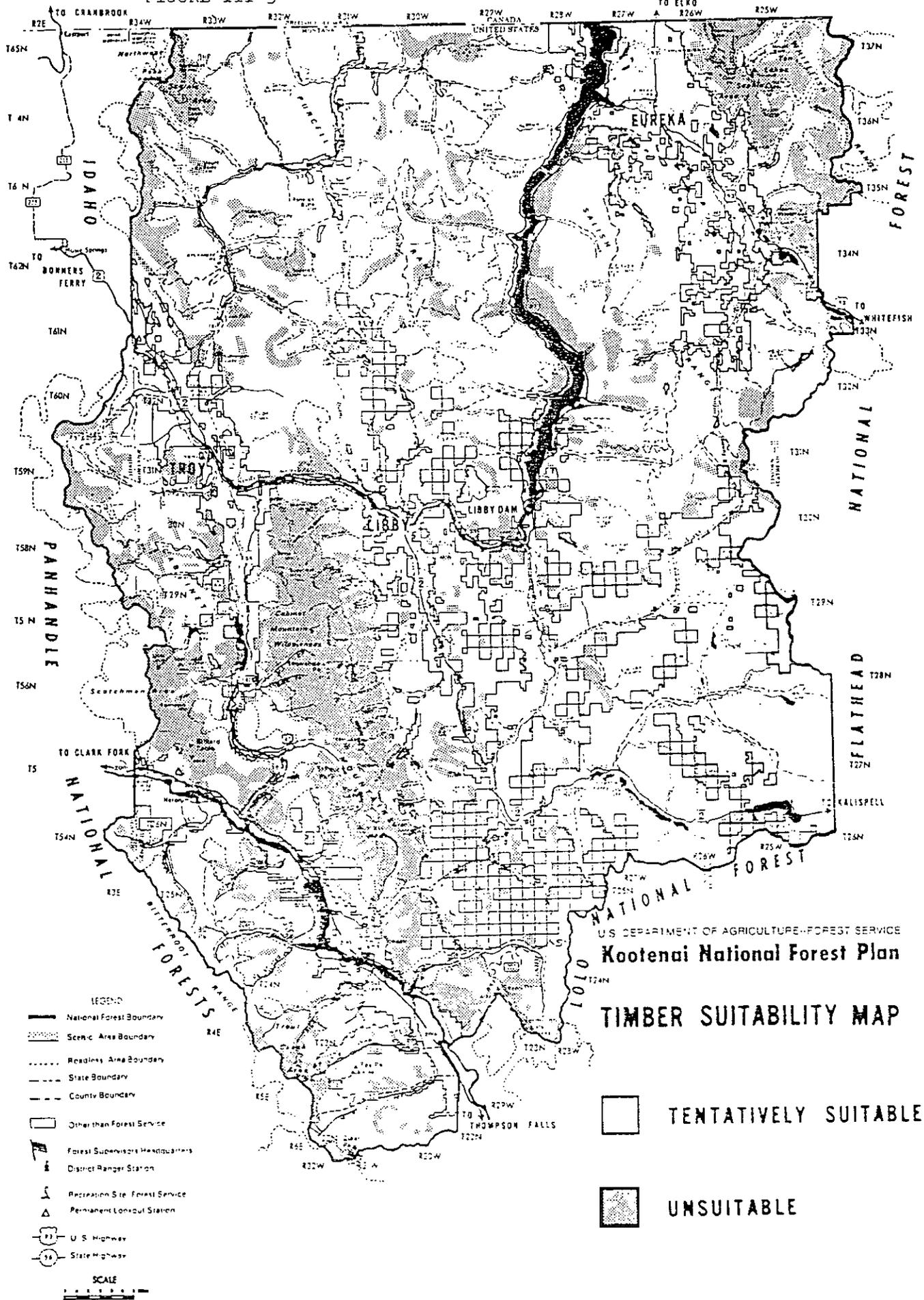


FIGURE III-2

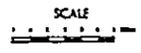
Montana forest regions and forested areas (from Hutchinson and Kemp 1952, Ross and Hunter 1976, composite satellite photo of Montana, GE Space Systems, Beltsville, Md.)



U.S. DEPARTMENT OF AGRICULTURE-FOREST SERVICE
Kootenai National Forest Plan

TIMBER SUITABILITY MAP

- TENTATIVELY SUITABLE
- UNSUITABLE



It is important to understand that the timber volumes discussed in this EIS are "regulated" volumes. The timber is considered regulated in the sense that stands of trees are grown and harvested under a specified schedule that is relatively predictable. Only live, green sawtimber is included. Other volume is considered "unregulated" and is not included in these discussions. The unregulated volume may include dead trees, pulp, posts, poles, firewood or any other products which are sold if opportunities exist and the products can be removed in compliance with appropriate management direction.

It is also important to note that the volumes discussed are considered to be sold and cut within the specified decade. In general, this will be true in the long-term but in the short-term (one to several years) fluctuations in the lumber market can cause delays in harvesting timber that has been sold.

An example of a short-term delay is the recent legislation that has allowed certain purchasers to buy out of some Forest Service timber sales. About 236 MMBF which had been sold was returned to U.S. ownership as a result of that legislation. This volume will be reoffered for sale in a timely manner. After the Timber Buy-Back, there was still a total volume of 588 MMBF under contract (9/30/86) which is about 3 1/2 years harvest at the historic level of 173 mmbf/year. Three years of timber sales under contract is considered desirable by the timber industry.

Over the last 10 years (1974-1983) the total timber sell including unregulated volumes was 198 mmbf/year while the total timber harvested was 173 mmbf/year as stated above. This consisted of a regulated sell of 170 MMBF per year average plus 28 mmbf/year unregulated volume. The regulated timber harvest was 148 mmbf/year plus 25 mmbf/year of unregulated volume.

The economic situation and timber dependency is closely tied to the amount of land that is suitable for timber production. On the Kootenai Forest, 1,788,000 acres are tentatively suitable for timber production. These acres are stratified into productivity classes and displayed in Table III-3.

Additional information on the timberland suitability of the Final Plan is located in Appendix B. Also located in Appendix B is additional information on the demand for timber as a result of the Montana Timber Supply analysis, plus additional information on the timber supply in the 5-county area involved with the Kootenai National Forest (Lincoln, Sanders, Flathead counties, Montana, and Boundary and Bonner counties, Idaho).

TABLE III-3

STRATIFICATION OF TENTATIVELY SUITABLE ACRES

Mixed Conifer I (85-150 cubic feet per acre per year)

	<u>Acres</u>
Sawtimber (60 years +)	415,400
Pole Timber (20-60 years)	199,000
Seedlings-Saplings (0-20 years)	37,900
Nonstocked	300
TOTAL	<u>652,600</u>

Mixed Conifer II (20-85 cubic feet per acre per year)

	<u>Acres</u>
Sawtimber	268,000
Pole Timber	315,700
Seedling-Sapling	45,800
Nonstocked	7,000
TOTAL	<u>636,500</u>

Lodgepole

	<u>Acres</u>
High-risk Sawtimber (8"+ DBH; 80 years +)	207,000
Poles and Immature Sawtimber (20-80 years)	118,900
Seedling-Sapling	78,900
Stagnated	94,000
TOTAL	<u>498,800</u>

TOTAL OF ALL ACRES 1,788,000

As indicated above, approximately 50% of the tentatively suitable acres contain stands of mature sawtimber. This includes 207,000 acres of high risk lodgepole stands. Pole timber is present on about 35% of the acres while seedlings, saplings and stagnated lodgepole make up 15%. These figures indicate that harvesting the high risk lodgepole and converting the stagnated stands back into productivity will help achieve balanced age classes.

There are approximately 94,000 acres of stagnated lodgepole pine stands on the Kootenai National Forest. The stagnated lodgepole stands are so overstocked that the trees have literally stopped getting larger - hence the name "stagnated". The stands are usually the result of a fire in which the seedlings came in so profusely that they resemble "dog hair". Thinnings have been tried but the stands do not respond because they have been stagnant too long. The stagnated stands must be completely removed if a commercial stand of timber is to be produced. From a practical standpoint, they can be considered the same as nonstocked stands because they do not contribute to the existing timber harvest levels.

Closely tied to the timber issue is the concern for volume losses in mature lodgepole pine because of the mountain pine beetle. It is expected that all lodgepole pine stands 80 years old and 8 inches or more in diameter (207,000 acres), will be infested in the next ten years. This represents approximately 2,000 MMBF of lodgepole sawtimber. It is estimated that only one half of the volume would be harvestable and would require an average annual harvest of 109 MMBF per year to salvage this anticipated loss. This is because of the location of the stands and the rapid deterioration of the wood after it has become infested. In the 5-year period from 1979-83, an average of 73 MMBF/year of lodgepole pine timber was sold and 50 MMBF/year was harvested.

While timber from the Kootenai Forest is already a significant contributor to the local market, the demand for more timber is expected to increase over time because of projected increased national demand. The RPA demand projections for timber on the Kootenai Forest are 228 MMBF/year in the first decade and increase steadily to 292 MMBF/year and 345 MMBF/year in the third and fifth decades, respectively. Short-term demand has been low because of depressed lumber markets but recent trends appear to be on an increase.

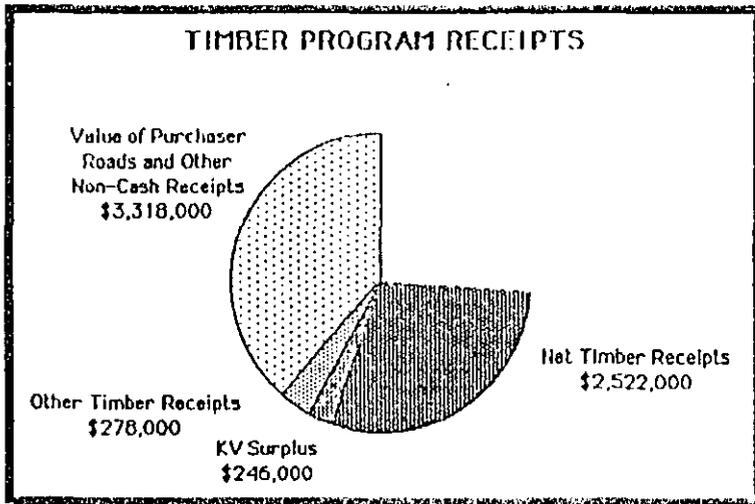
The costs and receipts associated with timber sales were developed and compared for 1985. The details are displayed in the following table and figure:

Kootenai National Forest Timber Program Balance Sheet Fiscal Year 1985		
Receipts		
Value of Purchaser Roads etc.	\$3,318,000	
Net Timber Receipts	\$2,522,000	
Other Timber Receipts	\$ 278,000	
KV Investments (non-timber)	\$ 246,000	
TOTAL	\$6,364,000	
Expenses		
Road Depreciation	\$2,799,000	
Forestry and Silviculture	\$1,933,000	
Forest General Administration	\$1,594,000	
Reforestation	\$1,038,000	
Stand Improvement	\$ 528,000	
Other Resource Support	\$ 393,000	
Road Engineering	\$ 345,000	
TOTAL	\$8,630,000	
Balance	-\$2,266,000	

FIGURE III-3A

KOOTENAI NATIONAL FOREST TIMBER PROGRAM BALANCE SHEET FISCAL YEAR 1985

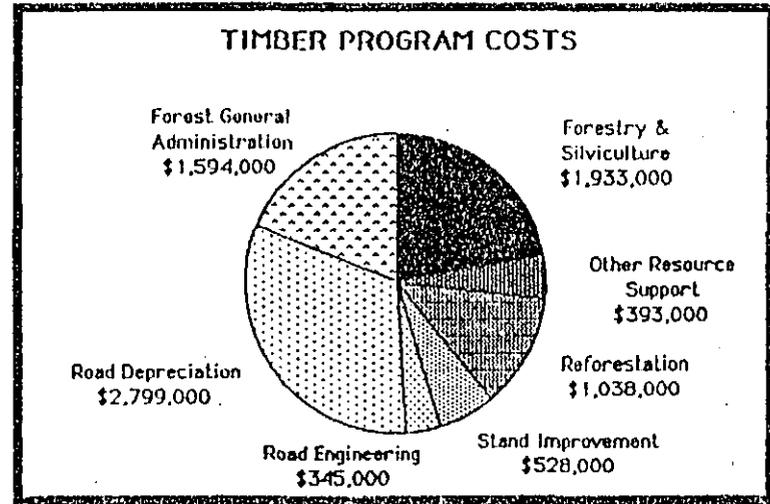
TIMBER PROGRAM RECEIPTS



RECEIPTS

\$6,364,000

TIMBER PROGRAM COSTS



EXPENSES

\$8,630,000



The above information indicates that the total costs of the timber program exceeded the receipts derived from that program. This is true of all Kootenai National Forest programs (wildlife, recreation, livestock etc.). While the financial picture of Forest activities was negative in 1985, it is expected that real price increases for stumpage and the eventual completion of the Forest's transportation system coupled with added consideration for financial consequences of management will reverse the situation in the future. In addition to the financial returns noted above, there are social returns from the timber program as discussed under "Social/Economic Setting", above.

2. Facilities

Summary of Changes between the Draft and Final EIS

Since the DEIS was prepared, some new roads have been built on the Forest. As of January 1986, there were 6,200 miles of road on the Forest. This is 200 miles more than in January 1984 as reported in the DEIS. Of the 6,200 miles of road on the Forest, 993 miles have been closed to motorized vehicles yearlong to protect recreation values, wildlife values and unstable soils as well as to reduce maintenance costs and achieve other goals discussed in the DEIS. In addition 676 miles of road are closed on a seasonal basis for many of the same reasons. Thus 27 percent of the total road system still has some type of use restriction which is similar to the DEIS.

2. Facilities

a. Roads

In January, 1986, there were 6,200 miles of road on the Kootenai Forest; 2,260 miles of collector and arterials, and 3,940 miles of local roads. Forest arterials such as the Forest Development Road on the west side of Lake Kooconusa and the Pipe Creek Road generally have smooth surfaces (asphalt) and two lanes. These roads are designed to provide access to large areas of the forest and funnel traffic to State or Federal highways. Forest collector roads generally have gravel surfaces and may be one or two lanes wide. These roads access smaller areas of the forest and serve to collect traffic from numerous local roads and feed that traffic to the Forest arterials or State and Federal highways. Forest local roads are generally single-lane roads with native (dirt and rock) surfaces. These roads are designed to access small areas of the forest for specific purposes. Most of the local-road mileage on the Kootenai National Forest was developed for access to timber sales.

Road construction for each year since 1977 is displayed in Chapter II of this EIS. Recent experience indicates that the rate of road construction is on the decline as a result of more intense timber sale design to protect water quality and reduce total timber sale costs. Most future road construction will be of the local road type because all of the arterial and most of the collector roads needed are already in place.

Of the 6,200 miles of road on the Kootenai, 993 miles are closed year-long due to recreation and wildlife values or unstable soils, and 676 miles are closed seasonally, largely to provide wildlife protection. This is 27% of the road system.

Major access roads in Lincoln and Sanders Counties affected by the Kootenai Forest include U.S. Highway 2, which parallels the Kootenai River then turns south while running through the towns of Troy and Libby in an east-west direction. State Highway 37 begins in Libby and runs north and east along Koocanusa Reservoir to Eureka, meeting U.S. Highway 93 which traverses the northeast corner of the Forest. State Highway 508 provides access to the Yaak Valley, and State Highway 56 runs through the Bull Lake Valley, connecting U.S. Highway 2 to State Highway 200. State Highway 200 parallels the Clark Fork River in an east-west direction and runs through the communities of Trout Creek and Noxon in the forest's southern portion.

b. Buildings

No Changes occurred Between the Draft and Final EIS

The Kootenai Forest maintains seven Ranger Stations, five work centers, 38 lookouts, 47 housing units, 132 storage and service buildings, and 21 administrative buildings. The Forest also leases buildings for administrative purposes, including a Supervisors Headquarters and Zone Engineering Office.

3. Protection

Summary of Changes between the Draft and Final EIS

More recent information is presented on the status of the mountain pine beetle infestation in lodgepole pine timber stands on the Kootenai Forest.

a. Fire Management

No Changes occurred between the Draft and Final EIS

Fire is a frequent occurrence on the Forest. Major fires occurred here in 1890 and 1910. Since then fire suppression efforts and weather have combined to keep fire size down. Cyclic fires provide a variety of benefits, including seedbed preparation, nutrient cycling, and improving habitat for some species of wildlife. Because of fire; the age classes of trees can vary widely, which reduces their susceptibility to some types of insects and disease attacks. In the course of a fire, heavy fuel loads are reduced. The negative aspects of fire are widely recognized. Wildfires have the potential to destroy human life and property, temporarily damage air quality over large areas, destroy wildlife habitats, damage streams, create situations which increase erosion, and destroy huge volumes of timber.

Fire management encompasses both the protection of the natural resources from wildfire and the use of prescribed fire as a management tool. The Kootenai National Forest protects over 2.4 million acres of Federal, State, and private lands from wildfire. Data compiled for a 15-year period (1970-1984) show a drop in both person-caused and lightning-caused fires.

TABLE III-4			
FIRE CAUSES			
(Annual Average)			
	<u>1970-1974</u>	<u>1975-1979</u>	<u>1980-1984</u>
Lightning-caused	107	65	59
Person-caused	63	53	30

The acreage burned shows a similar decline over time, with two exceptions. In 1979, the person-caused Granite Creek fire burned 3,341 acres on the Forest, more than the amount burned in any other year between 1975 and 1984. In 1984 the Houghton Creek fire burned a total of about 12,800 acres. Only 2,100 acres of that was on Kootenai National Forest land and is included in the data in this section.

TABLE III-5			
ACREAGE BURNED			
Annual Average			
	<u>1970-1974</u>	<u>1975-1979</u>	<u>1980-1984</u>
Lightning-caused	911	32	16
Person-caused	535	788	517

A study of the fire history over the past 20 years shows that serious fire seasons have occurred every six years, most recently in 1967, 1973, and 1979. This trend is similar to that of other Forests in the area, such as the Idaho Panhandle, and reflects the close relationship of fire incidence to general weather patterns. When there is little or no rain over a long period of time, the incidence of fire goes up. As precipitation increases, the risk of fire drops. This trend does not help land managers to predict busy seasons, but it can help to anticipate them. Long-range fire forecasting, like long-range weather forecasting, is an inexact science.

Prescribed burns are fires set deliberately to meet some management objective. Prescribed fire is used to burn underbrush in thinned stands as well as slash from logging operations. Some burning is done to enhance wildlife habitat. Between 1979 and 1983, an average of 11,569 acres were burned annually by prescription. Of that, 2366 acres (or 20%) were burned annually to benefit wildlife. Prescribed fires can result from planned and unplanned ignitions. Planned ignitions, such as those described above, are used to accomplish the goals of a specific land allocation. The only area where planned ignitions are not used is in the Cabinet Mountains Wilderness.

An unplanned ignition, such as one started by lightning, can be treated as a prescribed fire if it serves the purposes of the management area where it is located and if resources adjacent to it are not in danger. Unplanned ignitions are not appropriate in areas with high timber values or in developed recreation areas. Such fires are considered wildfires and are suppressed.

The type of suppression used depends on where the fire is occurring and the burning conditions. Response can vary from confinement (where natural barriers are used and suppression limited to surveillance), to control whereby the fire is surrounded by line, completely checked and extinguished. The appropriateness of the suppression action is based on the Fire Action Plan which, in turn, is developed from land use designation for the area in question.

In the event a fire cannot be checked by initial suppression efforts and the fire "escapes", other strategies are used which take into account the fire situation, costs and damages, and land management objectives.

At present there are two approved fire management areas on the Kootenai Forest, one for the Cabinet Mountains Wilderness and one for the Troy Ranger District. In time, plans will be developed for all Districts. The fire action plan for the Cabinets allows fire to play as near a natural role as possible. Protection of life and property on areas adjacent to the wilderness will be taken into consideration if a fire should come close to the borders.

The Kootenai assumes the primary fire suppression responsibility for most of the Forest, with the State of Montana having primary responsibility in the Fisher River Watershed Fire Protection Area. Cooperative agreements with the State are in effect for other State lands within Kootenai Forest boundaries. The Forest also works closely with local fire-fighting agencies and assists in fighting fires close to towns.

b. Insects and Disease

Summary of Changes between the Draft and Final EIS

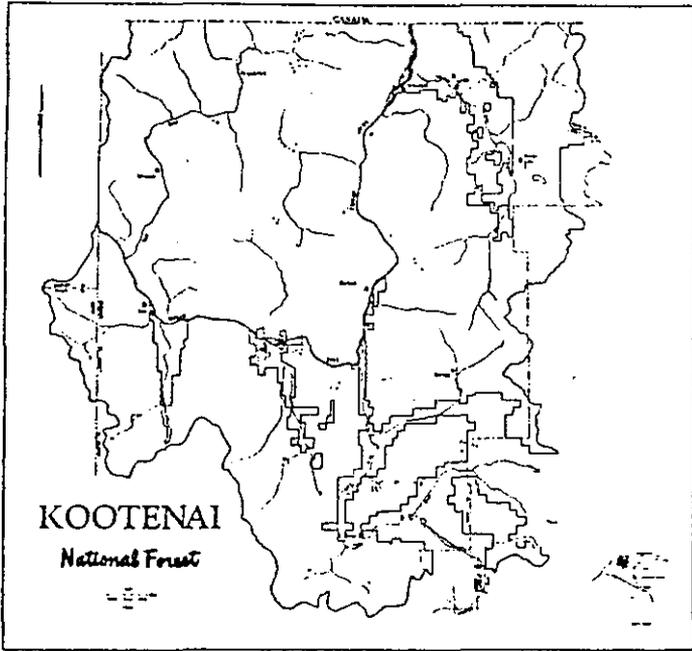
More recent information is presented on the status of the mountain pine beetle infestation on the Kootenai Forest.

The major insect activity on the Kootenai is the mountain pine beetle. The first reported outbreak of Mountain pine Beetle in the Northern Rocky Mountains occurred on the Flathead National Forest in 1909. Between 1911 and 1937, infestations developed, devastated stands, and subsided on the Kootenai, Deerlodge, Lolo, and Bitterroot National Forests. This history of beetle infestation coupled with the history of fire on the Kootenai National Forest have resulted in many lodgepole pine stands which are subject, once again, to beetle attack. Small isolated infestations were reported in 1973. Figure III-4 shows how the infestation has spread each year to 1985. In 1985 mortality was still heavy, but infested acres had declined from 1984. As can be seen on the 1985 map, below, an epidemic is building rapidly on the Fisher River Ranger District near Richards Mountain. The outbreak is decreasing in the Yaak River Area, but will continue to increase in the southeast quarter of the Forest (Tunnock, et al 1986). This, coupled with the large amount of high risk lodgepole pine timber (2,000 MMBF), represents a significant potential for timber volume loss.

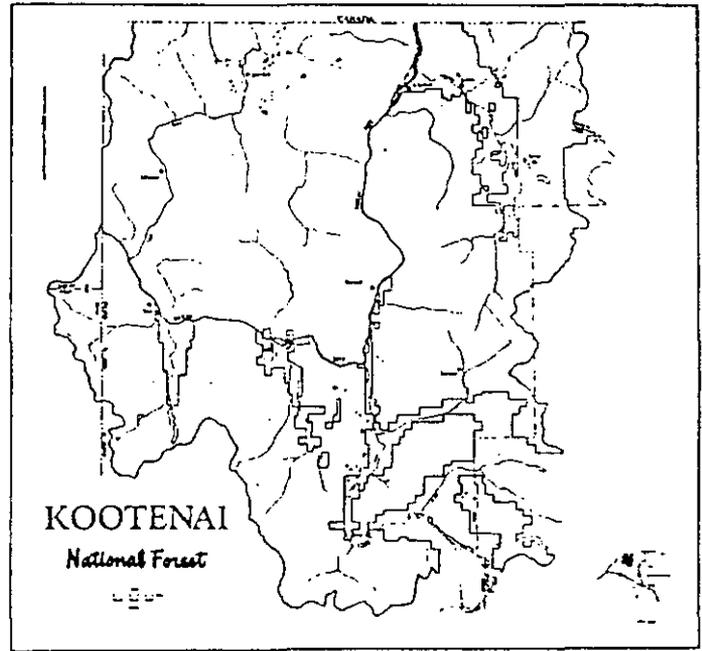
The assumption is that all of this timber will be affected by the mountain pine beetle in the first decade. Approximately one half of this volume will not be salvageable even under the most optimum conditions which is an average of approximately 109 MMBF/year.

The following pages display the general chronologic spread of mountain pine beetle in lodgepole pine stands on the Kootenai National Forest (in dark areas) from 1973 to 1985 (McGregor, M.D. et al, 1983 and Tunnock, S. et al, 1986)

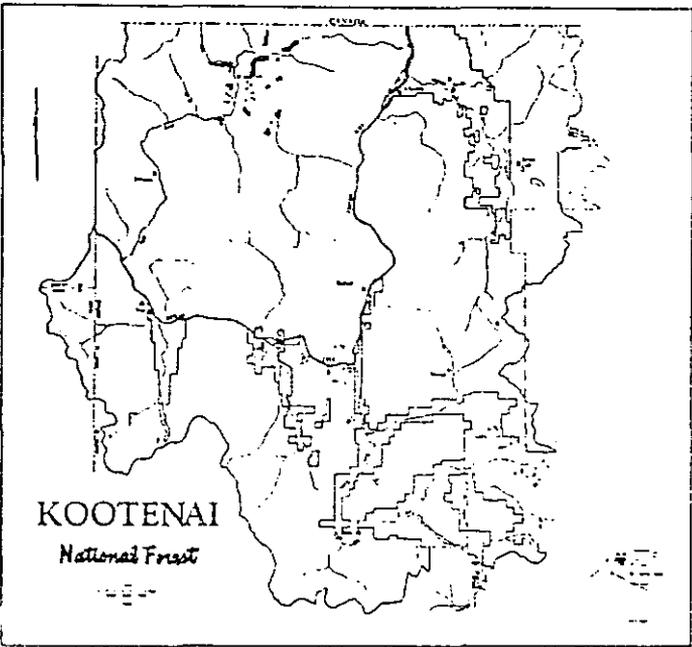
FIGURE III-4



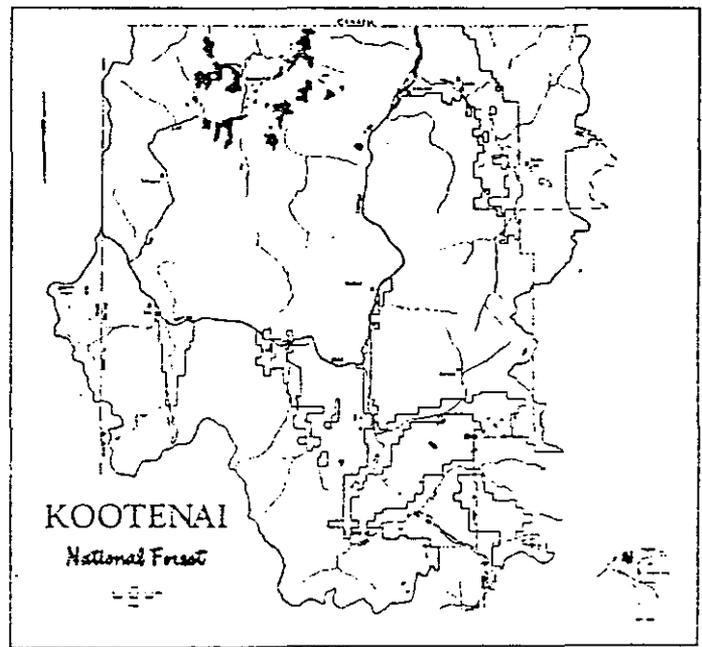
1973



1974



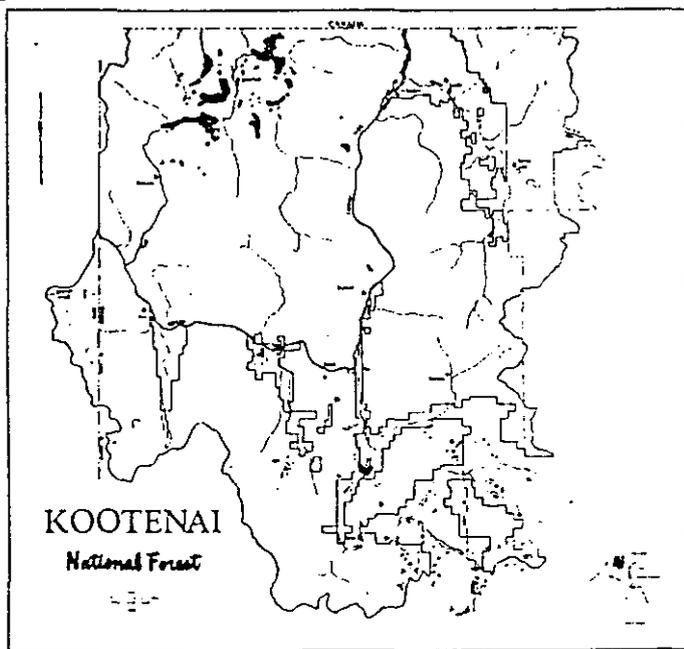
1975



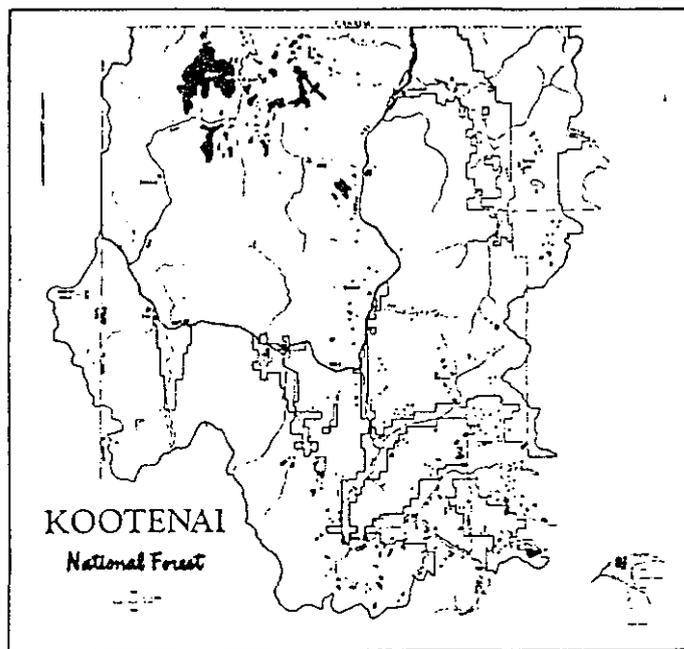
1976

--Chronology of mountain pine beetle infestations, Kootenai National Forest, and adjoining State and private lands, Montana, 1973-1982.

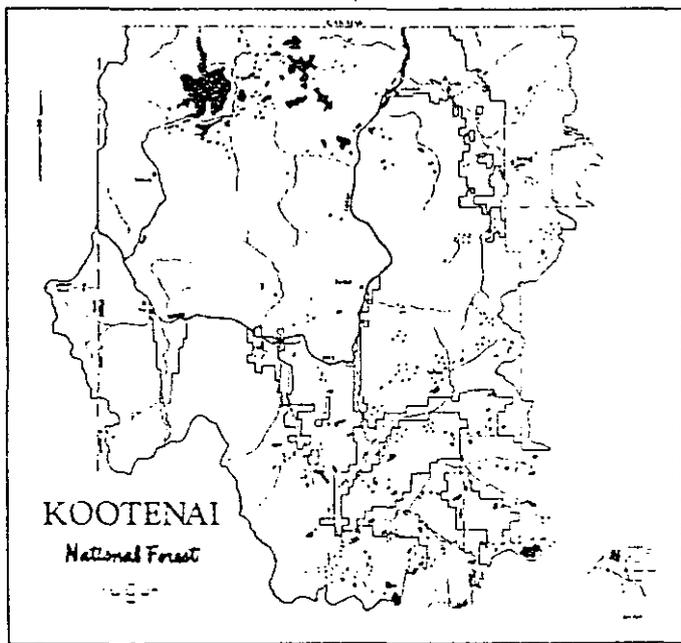
FIGURE III-4 (continued)



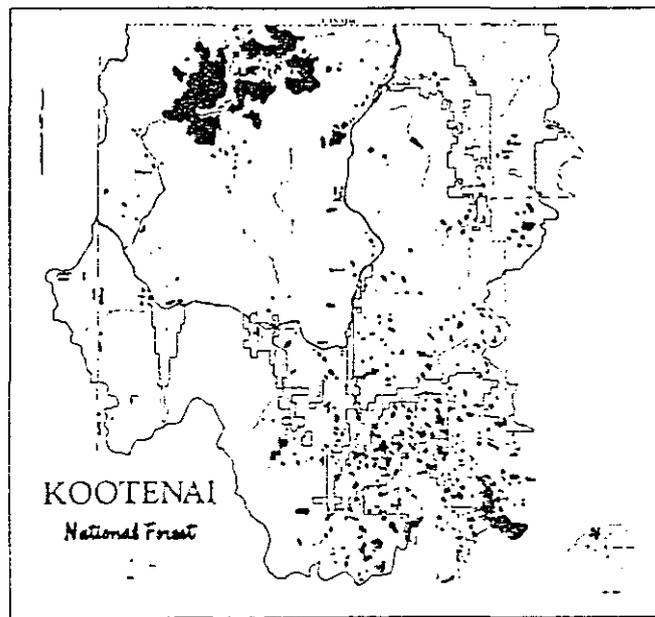
1977



1978



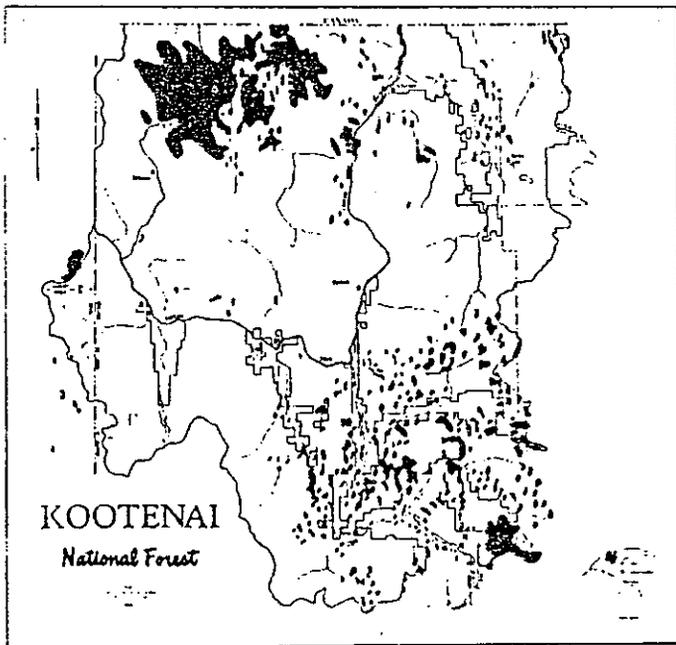
1979



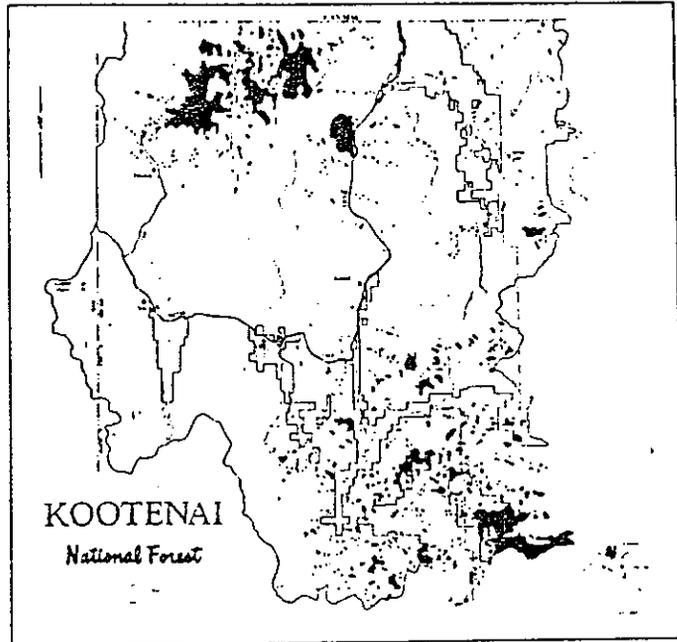
1980

--Chronology of mountain pine beetle infestations, Kootenai National Forest, and adjoining State and private lands, Montana, 1973-1982, continued.

FIGURE III-4 (continued)



1981

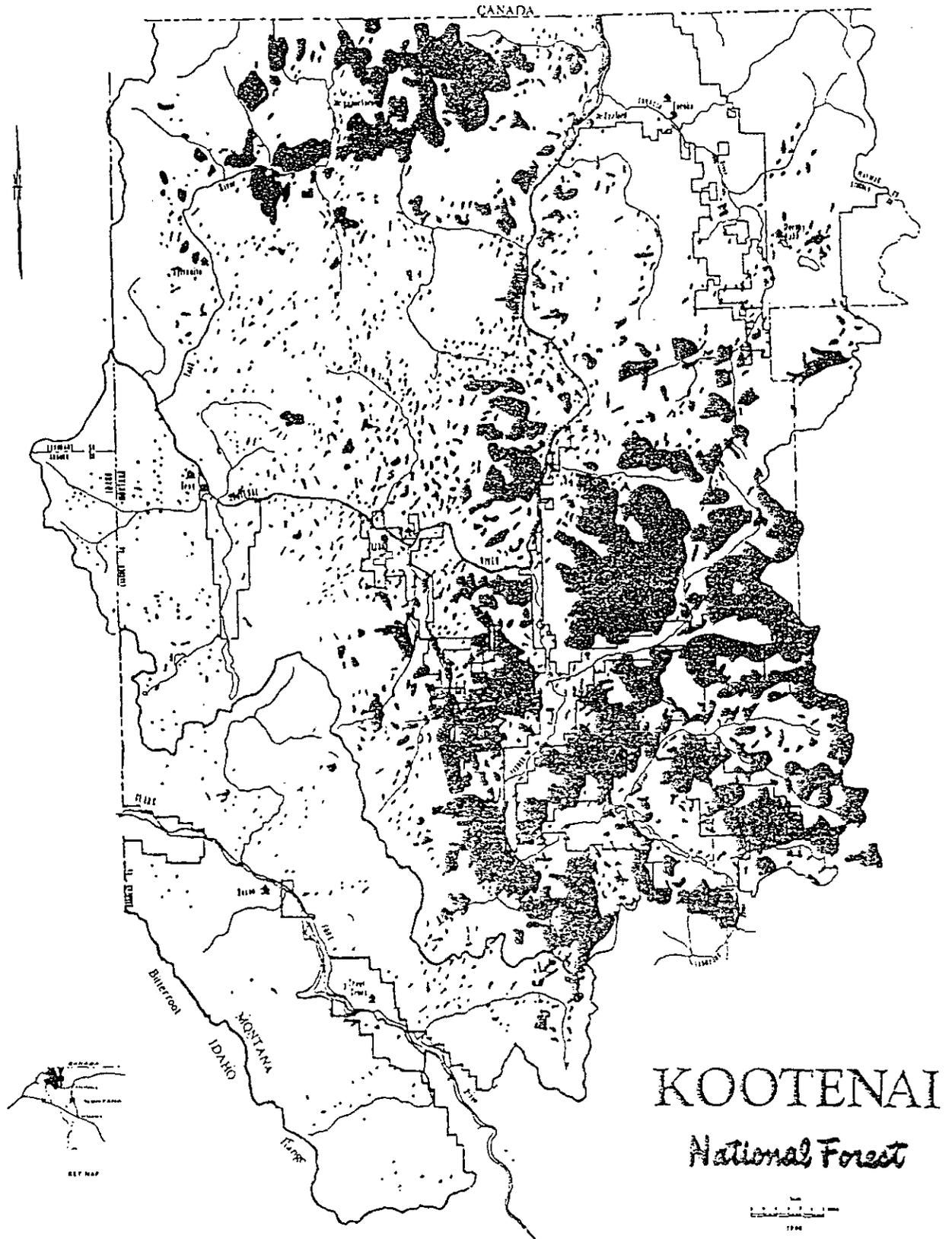


1982

--Chronology of mountain pine beetle infestations, Kootenai National Forest, and adjoining State and private lands, Montana, 1973-1982, continued.

FIGURE III-4 (continued)

Pine stands infested by
the mountain pine beetle, Kootenai
National Forest, Montana, 1985.



4. Recreation

No significant changes occurred between the Draft and Final EIS

Total recreation use on the Forest has been increasing steadily, and responses from the public to the drafts of this Environmental Impact Statement indicate a strong desire for more and varied recreation opportunities in the future. Recreation use on the Kootenai in 1984 is estimated at 873,000 Recreation Visitor-Days (RVDs). Of that, 297,000 RVDs were associated with developed recreation sites. See the glossary for a definition of recreation visitor-day.

Analysis has shown that the Kootenai currently has the capacity to meet expected demands for all forms of recreation for at least 50 years. Without special considerations, demand for motorized recreation in semi-primitive settings could exceed supply as early as the first decade. This occurs because the challenging roads or areas suitable for off-road-vehicle use will either be closed for wildlife or other purposes or further developed for timber or mineral production. In either case; the semi-primitive, motorized, recreation opportunity is removed. Even though recreation capacities forest-wide can be sufficient in the long run, site specific difficulties can be expected in any recreation use category simply because users prefer to recreate in a few desirable areas (Leigh Lake in the Cabinet Mountain Wilderness and McGillivray Campground on Lake Kococanusa are examples). Table II-7 in the preceding chapter shows when recreation demand in each category is expected to exceed supply for each alternative.

a. Roaded Natural Recreation

Roaded dispersed recreation use in 1984 was 435,000 RVDs, and is projected to reach 614,000 in the fifth decade given current user costs (See Table III-6, below). Most users are hunters, wood gatherers, berrypickers, and people who want to sightsee. Increased interest in winter sports on the Forest has also created a demand for more plowed roads and parking areas to provide access and jumping-off points for cross-country skiing, snowmobiling, snowshoeing, and even camping. There are sufficient roads to meet these needs for many years (Table II-7).

PROJECTED DEMAND FOR ROADED NATURAL RECREATION (RVDs)		
Decade	Demand	
1	436,000	
2	478,000	
3	521,000	
4	566,000	
5	614,000	

b. Semi-primitive Motorized Recreation

A sub-category of dispersed recreation that doesn't fall into either the roaded or roadless groups by definition is referred to in this document as "semi-primitive motorized recreation". It refers to the use of vehicles, such as trail bikes and four wheel drive vehicles (and motorboats if traveling by water), in locations that are relatively undeveloped. Often these are areas that had been logged years ago. Remnants of the old skid trails, logging roads or mine roads remain, presenting a challenge to the motorcyclist or four-wheeler. Although these roads are still obvious, they may not be part of the Forest road system, and no effort is made to improve or maintain them. (Some change in management might be necessary if a segment of an old road or trail begins to erode and sedimentation enters nearby streams.) Public interest in this form of recreation is displayed in the following table.

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: TABLE III-7
:
: DEMAND FOR SEMI-PRIMITIVE MOTORIZED RECREATION
: (RVDs)
:
:
:      Decade      Demand
:      1           76,000
:      2           84,000
:      3           91,000
:      4           99,000
:      5          107,000
:
.....
    
```

c. Semi-primitive Non-motorized Recreation

This form of recreation does not involve any kind of motorized equipment. Hiking trails are important.

There are 1,335 miles of trail on the Kootenai. Five of the trails have been designated National Recreation Trails, indicating that they provide some unique hiking experiences and that additional funds will be available for their maintenance. The five trails are:

1. Trout Creek Loop Trail; 22 miles long, located within the 20,000-acre Trout Creek primitive recreation area. Solitude and elk hunting are key features.
2. Pulpit Mountain Trail; consisting of five miles of open, ridgetop, grasslands with scenic vistas of the Troy area.
3. Skyline Mountain Trail; 23 miles of varied scenery, ranging from old-growth forest, found along stream bottoms, to open ridges. The trail stretches, from a point near Libby, to the Yaak River Valley.
4. Boulder-Vinal Trail; 19 miles of rugged-backcountry trail that traverses the flanks of Mt. Henry and Vinal Creek Canyon.

- 5. Little North Fork Trail; a short trail, near Kooconusa Reservoir, leading to a scenic waterfall in a shady canyon. The trail is new, built in 1980 by the Youth Conservation Corps (YCC).

Six additional trails are being considered for nomination.

Projected demand for roadless recreation indicates that if this resource stayed at the 1980 level, there would be sufficient opportunities to satisfy demand for more than 200 years. Use in 1984 was 47,000 RVDs. Projected use in the fifth decade (excluding projected wilderness use) is expected to reach 66,000 RVDs. This demand can be met on 132,000 acres of roadless area. If less than that were available, the quality of the experience would be reduced, with use shifting to wilderness areas or to other Forests. Over-used areas are common in this recreation category because users are virtually never evenly dispersed over the entire area. The Kootenai Forest currently has 404,000 acres of inventoried roadless area. Table III-8 displays the demand over time (again, assuming no changes in user cost relationships).

TABLE III-8		
DEMAND FOR SEMI-PRIMITIVE NON-MOTORIZED RECREATION (RVDs)		
	<u>Decade</u>	<u>Demand</u>
	1	47,000
	2	51,000
	3	56,000
	4	61,000
	5	66,000

d. Developed Recreation

There are 28 campgrounds, 7 developed picnic grounds, one winter sports area (Turner Mountain Ski Area), and 18 boating sites on the Forest. Figures illustrating demand over a 50-year period are presented in Table III-9.

.....

:
: TABLE III-9
: PROJECTED DEMAND FOR DEVELOPED RECREATION
: (RVDs)
:
:
:
: Decade Demand
: 1 296,000
: 2 325,000
: 3 354,000
: 4 385,000
: 5 417,000
:

Although the Kootenai Forest has facilities to provide a total of 831,000 recreation visitor days (RVDs) in a given year, maintenance problems at that level would be major. The need for constant garbage removal and law enforcement would detract from the overall recreation experience. For that reason, the Forest's capacity is defined at 75% of that level or what is called "maximum useful capacity" (or 623,000 RVDs per year). People using developed sites can be assured of a pleasant stay and not feel undue stress from the pressures of crowding. Although the number of recreationists visiting the Kootenai Forest facilities is expected to increase steadily, the Forest could satisfy use at a level of 75% of physical capacity without expansion of facilities, for about ten decades, if demand for all sites were the same. Some sites, particularly around Lake Kooconusa, have become increasingly attractive and heavily used while other sites are underused. Expansion of certain sites and creation of new ones in the more heavily-used areas, along with closures of lightly-used sites, can effectively satisfy this type of demand.

5. Wilderness, Roadless, and Special Areas

Summary of Changes between the Draft and Final EIS

Information has been added to section c, Special Areas, on eligibility potential for Wild and Scenic River classification for four rivers on the Kootenai Forest.

a. Wilderness

The 94,400-acre Cabinet Mountains Wilderness is located in the center of the Forest and represents about 4% of the total Forest acres. The Cabinets contain a variety of landscape and vegetation, ranging from glaciated cirque basins and alpine lake settings, to cedar groves in the lower streambottoms and wetlands.

Use is primarily day hiking and some horse use. In 1984, the overall use of 18,000 RVDs was within the estimated capacity of 47,000 RVDs. The narrow configuration of the Cabinets (less than a mile wide at its narrowest point) has caused some pressures to occur at some of the more popular destination sites, such as Leigh Lake. The relatively easy access has also resulted in some sites receiving heavy use and visitor impacts. Effects of overuse are discussed in Chapter 4 in the wilderness section.

In addition to the Cabinet Mountains Wilderness is the 34,200 acre Ten Lakes Montana Wilderness Study Act (MWSA) area, located in the northeast corner of the Forest. Ten Lakes is one of an original nine areas designated in P.L. 95-150 for special wilderness evaluation. One other area on the Kootenai designated by the MWSA Bill (Mt. Henry) was evaluated separately in a Regional EIS and was later released from further wilderness study by the recent Metcalf Wilderness Bill (12/84).

b. Roadless Areas

While 4% percent of the Forest is wilderness and 2% is wilderness study, another 18% percent, or 404,000 acres, is "inventoried roadless" and eligible to be considered for wilderness. (See Figure III-5). An additional 60,000 acres (an additional 3% of Kootenai land) are also roadless, but were not counted in the inventory because they did not meet the criteria for inclusion, i.e., parcels had to be 5,000 acres or greater in size, etc. Management of these scattered, smaller parcels, however, is given equal consideration for roadless management by the various alternative plans, even though they do not qualify for consideration for wilderness.

During the 1979 Roadless Area Review and Evaluation (RARE II), approximately 324,300 acres of roadless land outside of the existing Cabinet Mountains Wilderness were inventoried on the Kootenai Forest. As a result of the RARE II process, about 89,000 acres were then recommended to Congress for wilderness (Scotchman Peaks with 72,000 acres and the Cabinet additions totaling 16,000 acres, which included the Cabinet Face West, Cabinet Face East (West), Chippewa Creek, and McKay Creek roadless areas). Congress did not act on the recommendations prior to the Ninth Circuit Court decision that ruled that the RARE II process in California was invalid. This decision required that the process for evaluating roadless areas be redone. The National Forest Management Act (regulation 219.17), revised in September 1983, requires an evaluation for wilderness of all lands that meet the criteria for inventoried roadless.

There are 438,000 acres of potential wilderness areas on the Kootenai that meet the criteria for wilderness evaluation. Of the 438,000 acres, 34,000 acres are contained in the Ten Lakes Montana Wilderness Study Area (MWSA), being studied separately from the Forest Plan process. This leaves roughly 404,000 inventoried roadless acres to be evaluated for wilderness. (See Figure III-5).

(1) Resources

This 404,000 acres of inventoried roadless areas are divided into 32 areas. The following map and chart shows the roadless areas along with selected resource information.

FIGURE III-5

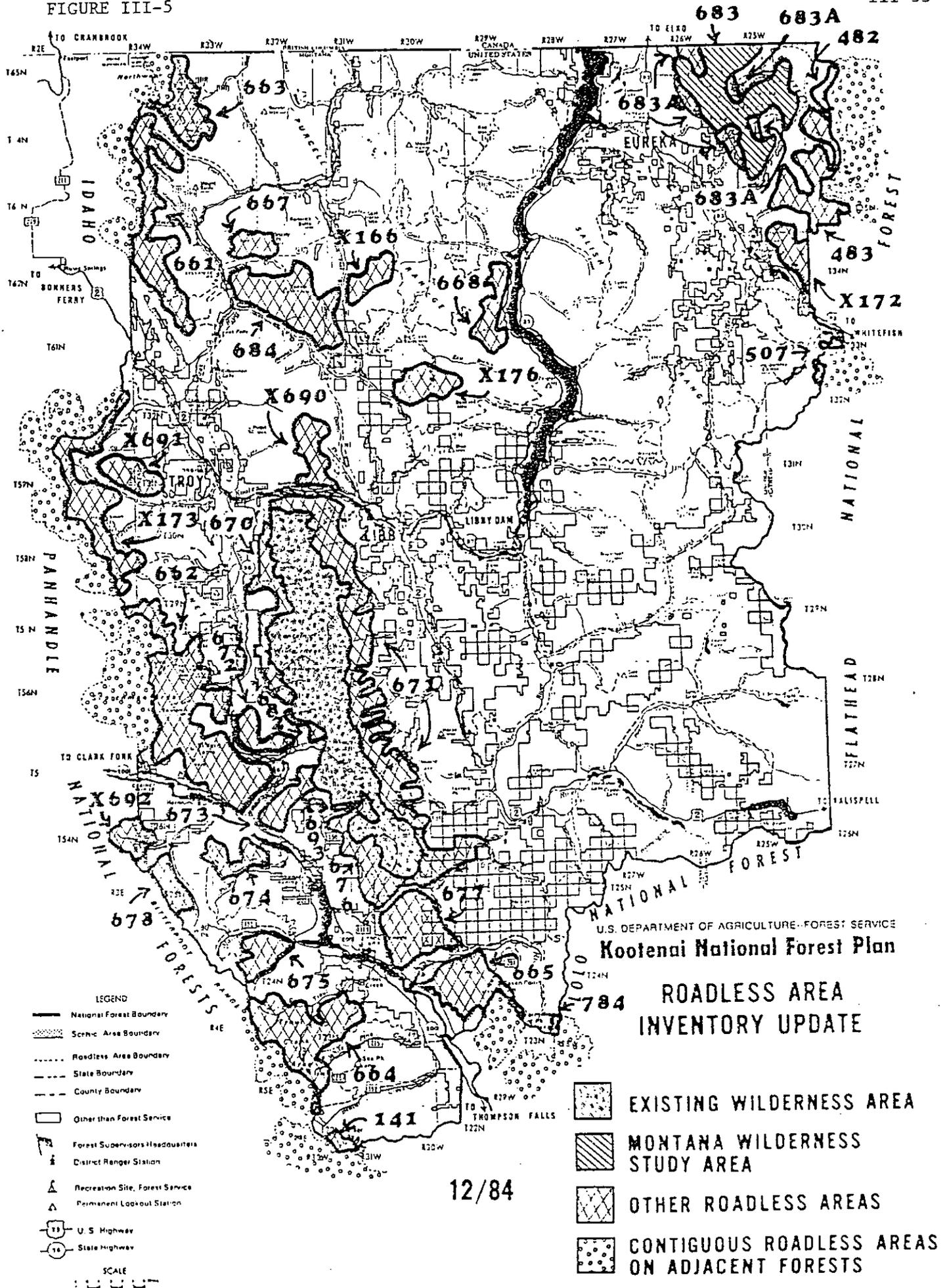


TABLE III-10

INVENTORIED ROADLESS AREAS
SELECTED RESOURCE VALUES

ROADLESS AREA NAME	AREA NO.	NET ACRES	Tent. Suit. Timber Ac.	Big Game W.Rge.Ac	Grizzly Habitat Acres	Mineral Poten- tial
Berray Mtn.	672	8300	3700	4400	8300	low
Buckhorn Ridge	661	31600	15000	1300	31500	mod*
Cabinet Face E.	671	50400	22200	0	50400	high*
Cabinet Face W.	670	10900	6300	400	10900	low
Cataract	665	27600	16700	1900	25200	high*
Chippewa	682	2300	1600	200	2300	low
Cube-Iron	784	(See Lolo National Forest Plan EIS)				
E. Fork Elk Crk	678	5000	3700	300	0	low
Flagstaff Mtn.	X690	9500	6500	4100	9500	low
Galena	677	15500	6000	1600	14000	high*
Gold Hill	668	10700	10000	1900	0	low
Gold Hill (W)	X176	10200	9900	0	1700	low
Government Mtn.	673	8600	5700	2200	8600	mod*
Grizzly Peak	667	6000	5000	2600	6000	low
LeBeau	507	(See Flathead National Forest Plan EIS)				
Lone Cliff Smds	674	6600	4100	2300	0	mod*
Marston Face	X172	6000	900	1400	6000	low
Maple Peak	141	(See Idaho Panhandle National Forest Plan EIS)				
McKay Creek	676	13500	7400	600	13500	high*
McNeeley	675	7700	5400	3200	0	low
Northwest Peaks	663	19100	5600	0	19100	low
Roberts Mtn.	X691	8000	6900	0	6000	low
Rock Creek	X693	400	0	0	400	high
Roderick	684	24800	21200	6000	24800	low
Scotchman Peaks	662	83700	34300	2500	82900	high*
10 Lakes Contig	683a	7100	7100	500	7100	high#
Thompson-Seton	483	71750	18990	0	71750	high#
Trout Creek	664	39700	29900	1900	0	high*
Tuchuck	482	19820	7442	0	19820	high#
W. Fk Elk Crk	X692	4800	4400	1300	0	low
Willard-L. Est	X173	53675	27087	0	33068	high*
Zulu Creek	X166	6400	5600	0	5000	low

* rating pertains to a portion of the area.

Portions of some areas may have different ratings.

rating applies to the oil and gas potential.

Additional information on the resources and the wilderness attributes of each of the individual roadless areas can be found in Appendix C.

(2) Wilderness Attributes

Wilderness attributes used to define wilderness quality include the degree of natural appearance and integrity, opportunities for solitude, opportunities for primitive recreation, and special, unique features associated with the area. Also considered is the boundary of the area and the opportunity for adjustments to enhance the wilderness quality.

Generally, roadless areas on the Kootenai have a high degree of natural integrity and appearance with trails being the most dominant man-made intrusion on an area. Some areas contain lookouts, or remains of lookouts. Some areas contain old cutting units or remains of low-standard roads that could be excluded with boundary adjustments. Old mining remains, adits, tailings, etc., are present in some locations, such as Buckhorn Ridge. Cabinet Face East contains an electronic site.

Opportunities for solitude vary by area and depend largely on the size and configuration of the roadless area. Generally, those areas that face out into a populated valley, such as the Kootenai and Clark Fork River Valleys, tend to have moderate to low opportunities for solitude. In the case of additions to the Cabinet Mountains Wilderness, the solitude factor is measured in terms of how much the area contributes to the solitude of the existing wilderness. (The Cabinet Mountains Wilderness, because of the elongated shape and narrowness, is subject to concentrated use at some locations, diminishing the opportunity for solitude.)

Primitive recreation opportunities are varied and include hiking, hunting, wildlife observation, fishing, skiing, and rock climbing. Most areas contain special features such as unique wildlife habitat (Flagstaff Mountain for bighorn sheep, Cataract for a cutthroat fishery, Cabinet Face West for mountain goats), unique forest ecosystems (Cabinet Face East and Scotchman Peaks), or recreation experiences unique on the Kootenai (Buckhorn Ridge).

Many areas have opportunity for boundary adjustments to correct a difficult-to-manage situation. Some areas, however, because of their configuration would be difficult to adjust without detracting from the wilderness quality. This is particularly true of Buckhorn Ridge. Adjustments are made to improve the manageability of an area, if possible, by placing the boundary on easily-defined features.

Appendix C contains details on the characteristics and values of each roadless area. The following briefly summarizes the wilderness attributes and public interest on each roadless area under consideration for wilderness.

Scotchman Peaks - 662

Wilderness Attributes: This 83,700 acre area rates high in natural integrity, opportunities for solitude, and offers a variety of primitive recreation challenges such as quality roadless hiking and hunting amidst a strongly-glaciated alpine landscape and high, mountain ridges. The area is large enough that recreation use is easily dispersed, contributing to the solitude opportunities. Wildlife include elk, whitetail and mule deer, bighorn sheep, goats, grizzly and black bear.

Public Interest: Scotchman Peaks has received much support for wilderness classification throughout the 1970's. During the RARE II review process, over 6,200 comments were received on this area. Seventy-five percent of those comments expressed support for Wilderness in Scotchman Peaks. Scotchman Peaks was recommended for Wilderness designation in RARE II and a portion (41,000 acres) was recommended in the June, 1984, Montana Wilderness Bill.

Ten Lakes Contiguous Areas - 683a

Wilderness Attributes: This 7,100 acre area contains portions of old logging roads which represent the major nonconforming feature. Likewise, opportunities for solitude are limited in the areas themselves but collectively, they contribute to the opportunities for solitude to be found in the adjacent Ten Lakes Montana Wilderness Study Area (MWSA). The entire area is part of the Northern Continental Divide grizzly bear ecosystem.

Public Interest: Much local and regional interest has been expressed for preserving the roadless character of the Ten Lakes MWSA area. The contiguous area receives light use which is associated with the Ten Lakes MWSA area (683) where most of the recreation use occurs. There is also much concern for protecting the wildlife habitat including grizzly bear and, possibly, caribou. The Ten Lakes Contiguous Area is a newly defined roadless resource and was recommended for Wilderness designation in the June, 1984, Montana Wilderness Bill.

Trout Creek - 664

Wilderness Attributes: This 39,700 acre area contains numerous opportunities for solitude owing to the "bowl" configuration that provides a screen from developments outside the area. The area is also large enough to disperse recreation use and this, along with a lack of destination points that attract use, contribute to the solitude. Wildlife in the area include elk, whitetail and mule deer, black bear, moose, and other numerous nongame species.

Public Interest: During the RARE II process over 6,300 comments were received concerning this area. About 67% of the comments favored Wilderness classification for the area. Opposition to Wilderness designation related to the timber values which are present. Trout Creek was recommended for non-wilderness in RARE II and a portion (13,000 acres) was recommended for Wilderness in the June, 1984, Montana Wilderness Bill.

Cabinet Face West - 670

Wilderness Attributes: This 10,900 acre area borders the western edge of the existing Cabinet Mountains Wilderness and portions of the area were recommended for wilderness in the original RARE II study. Opportunities for solitude vary from good to poor, with the well-vegetated drainages providing the best opportunities for solitude. There are no nonconforming features outside of short segments of trails that traverse the area. Wildlife include mountain goats and bighorn sheep. The area is predominately grizzly habitat.

Public Interest: During the RARE II process, public interest was light, but polarized. Of the 203 comments received about 54 percent opposed Wilderness designation. A portion of Cabinet Face West (8,100 acres) was recommended for Wilderness designation in RARE II and 6,900 acres were recommended for Wilderness in the June, 1984, Montana Wilderness Bill.

Cabinet Face East - 671

Wilderness Attributes: This 50,400 acre area is adjacent to the eastern edge of the existing Cabinet Mountains Wilderness. Overall, the naturalness of the area is high. Opportunities for solitude range from good to moderate, with the better opportunities available in the northern portion of the area. From Leigh Creek south, roads extend along the stream bottoms (outside the roadless area boundary) which diminish the opportunities for solitude. The area provides habitat for grizzly bears, goats, and moose, as well as deer.

Public Interest: The "roadlessness" of this area has historically been a major local concern, primarily because the area is readily viewed from Libby and along Highway 2. The area also provides numerous entrance points into the Cabinet Mountains Wilderness which contributes to the popularity of the area. Public interest in the area was strong, but polarized during the RARE II process. About 56 percent of the 2663 commentors favored Wilderness designation. A small portion of Cabinet Face East (400 acres) was recommended for Wilderness in RARE II and approximately 17,000 acres were recommended for Wilderness designation in the June, 1984, Montana Wilderness Bill.

Government Mountain - 673

Wilderness Attributes: This 8,600 acre area borders the southwestern edge of the existing Cabinet Mountains Wilderness. The naturalness of the area is considered high with no manmade features presenting a nonconforming intrusion. Opportunities for solitude vary from high to moderate with the better opportunities available in the deep drainages within the area. The area contains elk winter range and grizzly habitat.

Public Interest: During the RARE II process 85 percent of the 1,365 commentors opposed Wilderness designation for the area. Government Mountain was recommended for non-wilderness in RARE II.

McKay Creek - 676

Wilderness Attributes: This 13,500 acre area is adjacent to the southern end of the existing Cabinet Mountains Wilderness. The natural integrity is high with trails being the only manmade structures. Opportunities for solitude are many and of a high quality, especially in the Swamp Creek and Rock Creek areas. Primitive recreation opportunities include hunting, hiking, and fishing. Wildlife include mule deer and grizzly bear.

Public Interest: About 58 percent of the 2,537 people who commented during the RARE II process favored Wilderness designation. A portion of McKay Creek was recommended for Wilderness designation in RARE II (6,700 acres) and 5,000 acres were recommended for Wilderness in the June, 1984, Montana Wilderness Bill.

Chippewa Creek - 682

Wilderness Attributes: This 2,300 acre area borders the western edge of the existing Cabinet Mountains Wilderness and portions were recommended for wilderness in the RARE II study. The natural appearance of the area is high with only the Dad Peak trail crossing the area. Opportunities for solitude, however, are moderate because the area generally faces out into the Bull River Valley. The area does contribute to the solitude opportunities in the Cabinet Mountains Wilderness. Primitive recreation opportunities include hunting and hiking. Wildlife include mountain goats, bighorn sheep, mule deer, and grizzly bears.

Public Interest: During the RARE II process, 2,499 people commented on this area. About 58 percent favored Wilderness designation. A portion of Chippewa (400 acres) was recommended for Wilderness designation in RARE II and 1,300 acres were recommended for Wilderness in the June, 1984, Montana Wilderness Bill.

Rock Creek - X693

Wilderness Attributes: This 400 acre area was identified in the 1983 inventory as a potential addition to the Cabinet Mountains Wilderness. Although small in size, the area is high in natural integrity and would contribute to the opportunities for solitude in the existing wilderness. The area contains mountain goat and grizzly bear habitat.

Public Interest: The public has not had any previous opportunity to address this area's wilderness potential.

Roderick - 684

Wilderness Attributes: The natural integrity of this 24,800 acre area is high with trails and remains of two lookouts the only manmade features in the area. Opportunities for solitude are of a high quality owing to the large size of the area and the lack of destination points which lead to concentrations of users that, in turn, diminish solitude. Primitive recreation opportunities include hunting, hiking, big game observation, nontechnical mountain climbing, and fishing. Wildlife habitat includes moose, whitetail deer, and grizzly bears.

Public Interest: The area has been evaluated in both RARE I and RARE II where little support for wilderness classification was expressed. Of the 1,152 people who commented during the RARE II process, 84 percent opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

Galena - 677

Wilderness Attributes: Aside from the trails that traverse the 15,500 acre area, the natural appearance of the area is intact. Solitude opportunities are a high quality, particularly in the Galena and Canyon Creek drainages, and the Silver Butte drainage. Primitive recreation opportunities include unroaded hunting and hiking. Wildlife habitat includes mule deer and grizzly habitat.

Public Interest: The area was evaluated in both RARE I and RARE II. Over 2,400 people commented on this area during RARE II. About 60% favored Wilderness designation. The RARE II recommendation was for non-wilderness.

Cataract - 665

Wilderness Attributes: The natural integrity of this 27,600 acre area is high with only trails and a fire lookout representing manmade intrusions. The configuration of the area, that of a "hanging valley," provides opportunity for solitude. Roadless hunting and fishing in Cataract Creek are the key primitive recreation opportunities available. Wildlife habitat includes grizzly bear and elk.

Public Interest: In the RARE II evaluation about 69 percent of the 2,159 commentors favored Wilderness designation. The RARE II recommendation was for non-wilderness.

Buckhorn Ridge - 661

Wilderness Attributes: The natural integrity of this 31,600 acre area ranges from being intact on the Kootenai side to compromised on the Idaho Panhandle portion where there are many signs of past human activity. Generally the opportunities for solitude are moderate owing to the ridgeline configuration of the area, permitting one to view the developments outside the area. However, most of the sidedraws afford opportunities for solitude. The area provides excellent ridgetop hiking opportunities and roadless hunting. Big game winter and summer range and grizzly bear and moose habitat are also present.

Public Interest: About 89 percent of the 2,131 people commenting on this area during RARE II opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

Northwest Peaks - 663

Wilderness Attributes: This 19,100 acre area rates high in natural integrity and appearance with only a few miles of trail and the old Northwest Peak lookout presenting a nonconforming use. Generally, opportunities for solitude are high throughout the area especially in the upper West Fork Yaak basins. Primitive recreation opportunities include hunting, fishing, hiking, rock climbing, and ski mountaineering. Big-game winter range and summer range are present as is grizzly bear habitat.

Public Interest: Although there have been concerns for maintaining the primitive character of the area, about 87 percent of those commenting during RARE II (1,971 signatures) opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

West Fork Elk Creek - X692

Wilderness Attributes: The natural integrity of this 4,800 acre area is high with no manmade features present to detract from the pristine character of the area. Despite its relatively small size, opportunities for solitude are high owing to the steep canyon walls that generally surround the area. Hunting is the primitive recreation experience most readily available. The area also provides important elk summer range.

Public Interest: Because the area was identified in the 1983 reinventory, the public has not had the opportunity to comment on the wilderness potential of the area.

Gold Hill - 668

Wilderness Attributes: The naturalness of this 10,700 acre area is intact with several miles of trail the only manmade intrusion. Opportunities for solitude range from good to moderate with the better opportunities available in the heavily-vegetated streambottoms of Parsnip Creek. Primitive recreation opportunities include hiking and hunting. Whitetail and mule deer habitat are contained within the area.

Public Interest: During RARE II, 56 percent of the 2,500 commentors favored Wilderness designation. The RARE II recommendation was for non-wilderness.

Gold Hill (West) - X176

Wilderness Attributes: The naturalness of this 10,200 acre area is largely intact with a primitive trail the only manmade feature in the area. The area is covered with dense vegetation providing opportunities for solitude. Primitive recreation opportunities include hiking, hunting, and fishing. Wildlife habitat includes grizzly bear, whitetail and mule deer, and moose.

Public Interest: Gold Hill (west) was evaluated in RARE I and recommended for non-wilderness.

Berray Mountain - 672

Wilderness Attributes: The naturalness of this 8,300 acre area is generally good with the recently de-activated Berray Mountain lookout and several miles of trail the only manmade intrusions. Opportunities for solitude range from good to poor with the best opportunities available in Berray Creek. Primitive recreation experiences include hiking, hunting, and wildlife observation. The area contains bighorn sheep, whitetail and mule deer, and grizzly habitats.

Public Interest: During the RARE II evaluation, 1,340 people commented and about 86 percent opposed a Wilderness designation. The RARE II recommendation was for non-wilderness.

East Fork Elk Creek - 678

Wilderness Attributes: The naturalness of this 4,800 acre area has remained essentially intact since the 1979 RARE II inventory. Despite its relatively small size, opportunities for solitude are considered high, especially in the canyons of Cascade and Butte Creeks. Primitive recreation experiences include quality elk hunting and hiking. The area contains elk winter range habitat.

Public Interest: Of the 1,242 people who commented during the RARE II process, 84 percent opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

Lone Cliff Smeads - 674

Wilderness Attributes: Manmade features are generally lacking, except for a few miles of trail, and thus the natural appearance of this 6,600 acre area is high. Overall, opportunities for solitude are moderate because of the signs of development immediately outside the area. Primitive recreation experiences include hunting and hiking. The area contains big-game summer and winter range.

Public Interest: Of the 1,339 people who commented on this area during the RARE II process, about 86 percent opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

McNeeley - 675

Wilderness Attributes: The natural integrity of this 7,700 acre area is high with no manmade features to detract from the natural appearance. Opportunities for solitude are considered moderate because of the highly visible power corridor bordering the southern edge of the area and the proximity of the Marten Creek road on the northern edge of the area. Hunting is the primary primitive recreation activity in the area. The area contains elk winter range habitat.

Public Interest: About 86 percent of the 1,323 people who commented on this area during the RARE II process opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

Flagstaff Mountain - X690

Wilderness Attributes: The naturalness of this 9,500 acre area is considered fairly well intact with only trails and the remains of the Flagstaff lookout presenting manmade intrusions. Opportunities for solitude range from good to poor with the better opportunities available in the northern portion and around the West Fork Quartz Creek. Primitive recreation opportunities include hunting, hiking, and observing bighorn sheep. Along with bighorn sheep habitat, the area contains whitetail and mule deer summer range and elk and grizzly bear habitat.

Public Interest: The area has never been evaluated for wilderness and thus no previous public comments have been received.

Roberts Mountain - X691

Wilderness Attributes: The natural integrity of this 8,000 acre area is rated as high with no manmade features present to provide an intrusion. Opportunities for solitude are considered moderate because although the area is relatively small, the vegetation provides screening from outside influences. Primitive recreation experiences include hunting and ridgetop hiking. Elk winter range and grizzly habitat are located in the area.

Public Interest: Because the area has never been addressed in a wilderness study, there have been no previous expressions of wilderness or nonwilderness for the area.

Grizzly Peak - 667

Wilderness Attributes: The naturalness of this 6,000 acre area has remained good with only a few miles of trail presenting any evidence of man's activities. The continuous canopy of trees in the area provide many opportunities for solitude, despite the relative small size of the area. Primitive recreation offered is primarily hunting in the fall. The area contains elk winter range and grizzly habitat.

Public Interest: About 85 percent of the 1,359 people who commented on this area during the RARE II process opposed Wilderness designation. The RARE II recommendation was for non-wilderness.

Zulu Creek - X166

Wilderness Attributes: The natural integrity of this 6,400 acre area is high with only a few miles of hiking trails around Pink Mountain providing evidence of man's activities. Opportunities for solitude range from high to moderate with the better opportunities available along the heavily vegetated streambottoms. Roadless hunting and ridgetop hiking are the primitive recreation opportunities offered by the area. The area includes mule deer, moose, and grizzly habitat.

Public Interest: Zulu was evaluated during the RARE I process and recommended for non-wilderness. There has been no recent expressions of support or opposition regarding wilderness classification for the area.

Marston Face - X172

Wilderness Attributes: The natural integrity and appearance has remained high in this 6,000 acre area with trails the only manmade intrusion. Opportunities for solitude are generally high, especially in the Laughing Water Creek drainage and less so along Patrick Ridge which looks into the Tobacco Valley. Primitive recreation opportunities are numerous and include hiking, hunting, crosscountry skiing, wildlife observation, and viewing Glacier Park to the east. The area contains mule deer and elk winter range, and is considered important grizzly habitat.

Public Interest: Marston Face was evaluated during the RARE I process and recommended for non-wilderness. No expressions have been made recently, in support or opposition, regarding a wilderness classification for the area.

Willard-Lake Estelle - X173

Wilderness Attributes: The natural integrity of this 53,600 acre area is high with trails being the only manmade alteration to the natural appearance. Opportunities for solitude are high due to the large size of the area, the topographic relief combined with vegetation, and the remoteness of the area. Primitive recreation experiences available include quality hiking, hunting, camping, and fishing. Wildlife habitat includes whitetail and mule deer, moose, elk, and grizzly.

Public Interest: Willard-Lake Estelle was evaluated during RARE I. The resulting recommendation was for non-wilderness.

Cube-Iron - 784

Wilderness Attributes: This 38,000 acre area is predominantly on the Lolo National Forest who has the major responsibility for the wilderness study of the area. The 2,300 acre Kootenai portion is high in natural integrity with no developments that would detract from the natural appearance. Opportunities for solitude on the Kootenai portion are considered moderate because it faces out into the Vermilion River Valley. Primitive recreation opportunities include ridgetop hiking and big game hunting. The area contains elk and grizzly habitat.

Public Interest: During the RARE II process the public seemed polarized concerning the future treatment of this area. About 52 percent of the 3,157 commentors opposed Wilderness designation. The RARE II recommendation was for non-wilderness. The Governor recommended Wilderness designation for Cube-Iron in May of 1984.

Thompson-Seton - 483

Wilderness Attributes: This 71,700 acre area extends into the Flathead National Forest who has the major responsibility for the wilderness evaluation and recommendation for the area. The 20,100 acre Kootenai portion rates high in natural integrity and appearance with trails being the only manmade feature present. Opportunities for solitude are high because of strong topographic and vegetative screening. Primitive recreation opportunities include hunting, hiking, viewing, and wildlife observation. The area contains big game summer range, grizzly, and wolf habitat.

Public Interest: Over 3,000 people commented on this area during the RARE II process. Their comments were split 50/50 between those preferring a Wilderness designation and those preferring some other use of the area. The RARE II recommendation was for non-wilderness.

Tuchuck - 482

Wilderness Attributes: This 18,800 acre area extends into the Flathead National Forest who has the major responsibility for evaluating the area for wilderness and making recommendations. On the 2,300 acre Kootenai portion the natural integrity and appearance is high with the trail to Tuchuck Mountain the only manmade alteration to the area. Opportunities for solitude are high due to the terrain and the remoteness of the area. Primitive recreation opportunities include hunting, hiking, and wildlife viewing, including grizzlies. The area contains elk, grizzly, and wolf habitat.

Public Interest: Over 3,000 people commented on this area during the RARE II process. Their comments were split 50/50 between those preferring a Wilderness designation and those preferring some other use of the area. The RARE II recommendation was for non-wilderness. The Governor's recommendation in May 1984 and the Montana Wilderness Bill of June, 1984, both recommended Wilderness designation for the area.

Maple Peak - 141

Wilderness Attributes: This 16,300 acre area extends predominantly onto the Lolo and the Idaho Panhandle National Forests. The Idaho Panhandle Forest has the major responsibility for evaluating the area for wilderness and making recommendations. The 1,400 acre Kootenai portion of the area rates high in natural integrity and appearance with no manmade features as detractors. Opportunities for solitude are high owing to the topographic relief and remoteness of the area. Primitive recreation opportunities include hiking, camping, and hunting. Wildlife habitat present includes elk summer range.

Public Interest: Of the 1,936 people who commented on this area during RARE II about 89 percent were opposed to Wilderness designation. The RARE II recommendation was for non-wilderness.

Le Beau - 507

Wilderness Attributes: The 6,100 acre area extends into the Flathead National Forest who has the major responsibility to evaluate the area for wilderness and to make recommendations. The 700 acre Kootenai portion is high in natural integrity and appearance, there being no manmade features present. Opportunities for solitude are moderate as most of the area faces out into developed areas west of Ketowke Mountain. Primitive recreation opportunities include hiking and hunting. The area contains grizzly habitat.

Public Interest: During the RARE II process 1,560 people commented on this area. About 85 percent of those people were opposed to Wilderness designation. The RARE II recommendation was for non-wilderness.

c. Special Areas

Summary of Changes between the Draft and Final EIS

Eligibility potential for classification as a Wild and Scenic River has been added for four rivers on the Kootenai Forest (Yaak, Kootenai, Bull and Vermilion rivers).

(1) Scenic Areas

There are three designated Scenic Areas on the Kootenai. They are the Ten Lakes Scenic Area (contained within the Ten Lakes MWSA area), 6,500 acres; the Northwest Peaks Scenic Area, 6,500 acres (4,800 on the Kootenai); and Ross Creek Scenic Cedar Grove, 100 acres.

(2) Research Natural Areas

There are six proposed Research Natural Areas (RNAs) in the Proposed Action and Final Plan, and one (Ulm Peak) in the Current Direction alternative. The six areas are as follows:

Ulm Peak: 670 acres

Habitat Type 680, TSME/MEFE, Minor representative

Habitat Type 840, TSME/LUHI, Minor representative

Norman Mountain/Parmenter: 1275 acres

Habitat Type 320, PSME/CARU, Major representative (Norman Mountain portion)

Cottonwood, Major representative (Parmenter portion)

Wolf/Weigel: 240 acres

Representing waterfalls as an aquatic type

Big Creek: 200 acres

Habitat Type 250, PSME/VACA Major representative

Hoskins Lake: 370 acres

Habitat Type 420, PIEN/CLUN Representing a high production potential lake with fish.

Lower Ross Creek: 840 acres

Habitat Type 530, THPL/CLUN, Major representative

Habitat Type 550, THPL/OPHO, Minor representative

Habitat Type 570, TSHE/CLUN, Major representative

There are four areas in the existing Cabinet Mountains Wilderness which represent aquatic types noted in the Regional Goals. These areas would not technically be managed as RNAs, but would be available for research consistent with Wilderness management goals. These areas are:

Falls Creek: 100 acres, Type 3 stream
 Snowshoe Lake: 15 acres, Low production potential lake
 Wanless Lake: 115 acres, Average production potential lake
 Bramlet Lake: 10 acres, Lake without fish

In addition a special interest area at Pete Creek Meadows (100 acres) is proposed as a representative of a Type 1 stream.

(For details on habitat-types refer to Pfister et al, 1977.)

(3) Wild and Scenic Rivers

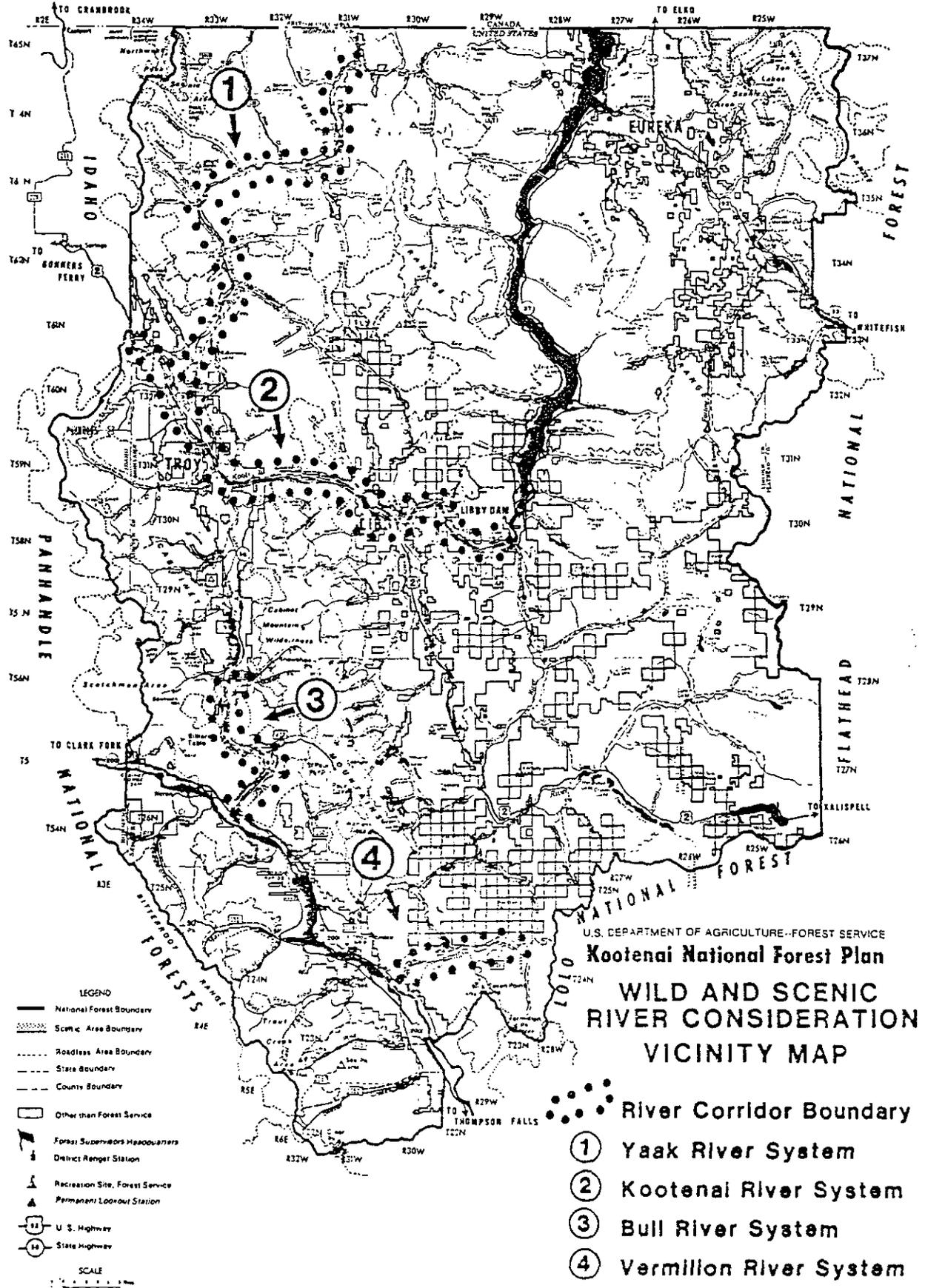
Summary of Changes between the Draft and Final EIS

This section is new information since the Draft EIS and displays eligibility for potential classification of four rivers on the Kootenai Forest.

Currently there are no Wild and Scenic Rivers on the Kootenai Forest. Four rivers appear to be eligible for consideration and they are discussed in this section for future reference. The rivers are the Yaak, Kootenai, Bull, and Vermilion. Final designation as a Wild and Scenic River is done by Congress after thorough study and public involvement. The four rivers discussed in this section will be formally studied and recommended for or against inclusion in the Wild and Scenic River system at a later date. In the interim, their river values will be protected on the Kootenai Forest land involved within the identified river corridor.

Background: The purpose and authority for study of wild and scenic rivers is established in the Wild and Scenic Rivers Act of October 1, 1968, as amended. Under the authority of the Act, the Kootenai Forest is charged with the identification of potential additions to the Wild and Scenic Rivers System. As a result, rivers on the Forest were analyzed for their eligibility and potential classification in the System.

River Eligibility and Potential Classification: To be eligible for consideration for addition to the System a river must be free-flowing and with its adjacent land area possess one or more "outstandingly remarkable" values. Scenic, recreation, geologic, fish and wildlife, historic, cultural, or other similar values are examples of the considerations. The eligible river systems are assigned a potential classification of wild, scenic or recreational. A river can have all three classifications in different segments or sections.



The characteristics of these three classifications are:

Wild River - Rivers or sections of rivers that are generally accessible only by trail, with the watershed or shoreline essentially primitive and undeveloped.

Scenic River - Rivers or sections of river with shorelines and watersheds still largely primitive and shorelines largely undeveloped but accessible in places by roads.

Recreation River - Rivers or sections of rivers that are readily accessible by roads, have some development along their shoreline and may have some history of impoundment or diversion.

By application of the above criteria the following rivers were identified as eligible for further consideration as potential additions to the Wild and Scenic Rivers System.

YAAK RIVER SYSTEM

Introduction

The Yaak River drains the northwest portion of the Kootenai Forest and merges with the Kootenai River 6 miles downstream from the town of Troy, Montana. The Yaak is 45 miles long with 57% of the river mileage in National Forest ownership. 16,000 acres are included within a 1/2 mile-wide corridor. The qualities that contribute to its eligibility are the scenic values along the entire length, as well as the historical values that are related to the gold-mining days. The natural topographic features along with the landownership pattern readily yield four different segments that can be assessed independently. They are:

Segment 1 - Recreation river potential from the junction of the East and West Fork, downstream for 17 miles to Pete Creek. This segment meanders through valley-bottom land in a rural wetland setting that is primarily private ownership (67%). The historical community of Yaak, Montana and a major portion of the Yaak River Road are located within the corridor. Also included is the Upper Ford work center (Yaak Ranger District).

Segment 2 - Recreation river potential for 9 miles from Pete Creek to Meadow Creek. This segment flows at an increased rate through a heavily forested setting that is primarily National Forest ownership (90%). The Pete Creek and Whitetail Creek campgrounds, as well as the Yaak River Road are located within the corridor.

Segment 3 - Recreation river potential for 12 miles from Meadow Creek to the Yaak Falls. This segment flows at a still faster rate through a forested, narrow, valley-bottom setting that is primarily National Forest land (68%). The Red Top Campground, historical mining community of Sylvanite and the Yaak River Road are located within the corridor. Also included is the Sylvanite Ranger Station.

Segment 4 - Wild river potential begins at the Yaak Falls and cascades downstream for 8 miles through a deep canyon setting and ends at the Bonneville Power Administration (BPA) electric transmission corridor paralleling U.S. Highway 2 adjacent to the mouth of the Yaak River. This rugged segment is almost entirely National Forest land (97%) and includes the Yaak Falls Campground.

Alternatives for Future Study

(The following alternatives are presented as possibilities for consideration and are not meant to be limiting for any future study.)

Alternative A: The entire river corridor (river segments 1, 2, 3, and 4). This would produce a 45-mile river system with 16,000 acres, of which 64% would be National Forest land. 37 miles would be in a Recreation River status and 8 miles would be in a Wild River status. This alternative would involve the largest amount of private land (5,710 acres).

Alternative B: The lower 2/3 of the river corridor (river segments 2, 3 and 4). This would produce a 29-mile river system with 10,300 acres, of which 82% would be National Forest land. 21 miles would be in a Recreation River status, and 8 miles would be in a Wild River status similar to Alt. A. This alternative would effect 1,850 acres of private land.

Alternative C: A significant portion (42%) of the lower river corridor (river segments 3 and 4). This would produce a 19-mile river system with 6,800 acres, of which 78% would be National Forest land. 11 miles would be in a Recreation River status, and 8 miles would be in a Wild River status similar to Alts. A and B. This alternative would effect 1,500 acres of private land.

Alternative D: The lower portion of the river corridor (river segment 4). This would produce an 8-mile Wild River system that would be 93% National Forest land and have the least effect on private land (180 acres). This alternative could be extended to include the lower portion of the Kootenai River. See river segment 5 in the Kootenai River discussion.

Interim Management Considerations

The Final Forest Plan (Alternative JF) has land designations within the identified river corridor that will protect the Yaak River qualities for future consideration as a potential addition to the Wild and Scenic River System.

Yaak River System

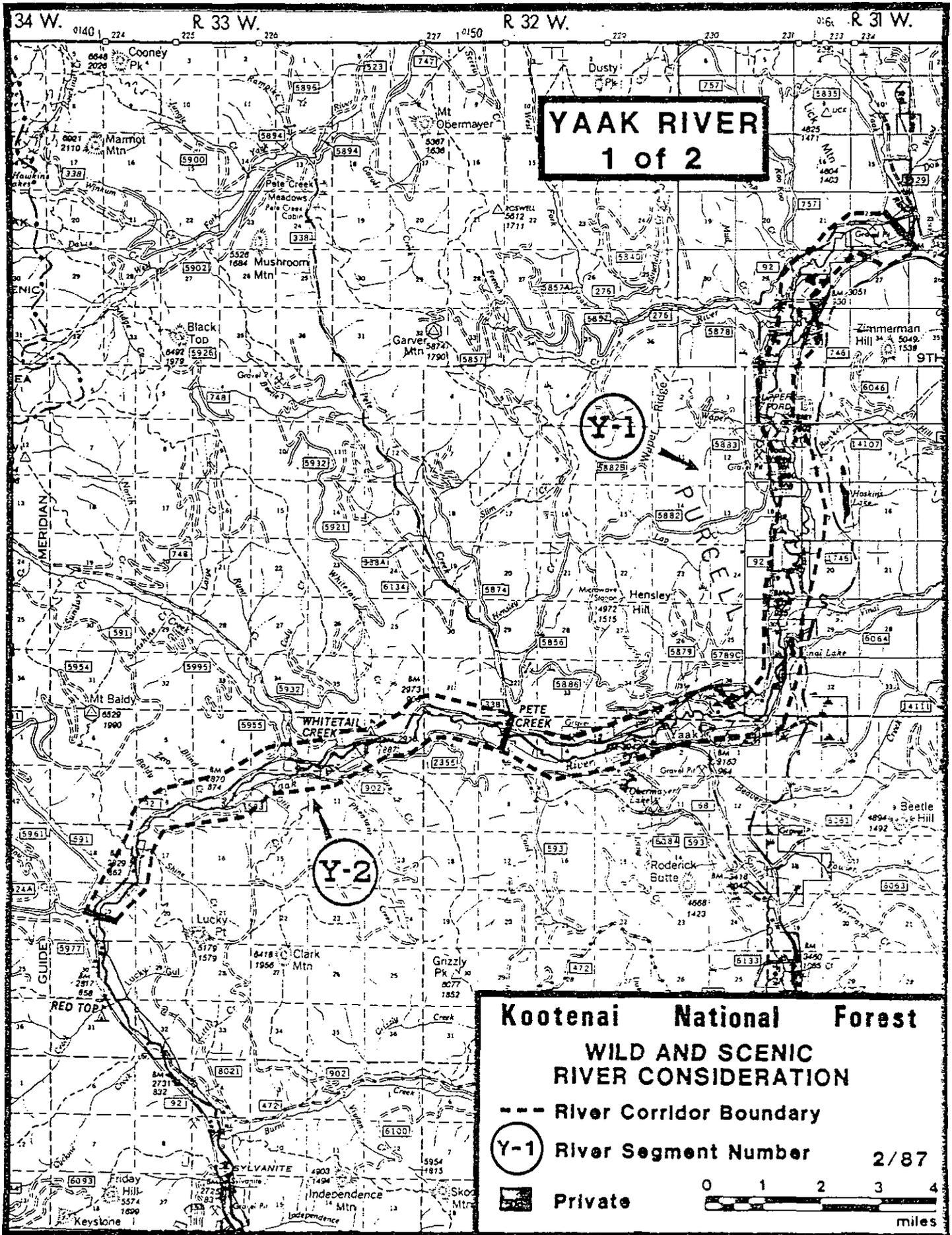
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Table III-13

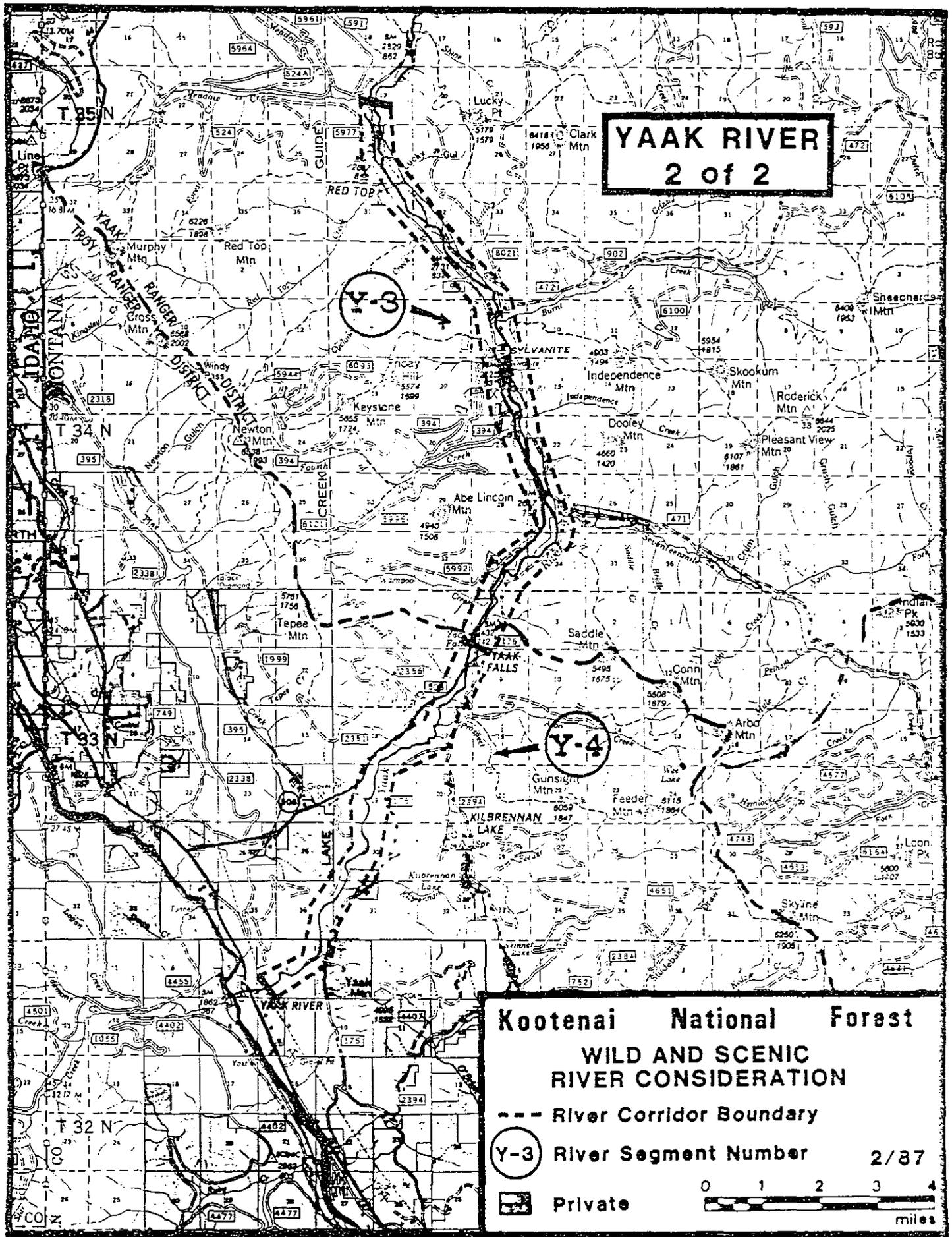
YAAK RIVER SYSTEM

River Segments

	1	2	3	4	
	E. & W. Fork to Pete Cr. (Recr.)	Pete Cr. to Mdw. Creek (Recr.)	Mdw. Cr. to Yaak Falls (Recr.)	Yk. Falls to BPA Trans.Line (Wild)	River Corridor Totals
<u>River Miles</u>					
on Private land:	12.6	2.3	4.2	0.2	19.3
(% Priv.)	75	24	36	3	43
on National Forest:	4.1	7.1	7.4	7.5	26.1
(% KNF)	25	76	64	97	57
Total Miles in Segment:	16.7	9.4	11.6	7.7	45.4
(% of Total River)	37	21	26	17	100
<u>Landownership (acres)</u>					
on Private land:	3,860	350	1,320	180	5,710
(% Priv.)	67	10	32	7	36
on National Forest:	1,870	3,200	2,830	2,420	10,320
(% KNF)	33	90	68	93	64
Total Acres in Segment:	5,730	3,550	4,150	2,600	16,030
(% of Total Acres)	36	22	26	16	100
<u>Road Miles</u>					
on Private land:	12.3	1.0	7.7	0.0	21.0
(% Priv.)	69	6	38	0	33
on National Forest:	5.6	15.9	12.7	7.8	42.0
(% KNF)	31	94	62	100	67
Total Road Miles in Segment:	17.9	16.9	20.4	7.8	63.0
(% of Total Road Miles)	28	27	32	12	100



YAAK RIVER 2 of 2



Kootenai National Forest WILD AND SCENIC RIVER CONSIDERATION

- River Corridor Boundary
- Y-3 River Segment Number 2/87
- Private



KOOTENAI RIVER SYSTEM

Introduction

The Kootenai River drains the northern portion of the Kootenai Forest from Libby Dam downstream to the Montana-Idaho State line. The Kootenai is 47 miles long with 71% of the river mileage in non-National Forest landownership. 18,500 acres are situated within a 1/2 mile-wide corridor including 3,500 acres of water surface. The qualities that contribute to its eligibility are the scenic values along the entire length including Kootenai Falls, the fishery values, as well as the historic and pre-historic values that are related to the early days of northwest exploration and settlement. Natural topographic features along with the landownership pattern readily yield five different segments that can be assessed independently. They are:

Segment 1 - Recreation river potential from the junction of the Fisher River (3 miles below Libby Dam), downstream for 10 miles to Tub Gulch approximately 4 miles upstream from the town of Libby, Montana. This segment flows through a wide-bottom canyon in a rural setting that is mostly non-National Forest ownership (86%). The historical site of Jennings, Montana and Jennings Rapids are located within the corridor. Also included are State Highway 37, the Burlington Northern Railroad, the W.R. Grace Mine mill and loading facility, the Canoe Gulch Ranger Station and a potential hydro-electric site (Libby Re-Regulating Dam).

Segment 2 - Recreation river potential for 10 miles from Tub Gulch to Quartz Creek. This segment flows through a wider valley-setting that is more developed than Segment 1 although open hayfields border the river in many places. Landownership is primarily non-National Forest (81%). A portion of the town of Libby, Montana, a major portion of State Highway 37, 4 miles of U.S. Highway 2, and the Burlington Northern Railroad are all located within the corridor.

Segment 3 - Recreation river potential for 8 miles from Quartz Creek to Surprise Gulch, 2 miles below Kootenai Falls. This segment flows at a faster rate through a forested, narrow, valley-bottom and canyon setting that is primarily National Forest land (63%). China Rapids, Kootenai Falls, the Lions picnic ground and vista point, the unique 'swinging footbridge' as well as the historic David Thompson portage trail and Kootenai Falls Cultural Resource District are located within the corridor. U.S. Highway 2, the Burlington Northern Railroad, and the Pacificorp electric transmission line are also included as well as the Kootenai Falls hydro-electric site (Northern Lights REA).

Segment 4 - Recreation river potential for 10 miles from Surprise Gulch to a mile below Kootenai Vista Estates. This segment flows through a valley-bottom setting and includes a portion of the town of Troy, Montana, U.S. Highway 2, the Burlington Northern Railroad and a Bonneville Power Administration (BPA) Substation. Landownership is 95% non-National Forest.

Segment 5 - Recreation river potential for 8 miles to the Montana-Idaho State line and the Kootenai Forest boundary. (Another 5 miles of recreation river continues into Idaho with a significant portion of National Forest land located within the Idaho Panhandle National Forest.) This segment flows through a forested, wide canyon-bottom and includes the mouth of the historic Yaak River (which could be a natural continuation under one alternative). Landownership is 84% National Forest land. U.S. Highway 2, and the Burlington Northern Railroad are also located within the corridor.

Alternatives for Future Study

(The following alternatives are presented as possibilities for consideration and are not meant to be limiting for any future study.)

Alternative A: The entire river corridor (river segments 1, 2, 3, 4 and 5). This would produce a 47-mile Recreation River system with 18,500 acres of land and water surface, of which 33% would be National Forest ownership. The largest amount of private land (12,350 acres) would be affected as well as two towns (Libby and Troy, Montana) and two potential hydro-electric sites (Libby Re-reg. and Kootenai Falls).

Alternative B: The lower 2/3 of the Recreation River corridor (river segments 2, 3, 4 and 5). This would produce a 37 mile river system with 14,500 acres of land and water surface, of which 39% would be National Forest land. 8,800 acres of non-national Forest ownership would be affected as well as the two towns of Libby and Troy, Montana, and the Kootenai Falls hydro-electric site.

Alternative C: The lower half of the Recreation River corridor (river segments 3, 4 and 5). This would produce a 26 mile river system with 10,200 acres, of which 47% would be National Forest land. This alternative would effect 5,400 acres of private land including a portion of the town of Troy, Montana, and the Kootenai Falls hydro-electric site.

Alternative D: The lower portion of the river corridor (river segment 4 and 5). This would produce a 19-mile Recreation River system that would be 39% National Forest land. 4,200 acres of private land would be affected including a portion of the town of Troy, Montana.

Alternative E: The lowest portion of the river corridor (river segment 5). This would produce an 8-mile Recreation River system that would be 84% National Forest land. This river portion could be joined with the lower portion of the Yaak River as another alternative. See the description of river segment 4 in the writeup on the Yaak River system.

Kootenai River System

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Interim Management Considerations

The Final Forest Plan (Alternative JF) has land designations within the identified river corridor that will protect the Kootenai River qualities for future consideration as a potential addition to the Wild and Scenic River System.

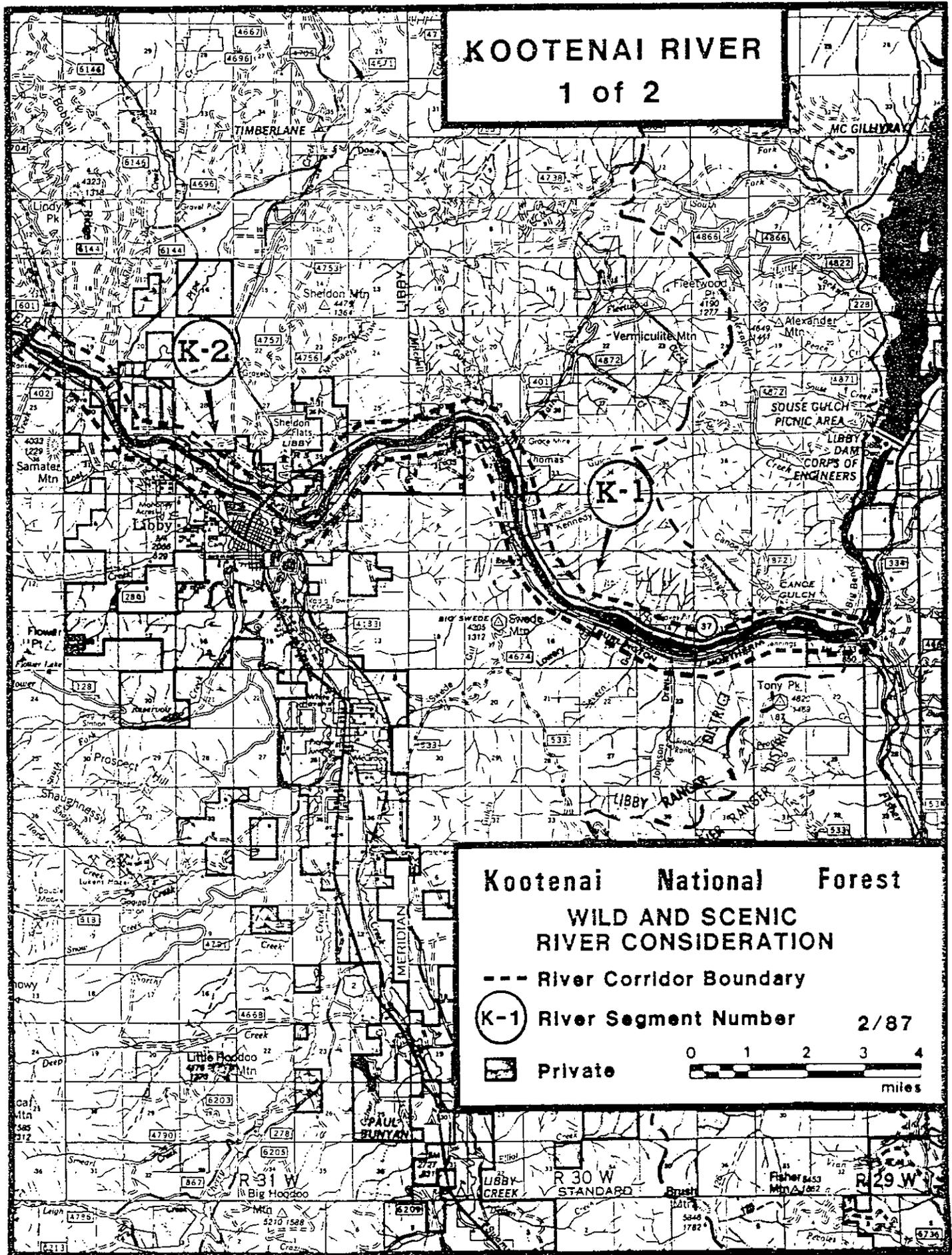
Table III-14

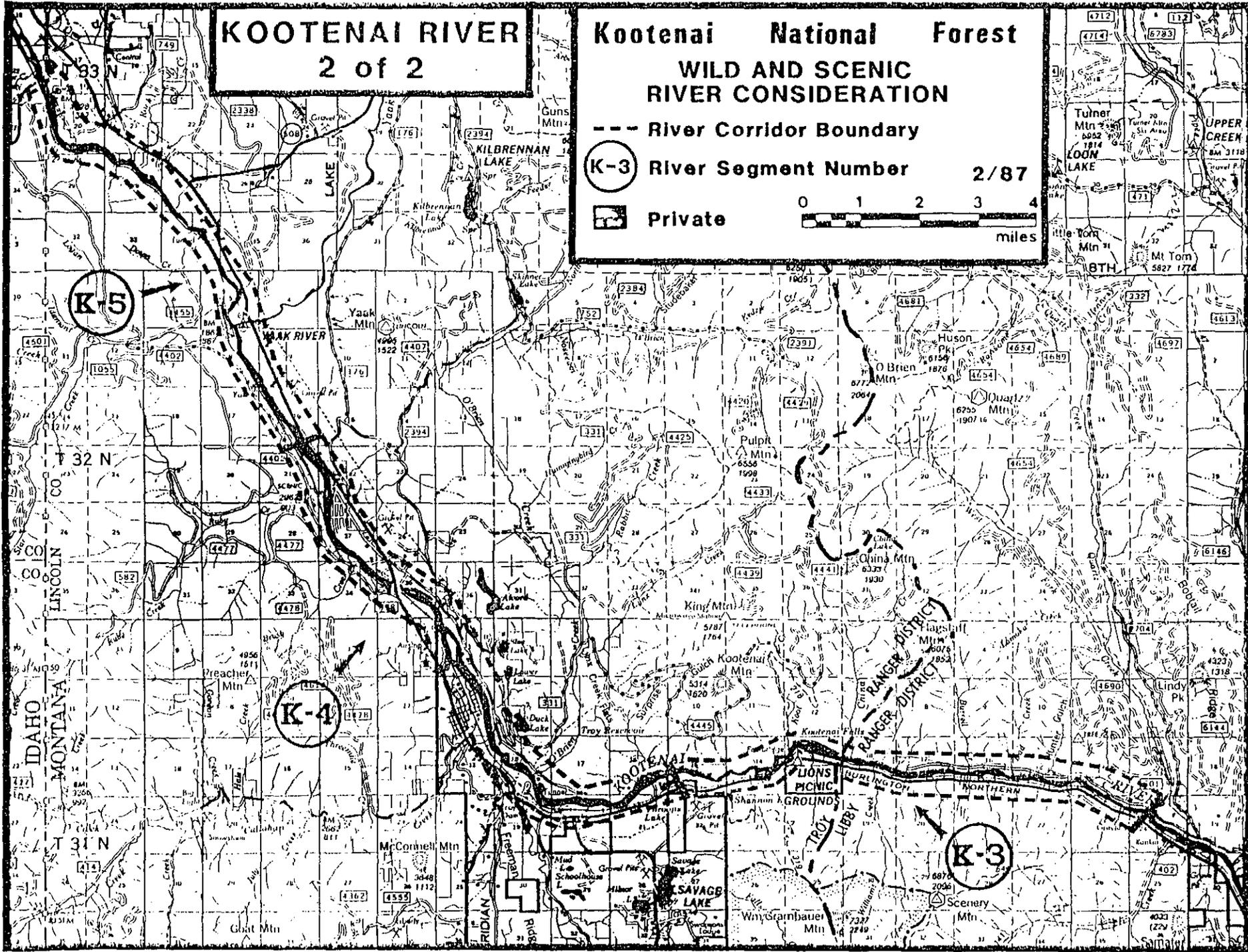
KOOTENAI RIVER SYSTEM

River Segments

	1	2	3	4	5	
	Fisher River to Tub Gulch (Recr.)	Tub Gl. to Quartz Cr. (Recr.)	Quartz Cr. to Surpr. Cr. (Recr.)	Cr. Surpr. to Koot. Vista (Recr.)	Cr. Koot. Est. to Idaho Line (Recr.)	River Corridor Totals
<u>River Miles</u>						
on Private land:	7.8	8.4	4.6	9.1	3.2	33.1
(% Priv.)	79	81	60	89	38	71
on National Forest:	2.1	2.0	3.1	1.1	5.3	13.6
(% KNF)	21	19	40	11	62	29
Total Miles in Segment:	9.9	10.4	7.7	10.2	8.5	46.7
(% of Total River)	21	22	16	22	18	100
<u>Landownership (acres)</u>						
on Private land:	3,500	3,410	1,230	3,720	490	12,050
(% Priv.)	86	81	37	95	16	67
on National Forest:	580	810	2,090	200	2,510	6,190
(% KNF)	14	19	63	5	84	33
Total Acres in Segment:	4,080	4,220	3,320	3,920	3,000	18,540
(% of Total Acres)	22	23	18	21	16	100
<u>Road Miles</u>						
on Private land:	19.2	19.9	5.7	18.8	2.3	65.9
(% Priv.)	80	86	50	85	26	74
on National Forest:	4.7	3.2	5.7	3.4	6.5	23.5
(% KNF)	20	14	50	15	74	26
Total Road Miles in Seg:	23.9	23.1	11.4	22.2	8.8	89.4
(% of Total Road Miles)	27	26	13	25	109	100

KOOTENAI RIVER 1 of 2





KOOTENAI RIVER
2 of 2

Kootenai National Forest
WILD AND SCENIC RIVER CONSIDERATION
 --- River Corridor Boundary
 (K-3) River Segment Number 2/87
 Private

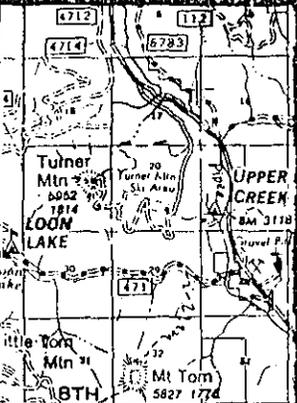


FIGURE III - 5e

BULL RIVER SYSTEM

Introduction

The Bull River drains the southwestern corner of the Kootenai Forest and merges with the Cabinet Gorge Reservoir 4 miles northwest of the town of Noxon, Montana. The Bull is 21 miles long with 81% of the river mileage in private landownership. 5,850 acres are included within a 1/2 mile-wide corridor with 60% in private ownership. The qualities that contribute to its eligibility are the scenic values along the entire length.

The natural topographic features along with the landownership pattern readily yield two different river segments that can be assessed independently. They are:

Segment 1 - Recreation river potential from the junction of the North and South Forks, downstream for 12 miles to the junction of the East Fork. The river meanders through the upper Bull river valley which is primarily rural wetlands and important riparian areas. Landownership is 79% private. The Bull River Highway and Cabinet Mountain Vista Point are included within the corridor.

Segment 2 - Recreation river for 9 miles from the junction of the East Fork to the Cabinet Gorge Reservoir. This segment flows at a faster rate through a narrow valley-bottom canyon setting that is 54% National Forest ownership. A major portion of the Bull River Highway and the historical Bull River Guard Station are included within the corridor.

Alternatives for Future Study

(The following alternatives are presented as possibilities for consideration and are not meant to be limiting for any future study.)

Alternative A: The entire river corridor (river segments 1 and 2). This would produce a 21-mile Recreation River system with 3,500 acres of private land (60%) affected.

Alternative B: The lower portion of the river corridor (river segment 2). This would produce a 9-mile Recreation River system that would be 54% National Forest land and affect the least amount of private land (1,500 acres).

Interim Management Considerations

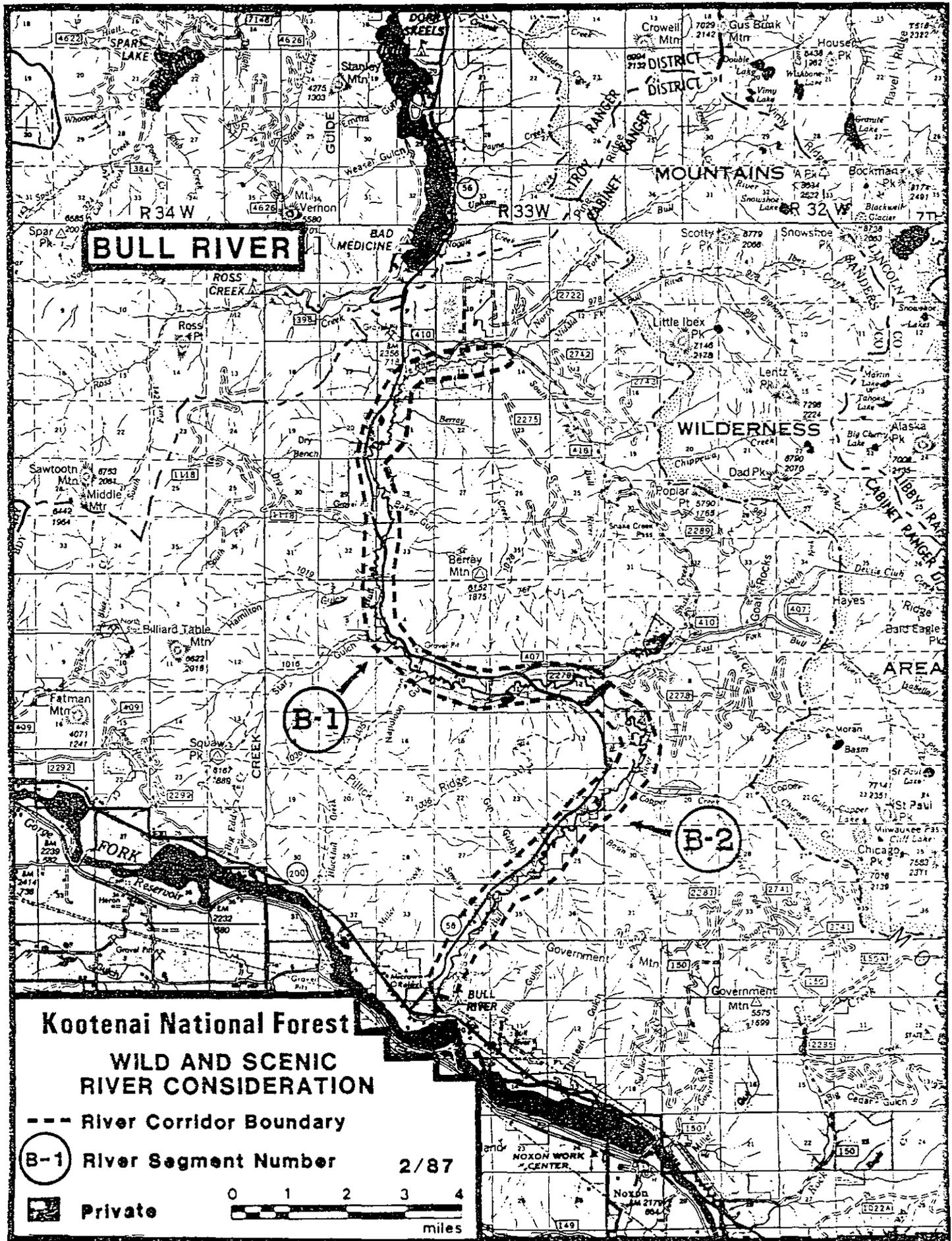
The Final Forest Plan (Alternative JF) has land designations within the identified river corridor that will protect the Bull River qualities for future consideration as a potential addition to the Wild and Scenic River System.

Table III-15

BULL RIVER SYSTEM

River Segments

	1	2	
	N. & S. Fork to East Fk. (Recr.)	East Fk. to Cab. Gorge Res. (Recr)	River Corridor Totals
<u>River Miles</u>			
on Private land:	11.1	6.0	17.1
(% Priv.)	90	69	81
on National Forest:	1.3	2.7	4.0
(% KNF)	10	31	19
Total Miles in Segment	12.4	8.7	21.1
(% of Total River	59	41	100
<u>Landownership (acres)</u>			
on Private land:	2,020	1,500	3,520
(% Priv.)	79	46	60
on National Forest:	550	1,780	2,330
(% KNF)	21	54	40
Total Acres in Segment:	2,570	3,280	5,850
(% of Total Acres)	44	56	100
<u>Road Miles</u>			
on Private land:	7.8	2.0	9.8
(% Priv.)	60	29	50
on National Forest:	5.1	4.8	9.9
(% KNF)	40	71	50
Total Road Miles in Segment:	12.9	6.8	19.7
(% of Total Road Miles)	65	35	100



VERMILION RIVER SYSTEM

Introduction

The Vermilion River drains a southern portion of the Kootenai Forest and merges with the Noxon Reservoir 3 miles southeast from the town of Trout Creek, Montana. The Vermilion is 12 miles long with 85% of the river mileage in National Forest ownership. 4,150 acres are included within a 1/2 mile-wide corridor with 87% in National Forest ownership. The qualities that contribute to its eligibility are the scenic values along the entire length, including Vermilion Falls, as well as the historical values that are related to the gold-mining days.

The natural topographic features along with the landownership pattern readily yield a continuous Recreation river segment from the junction of Willow Creek, downstream to Noxon Reservoir. The river cascades over the Vermilion Falls located near the upper end of the river segment, and down through a narrow, timber-covered canyon. The seasonal, unpaved Vermilion River road parallels the river for the entire length within the study corridor. 530 acres of private land would be effected.

Alternatives for Future Study

It appears that the entire 12-mile segment can be analyzed in its entirety because of the short length.

Interim Management Considerations

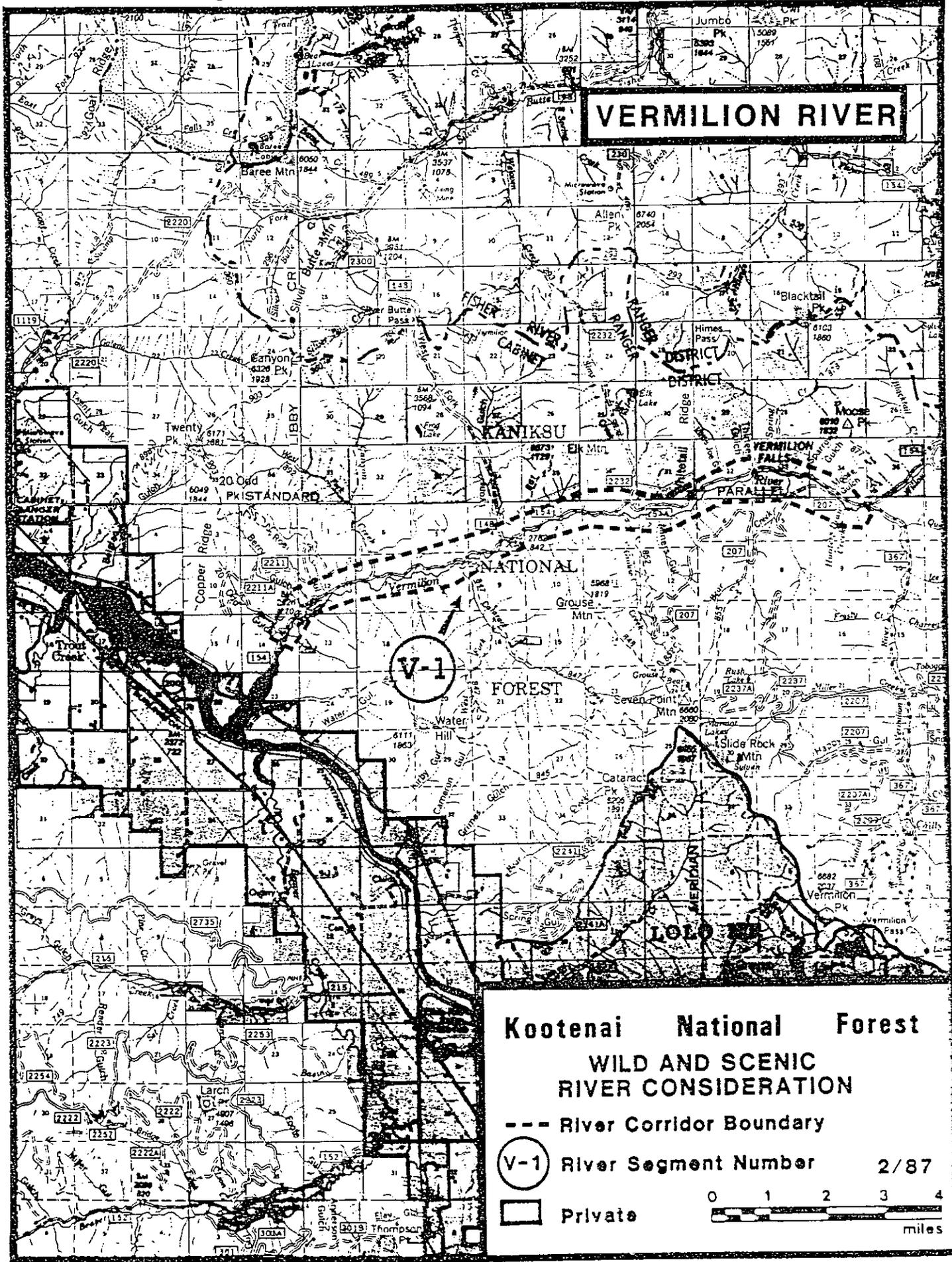
The Final Forest Plan (Alternative JF) has land designations within the identified river corridor that will protect the Vermilion River qualities for future consideration as a potential addition to the Wild and Scenic River System.

Table III-16

VERMILION RIVER SYSTEM

Item	River Segment		River Corridor Totals
	----- 1 ----- Willow Cr. to Noxon Reservoir (Recr.) -----		
<u>River Miles</u>			
on Private land:	1.8		1.8
(% Priv.)	15%		15%
on National Forest:	9.9		9.9
(% KNF)	85%		85%
Total Miles in Segment:	11.7		11.7
(% of Total River)	100%		100%
<u>Landownership (acres)</u>			
on Private land:	530		530
(% Priv.)	13%		13%
on National Forest:	3,620		3,620
(% KNF)	87%		87%
Total Acres in Segment:	4,150		4,150
(% of Total Acres)	100%		100%
<u>Road Miles</u>			
on Private land:	2.4		2.4
(% Priv.)	17%		17%
on National Forest:	11.9		11.9
(% KNF)	83%		83%
Total Rd. Miles in Seg.	14.3		14.3
(% of Total Road Miles)	100%		100%

VERMILION RIVER



6. Wildlife and Fish

Summary of Changes between the Draft and Final EIS

A revised list of wildlife indicator species is presented in section b.

a. Big Game Habitat

No Changes occurred between the Draft and Final EIS

The Kootenai National Forest supports huntable populations of nine of the ten major big-game species in Montana. They include; elk, moose, mule and whitetail deer, black bear, mountain lion, bighorn sheep and mountain goats. (The one species not included is antelope). On the northeast portion of the Forest, grizzly bears may also be legally hunted.

The Kootenai is a heavily forested environment and has been a primary producer of timber in Montana for many years. In the forested environments, timber management can create conflicts in managing habitat for big game. Moose, elk, black bear, grizzly bear, mule deer and whitetail deer are those species predominantly affected by timber activities; the other species occupy areas that are either too rugged or lack substantial timber. This is not always the case, but for planning purposes the modeling and development of alternatives were focused on species which rely heavily on timber habitats.

Traditionally, emphasis on big game habitat management was placed on winter ranges. Beginning in the late 1960s, however, it became recognized that summer ranges had to be sensitively managed to ensure the continuing welfare of big game. Thus, in this planning activity, an effort has been made to account for management on both summer and winter ranges.

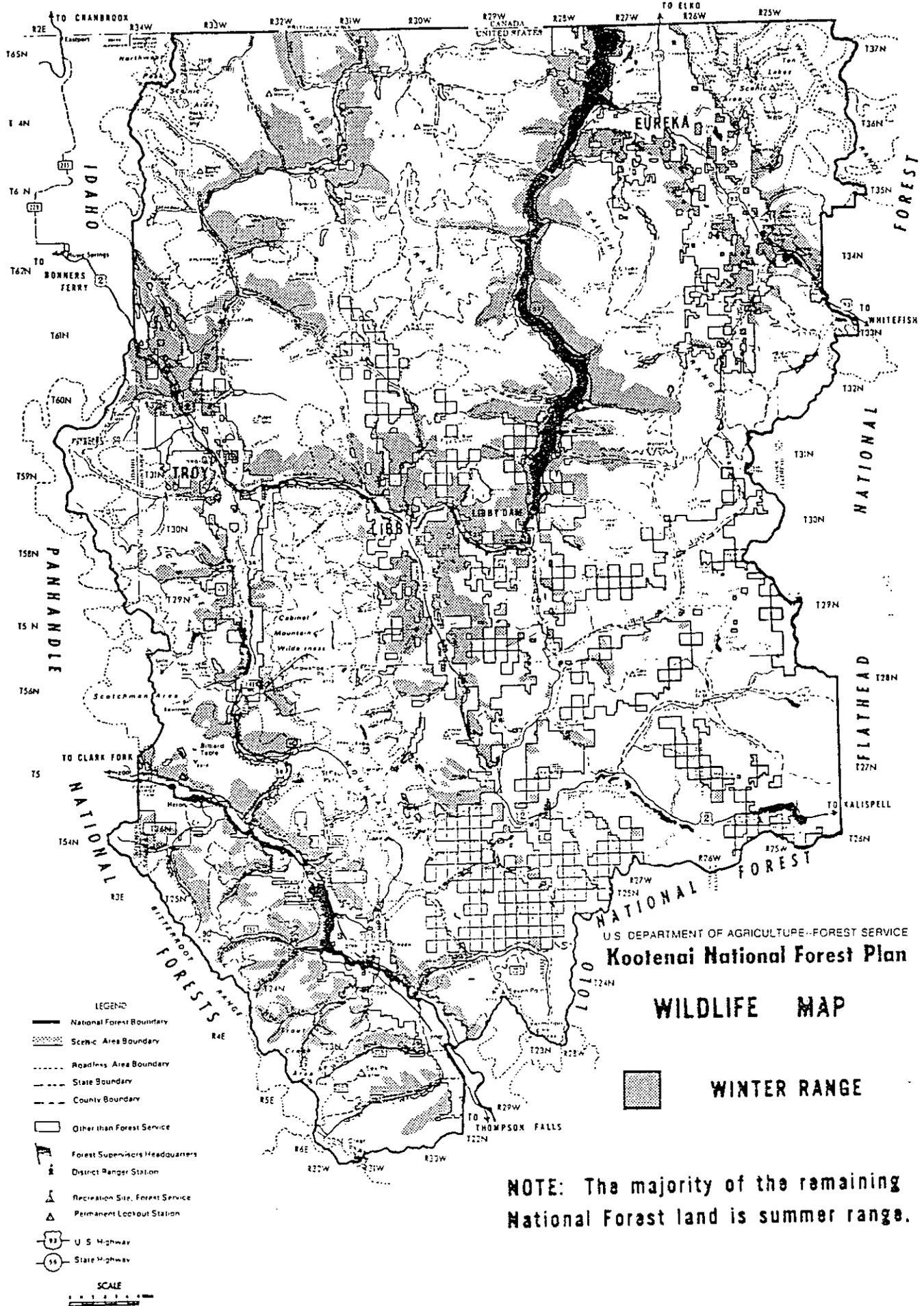
Elk are an extremely important big game species in Montana and adjacent western states. They were chosen early in the planning process to be indicators or barometers of change to which other species with similar habitat needs could be compared. Prescriptions were developed to provide direction for management of elk habitat so that effects of various kinds of management could be charted. The prescriptions written for summer and winter range offer the latitude, however, to emphasize the particular species that is key to a specific site. For example, a specific summer range may contain very important moose habitat so the prescription is flexible enough to allow emphasis to shift to moose rather than elk.

Elk summer ranges are characterized by relatively gentle terrain, abundant vegetation and moisture, elevations and aspects which promote cooler temperatures during the heat of the summer, and a relative lack of disturbance from human activities.

Approximately 1.3 million acres on the Kootenai meet at least minimal physical criteria as potential summer range. This is not surprising as animals disperse across the entire Forest when they are free of the confinement of winter snows. It was recognized, however, that within the identified summer range there are several levels of quality and that the capacity to support elk (or other big-game species) varied from high to

low. Physical descriptions of these various levels were developed and coefficients were assigned to each level. The capacity for summer range to gain or lose in its ability to support elk is related primarily to the vegetative condition and the degree of seclusion. If sufficient cover, food, and security exist, the ability to support elk is high. But if cover, food or seclusion is lacking, the area has a reduced capacity to support elk.

The major factor influencing summer range on the Kootenai is timber harvest. As new access roads are built, the seclusion and security of summer range are reduced because it becomes possible or easier for people to get into an area and big game animals are then displaced. For this reason, road closures, both seasonal and year-long, are initiated for big game security and to maintain adequate habitat potential. The road management section of this chapter discusses this subject further.



U.S. DEPARTMENT OF AGRICULTURE--FOREST SERVICE
Kootenai National Forest Plan

WILDLIFE MAP

 **WINTER RANGE**

NOTE: The majority of the remaining National Forest land is summer range.

Big game rely on the fat reserves that they develop during the summer to get them through the winter. In addition, females need to develop fat reserves to ensure successful reproduction that results in healthy offspring. Proper timber harvest can result in increased feeding opportunities in some areas while still maintaining adequate cover. However, the advantages of increased feeding opportunities can only be used if vehicle access to the sites is controlled. Therefore, the quality of summer range is sensitive to how timber is harvested and how the new access is developed and managed. Because summer range is so broadly distributed across the Forest and because timber harvest activities have accelerated in summer ranges in the past 20 years, it was concluded that the management of summer ranges would be the key to the future of elk on the Kootenai. In a sense, summer range management will be the factor which most strongly influences elk numbers over time.

This conclusion does not mean that attention to proper management of winter ranges can be ignored, but rather that both summer and winter ranges must be managed to ensure the future welfare of elk and other big game species. Currently, these habitats support an estimated population of about 5,500 elk, (1983) but may have the potential to support a population of about 10,000 elk (maximum wildlife benchmark).

An approach similar to summer range was taken for winter range, which has been identified on 361,000 acres of the Forest. Again, specific prescriptions were developed to guide the land manager, with enough latitude built into them to allow for management of big-game species most dependent on a specific site or with habitat needs different from elk.

Winter ranges are usually located at lower elevations, are positioned on slopes which catch more solar energy and are vegetated with shrubs and grasses as a primary food source. Because elk were chosen as indicators, the winter range definition most accurately portrays their requirements. However, winter ranges specific to bighorn sheep, mountain goats, moose and whitetail deer have been delineated and are included in the Forest Plan.

The capacity of a winter range to support big game is determined by the availability of forage. Cover is also important and must be present for thermal protection in cold weather, but the quantity and quality of food will generally dictate the carrying capacity of a winter range. Since big game are forced into a small percentage of their overall range during the winter months, the ability of the range to provide a lot of food on a relatively small acreage is important. The primary foods on big game winter ranges are grasses and shrubs. These plants respond very rapidly to manipulation and many are already present due to past vegetative manipulation (timber harvest) or wildfire. Availability of forage can be deliberately increased by timber harvest and prescribed fire, with the animal carrying capacity increasing significantly.

Because the amount and carrying capacity of winter ranges can be significantly modified by weather and varying management practices, it is difficult to base a population figure on the winter range situation. In the Kootenai Plan, elk population numbers were therefore calculated on the basis of summer range acres and the density of elk that can occur. On

summer ranges, factors other than weather or food availability (most importantly, cover and security) dictate the carrying capacity and are therefore more indicative of population. After this number was arrived at, the amount of winter range acres and the potential forage that could be produced were examined to determine if sufficient winter range was available to support the population that could be raised on the summer range. It proved to be adequate. Moreover, a significant amount of winter habitat is known to exist on adjoining private lands, particularly in the Fisher River Drainage.

In summary, both winter and summer ranges are important to big game. The potential elk population on the Kootenai was calculated on the basis of identified summer range and how forest management would influence the carrying capacity for elk. Elk are identified as an indicator species to be tracked and monitored throughout the life of the Forest Plan. As an indicator species, elk will represent responses for some other big game species, but both winter and summer range prescriptions will contain the latitude to feature management for species important to a given site or situation.

b. Indicator Species

Summary of Changes between the Draft and Final EIS

The criteria for selection of indicator species was revised between the Proposed and Final Plan. Two key criteria for selecting indicator species have been identified as: (1) the species can be easily monitored and (2) the species is susceptible to changes resulting from management activities. The original list included some species (e.g. flying squirrel) that would be difficult and expensive to monitor and others (e.g. pika) that are minimally affected by National Forest management activities.

About 280 different species of wildlife occupy the Kootenai National Forest. Addressing the habitat needs of these species individually is a monumental task, but grouping these species into groups with similar habitat preferences provides a workable approach. Species were placed in one of ten groups, depending on their habitat preferences for feeding and reproduction. This is a similar approach to that explained in Agricultural Handbook 553 (1979). For each of these groups a particular species was identified as an indicator species, to act as a "barometer of change" in that particular habitat. In most cases, a bird and a mammal were identified to increase the chances for accurate monitoring.

Selecting an indicator species is difficult. The potential candidates should be selective in their habitat needs, capable of being monitored, and numerous enough so they can be monitored in sufficient quantity. Ideally, they should be species about which a great deal is known, but such information may not be available. Indicator species will be monitored as barometers of habitat change and as experience is gained in monitoring it may be necessary to add or modify indicator species to get the best perspective on habitat change.

The revised list of indicator species which follows was developed by deleting fifteen species and adding three to the original list. The species which were deleted were either difficult and expensive to monitor, not significantly affected by National Forest management activities or duplicative of other indicator species.

The three species added to the list are the following:

Peregrine falcon - An endangered species which is a probable migrant and potential resident of this Forest. A species list provided by the U.S. Fish and Wildlife Service identifies the peregrine falcon as a species which should be addressed in our biological evaluations. The bird can be monitored by systematic surveys of cliff habitat used for nesting and through reports of sightings.

Whitetail deer - The Forest Plan identifies elk as a big game indicator species with summer habitat as a limiting factor. Winter habitat is probably the limiting factor for whitetail deer. Thus, elk can be monitored in terms of summer habitat while deer can be monitored in terms of winter habitat. Whitetail winter range has a high potential to be affected by management activities. The habitat can be monitored through timber stand records while populations can be monitored with pellet group transects or other methods.

Mountain goat - Mountain goats are a good indicator of alpine/subalpine habitats. These areas have the potential to be impacted by mining, road access and similar activities. Goats are relatively easy to monitor with aerial surveys in cooperation with the State.

The revised indicator species follows:

Threatened & Endangered

Habitat Dependency

Grizzly Bear	general forest
Grey Wolf	general forest
Bald Eagle	rivers & lakes
Peregrine Falcon	cliffs

Species Hunted, Fished and Trapped

Elk	general forest
Whitetail Deer	general forest
Mountain Goat	alpine

Other Species

Pileated Woodpecker	snags & old-growth timber
---------------------	---------------------------

c. Threatened and Endangered Species

No Changes occurred between the Draft and Final EIS in the resource situation. Some editorial changes have occurred in the guidelines for the recovery of the grizzly bear (section 4). The "Yellowstone Guidelines" are now known as the "Inter-Agency Guidelines."

The Endangered Species Act (ESA) was passed in 1973 and has gone through subsequent amendments, each time gaining clarity and strength. Because it speaks specifically to federal agencies and their activities, the Forest Service must accommodate the ESA in its management.

A threatened species is one which is not as reduced in numbers and range as an endangered species. A species listed as endangered is basically one step away from extinction. There are currently four species listed as threatened or endangered which are associated with the Kootenai: the Northern bald eagle, the peregrine falcon, the Rocky Mountain gray wolf, and the grizzly bear. Northern bald eagles, peregrine falcons, and Rocky Mountain gray wolves are listed as endangered and grizzly bears as threatened. These species either occupy habitat year-round, occur as breeders or migrants, or occur as transients from adjacent areas.

Mountain caribou, listed as an endangered species in adjacent Idaho, are recognized as a sensitive species on the Kootenai. Basically, "sensitive status" means that care will be taken not to degrade habitat or do anything that would further degrade the status of the species. On the Kootenai, caribou are listed so that their status can be protected as more information is being gathered about their abundance, frequency of occurrence, and distribution on the Forest.

The intent of the ESA is recovery of the threatened or endangered species. Inclusion of a species on the list means, in effect, that programs and mechanisms will be set in motion aimed at helping those species recover to viable populations. The goal of these programs is the eventual removal of that species from the list, a process sometimes referred to as "delisting". Several important steps have been taken on the Kootenai with regard to reaching the goal of delisting the species found on the Forest. Initially, habitat upon which the species depends is identified so that knowledgeable decisions can be made regarding activities occurring in the area. Management guidelines are then developed, which provide specific advice on how, when, and under what circumstances activities may occur. Guidelines may be as simple as requiring that a particular road be closed, or as complex as writing in special contract stipulations for any logging or site prep work. When the activity is scheduled to occur is usually critical.

Because of the special protection afforded to listed species, a special analysis is made which examines the potential effects of an activity on the species and its habitat. These analyses are called biological evaluations, and provide a format for determining if an activity will further degrade a listed species' habitat or directly affect that species in other ways. These evaluations are also a vehicle for communicating with the Fish and Wildlife Service (F&WS) which, under the ESA, is charged

with the task of making sure that federal agencies comply with stipulations of the Act. If a federal agency determines in a biological evaluation that a project may affect the habitat of a listed species or may directly affect that species, it sends the biological evaluation to the F&WS for consultation. The F&WS examines the evaluation and any other pertinent information and then issues an opinion. The opinion judges whether the activity will or will not affect the species and its habitat and may include management direction on how the activity could be modified so that it would not be a problem.

Federal agencies are bound by law to comply with the opinion that is issued. There are courses of action to take to obtain an exemption from such requirements, but they occur very rarely and, historically, only for very large and complex projects. The Kootenai has routinely consulted with the F&WS during the past five years and has found the consultation process extremely helpful in resolving difficult land management decisions that involve habitat of a listed species.

Following is an account of the status and management of listed species on the Kootenai National Forest.

(1) Northern Bald Eagles

Following their listing in early 1978, the Kootenai and other Forests in Region 1 developed special maps which delineated habitat for bald eagles that was considered either occupied or suitable for occupation and essential for their welfare. This essential habitat mapping encompassed about 100,000 acres on the Kootenai and remains virtually unchanged at this time. The habitat includes the major river systems and reservoirs on the Kootenai, including the Kootenai River, Koocanusa Reservoir, and the Clark Fork River.

Bald eagles occur predominantly during the winter months (November to April) as wintering transients. Several studies of bald eagles on the Kootenai have determined that individual birds come and go throughout the winter but that at any given time there may be about 20-30 eagles wintering in various locations. During this period eagles require a food source and roost sites that are secure from disturbance. During daylight hours they spend a great deal of time in strategic perch trees looking for food that often includes waterfowl and fish. Monitoring during winter months has also shown that road-killed wildlife, predominantly deer, make up a very important component of their diet when available. As many as five bald eagles have been observed sharing a deer carcass. Routine observations of golden eagles eating from deer carcasses have also been made.

During the night, bald eagles seek out roost trees which, because of foliage or local topographical features, offer protection from moisture and cold. These roost sites have been difficult to locate because eagles seem to move to them right at dusk, spending essentially every daylight hour looking for food. Consequently, only a few roost sites have been located and these do not appear to be large communal roosts, but rather are used by only one or two eagles. Important roost and perch trees are located along the major waterways on the Forest. Road

kills of big game often occur in the vicinity of these major waterways because of the proximity of winter range to these valleys where human settlements and roads are found.

Management of habitat for wintering bald eagles consists of recognizing and protecting important roost and perch sites from destruction or disturbance during the season of use. These occur almost exclusively along major waterways and conflicts regarding development or activity have been minimal. Some major perch trees occur within the city limits of Libby, indicating a certain degree of tolerance of human activity by bald eagles during winter periods. Data have been gathered during the winters of 1981 through 1984 which identify perch and roost trees and the frequency of use. These data are used in coordinating any activities which occur near identified sites.

Special guidelines for managing habitat adjacent to bald eagle nests have been developed by other Forests in both Regions 1 and 6. These guidelines are used on the Kootenai for coordination. When the Montana Bald Eagle Management Plan is completed, it will provide additional, specific direction. Currently, there are two known active bald eagle nest sites on the Kootenai and each has successfully fledged eagles for at least the past four years (1981 - 1984). Neither nest has recently been affected by development activities and both nests occur in proximity to major bodies of water. One nest is on private corporate timberland and data regarding the nest has been shared with the company.

Management of nesting areas revolves around protection of nest site characteristics and elimination of close, disturbing activities during sensitive periods of courtship, egg laying, incubation, and fledging. This has not been a problem on the Kootenai due primarily to the fact that only two known nest sites occur and the locations have thus far been protected.

At least once a year since 1979, a relatively thorough survey of wintering bald eagles has been conducted on the Kootenai in cooperation with the National Wildlife Federation. In addition, special counts associated with studies in Glacier National Park have been conducted. Surveys show that the bald eagle population wintering on the Kootenai has been steady or slightly up in recent years. Nationwide the trend is positive.

No special prescriptions were developed in the Forest Plan for bald eagle habitat because the existing types of activities and the management applied to essential eagle habitat have not demonstrated a need for special prescriptions. Protecting nest sites and accommodating winter habitat needs can be accomplished within the framework of the proposed Plan using existing guidelines. The Kootenai has formally consulted with the F&WS regarding bald eagles and has held a few informal discussions with that agency concerning this species.

(2) Gray Wolves

The gray wolf was among the first species listed when the Endangered Species Act (ESA) was passed in 1973. However, it wasn't until 1980 that the Forest Service published maps which delineated essential habitat, an omission due primarily to lack of information about wolves in Montana and the feeling that the only wolves occurring here were those that wandered south from Canada.

The bases for delineation of essential habitat were primarily old historical records and reports of sightings and signs in the various areas. Shortly after the Region published essential-habitat maps, the delineation was changed on the Kootenai. Areas were dropped on the basis of new information and perspectives and the currently identified essential habitat has remained unchanged since. About 114,000 acres in the Whitefish Mountains north and east of Highway 93 are delineated as essential habitat on the Kootenai.

To date, no recovery plan has been finalized for wolves, so management consists of recognizing and accommodating wolf habitat needs in all activities in their essential habitat.

The gray wolf is an extremely mobile and far-ranging predator which depends on the availability of prey for survival. While little local data are available, it is felt that wolves depend heavily on the resident ungulate (deer family) population for their primary source of prey. Beavers, snowshoe hares, mice, grouse, and various other small mammals and birds are taken as the opportunity arises. Management has consisted of maintaining essential wolf habitat with high populations of prey, particularly deer, elk and moose.

Although no wolves reside in the delineated habitat, evidence points to a transient population that passes through the area routinely. Tracks have been observed at most seasons of the year. All of the essential wolf habitat is also "Management Situation 1" grizzly habitat, and it is felt that management for the two species is highly compatible. Both species prefer limited development activity and do best when not in close or frequent contact with man. These conditions are also reflected in prescriptions for grizzly which call for limited road access. These prescriptions and the situation they create provide habitat suitable for both the grizzly and the wolf, giving management the option of responding positively if wolves, in fact, do take up residency.

Management of wolf habitat on the Kootenai has not been controversial or complicated. Formal consultations were conducted with the Fish & Wildlife Service in conjunction with the issuance of the November 1982 Draft EIS.

(3) Peregrine Falcons

This endangered raptor only infrequently passes through the Kootenai on flights from breeding areas to the North to wintering areas in the South. Historical data are very limited regarding peregrines in the

Kootenai area and current observations are limited to one or two per year during the spring and fall migration period. There are no records of historical aerie sites although a few locations on the Forest do appear to provide suitable habitat.

Formal consultations were conducted with the U.S. Fish and Wildlife Service regarding peregrines in conjunction with the November 1982 Forest Plan EIS, but were not a major concern.

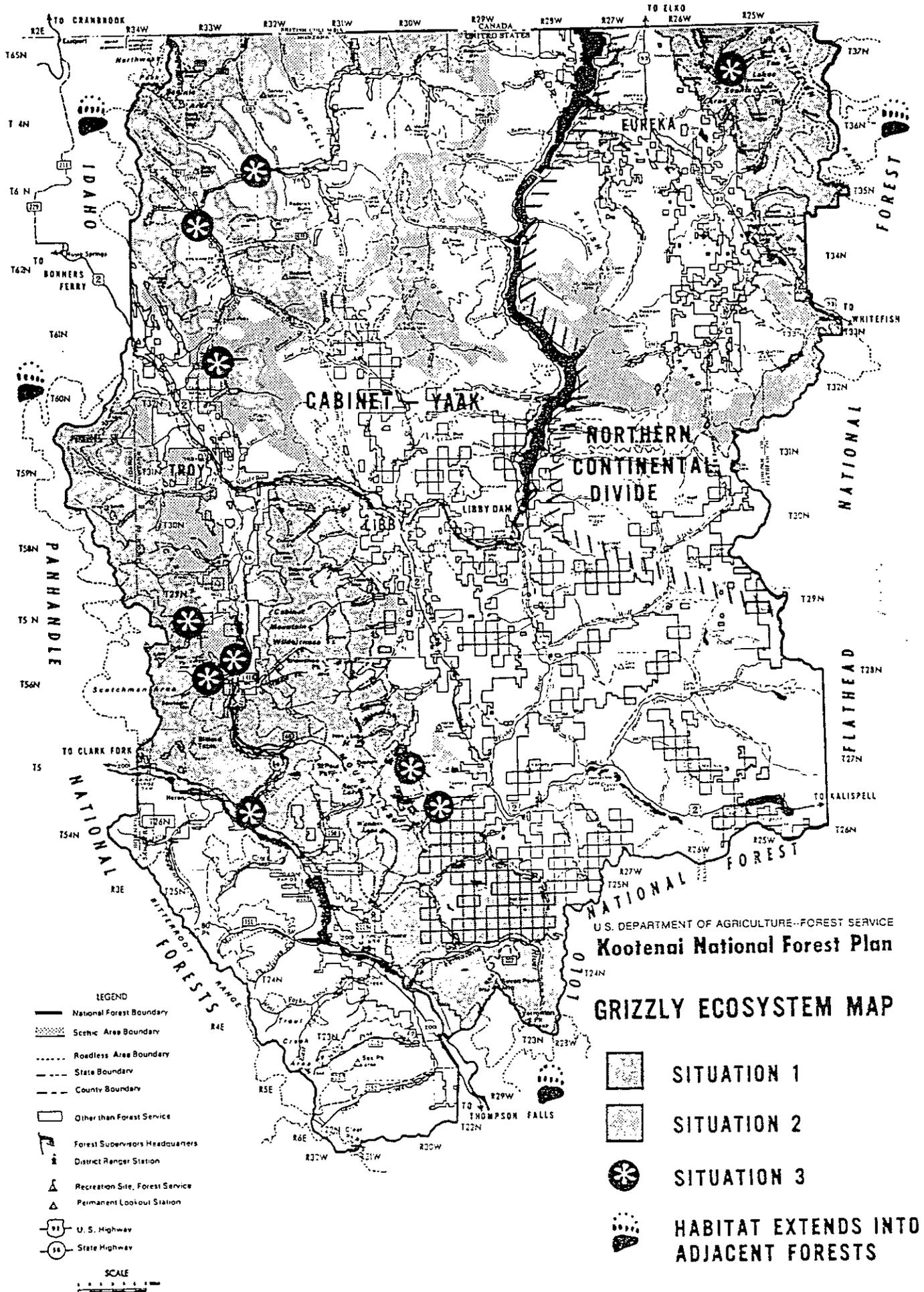
(4) Grizzly Bears

No Changes occurred between the Draft and Final EIS except some editorial changes in the name of the grizzly bear recovery guidelines. The "Yellowstone Guidelines" are now known as the "Inter-Agency Guidelines." In addition, the U.S. Fish and Wildlife Service determined that the Proposed Action was not likely to jeopardize the recovery of the grizzly bear. (For details refer to letter #1 in Appendix E of this EIS.) Continued consultation between the Forest Service and the Fish and Wildlife Service has led to the determination that the Final Forest Plan will not jeopardize recovery of the grizzly bear population.

Appendix D contains a detailed discussion of the grizzly bear situation on the Kootenai including the current situation, ecosystem descriptions, and the grizzly bear management guidelines now in use on the Forest. Figure III-7, displays the locations of the various grizzly bear situations.

It has been estimated that at one time grizzly bears numbered about 100,000 and that their range extended west from the Missouri River and from Canada south to Mexico. In 1975, the grizzly bear was listed as a threatened species, reduced in number to less than 1,000 and found only in the last vestiges of high mountain wilderness and National Parks. Since the Endangered Species Act (ESA) was so new and the funding and mechanisms not immediately in place to implement the law, it was not until 1977 that specific habitat for grizzly bears was delineated. At that time, Forests in Region 1, including the Kootenai, delineated grizzly situation descriptions, a term applied to geographic areas needing special management consideration for grizzly bears.

Two major grizzly ecosystems are found on the Kootenai Forest: The Cabinet-Yaak (CYE) and the Northern Continental Divide (NCDE). The Kootenai is a small shareholder in the NCDE, contributing roughly 3 percent to the total acreage of 5,700,000 acres. Grizzly bears in this ecosystem are felt to be more stable in number than in any other area and a limited amount of hunting is allowed. In the last five years two grizzlies have been shot on lands in this ecosystem managed by the Kootenai.



Conversely, 70% of the 1.2 million acre CYE is on the Kootenai National Forest (the rest is on the Lolo and Idaho Panhandle National Forests). Bears have not been hunted in this area since 1974, and the population is the lowest of the three primary ecosystems identified in the grizzly bear recovery plan.

The grizzly bear recovery plan calls for a population of 58 grizzly bears on the Kootenai National Forest; 45 within the CYE and 13 within the NCDE, as disaggregated by the Northern Regional Guide. No accurate figure exists for the current population, but experience gained in component mapping during the last four years and through the grizzly study the past two years suggests the habitat is capable of supporting a recovered population (see the Inter-Agency Guidelines in Appendix D, Part B).

Relatively little was known about grizzly behavior, habitat needs, and responses to man-related activities until the advent of radio collars which could be attached to individual animals. As information from radio-collared bears became more abundant, it was used to direct management activities and the consultation process. During the late 1970s, as recognition of the status of the grizzly bear became widely appreciated and as new information about habitat became known, the subject of grizzly recovery came into focus.

The major causes for decline in grizzly numbers have been man-caused mortality and destruction of habitat. Recent known mortality of native bears within the CYE is very low, consisting of one bear since 1980. However, because grizzly bears have an extremely low reproductive rate, recovery will take many years. Supplementing the native population, known as "augmentation", can theoretically speed recovery by many years and offers the benefit of introducing new genetic material. The introduction of new bears to an area differs from efforts to relocate nuisance bears in that the bears must be of a certain age and sex and have certain behavioral traits to maximize chances for successful reproduction.

Since the goal of listing a threatened or endangered species is recovery, techniques such as augmentation which shorten the period to recovery are consistent with the spirit and intent of the ESA. As proven in other areas with other species, the "delisting" of a species also reduces constraints on other activities and can even result in the controlled harvest of some species.

Efforts to date on behalf of grizzly bears on the Kootenai consist of extensive habitat component mapping and development of a cumulative effects analysis process, a procedure that assesses the cumulative effect of many different activities on grizzly bear habitat, allowing managers to view the "big picture" when making land management decisions. The Kootenai has also developed special prescriptions and management guidelines, based on the "Inter-Agency Guidelines". The guidelines identify many important ways to reduce man's impact in grizzly bear habitat, including when and how land management activities will take place. For example, several special timber sale contract clauses and a special prescription were written which direct land

managers in how to accomplish timber harvest in grizzly habitat without major conflicts. The Forest has also developed a relocation policy and has begun investigation into increasing the bear population through augmentation.

The Kootenai has consulted formally with the Fish and Wildlife Service on numerous occasions and routinely consults informally on grizzly bears.

5. Caribou

Caribou historically occupied much of western Montana. This area appears to be on the southern fringe of their range and caribou were apparently never numerous. Repeated, sporadic sightings of caribou or their tracks occur on the Kootenai and, beginning in 1981, the Forest investigated potential winter habitats and initiated aerial surveys with the Montana Department of Fish, Wildlife, and Parks (MDFW&P). Since that time, attention has focused on the Whitefish Range where habitat conditions and recent wintertime observations of tracks indicate the occasional presence of caribou, at least seasonally, on a very infrequent basis.

Caribou are currently listed as an endangered species in Idaho, but not in Montana. However, in order to recognize the need for care as more is learned about caribou presence in the Whitefish Range, the Kootenai now recognizes caribou as a sensitive species. This special status dictates that caribou and their habitat needs will receive special consideration as more information is gathered, thus not reducing future options for management. Meanwhile, winter caribou surveys will continue in cooperation with MDFW&P and further refinement in habitat identification will occur during the field season. Consultations for caribou with the Fish and Wildlife Service have been conducted in conjunction with the November 1982 Draft Forest Plan EIS and caribou have been mentioned in several of the more complex biological evaluations.

d. Special Habitats

Special habitats considered during the development of the Plan include riparian areas, snag (cavity) dependent species habitat, and old-growth timber.

(i) Riparian Habitat

Riparian habitat, basically the interface between land and water, is an extremely productive and important habitat for wildlife. At one time or another, virtually all species of wildlife on the Kootenai come into contact or seek out riparian habitat. In addition, many other values are found in riparian zones such as high recreational values, forage and water for livestock, and high timber values. Because of this, a special prescription was developed for riparian areas. Many wildlife values, such as summer range for big game, old growth and winter range, cut

across or contain elements of riparian habitat. Thus, riparian habitat receives special treatment in all alternatives.

(2) Cavity (snag) Habitat

On the Kootenai there are approximately 32 species of wildlife wholly or partly dependent on snags. A conflict has developed between firewood needs/preferences and optimum snag habitat, both of which depend on large, standing, dead larch trees. The policy of the Kootenai Forest is to provide cavity habitat to meet wildlife needs while satisfying human needs for safety, fuel, fiber, and esthetics. An updated policy statement, "Cavity Habitat Management Guidelines", was published by the Kootenai in 1984. It provides standards and guidelines for coordinating cavity habitat needs with all other resource management activities, such as timber harvest, road building, and firewood gathering. Cutting prescriptions and contract language will reflect this concern.

(3) Old-Growth Timber Habitat

Summary of Changes between the Draft and Final EIS

The Final Plan reflects a strong public concern about old-growth timber habitat management. In the Draft EIS a portion of the Forest was described as being managed to produce old-growth characteristics. This management (MA 13) consisted of early thinning and harvest rotations of 250 years. In the Final Plan these areas will be managed without thinning or timber harvest. Old-growth characteristics will be allowed to develop naturally and these lands (MA 13) are removed from the suitable timber base. In addition, the designated old-growth (MA 13) along with old-growth stands which exist in other management areas, not included in the suitable timber base, make up the total old-growth component of the Forest. The Proposed Action aimed at retaining 8 percent of the Forest's acreage, below 5,500 feet in elevation, in an old-growth timber condition. The Final Plan raises this to 10 percent primarily with the addition of more MA 13 areas. See the Final Forest Plan Map for the location of MA 13 areas.

Currently, the Kootenai National Forest supports a relatively healthy number of old-growth-related species. Pileated woodpeckers, flying squirrels, barred owls, goshawks, and marten are all related to old-age timber stands and all are relatively abundant on the Kootenai. Approximately 25 percent of all the wildlife species on the Forest find preferred habitats in old growth and some may be entirely dependent on such habitat.

Old growth is, simply stated, an old stand of mature timber, often in excess of 200 years. It possesses physical characteristics that provide habitat for wildlife and that can only be developed over time. Animals are not attracted by the age of the stand but by the characteristics that develop with age. Dense canopies, large, dead, standing and down trees, large-diameter live trees, and a degree of decadence in the stand are universal characteristics of old growth.

Many of the species which use old-growth habitat are not traditionally recognized game species. Most, in fact, are relatively unknown to many people. They do, however, play key roles in the forest wildlife community and many are important in maintaining a dynamic balance with destructive forest insects. Some are active predators, such as the hawks, owls, and weasels, while others are primary excavators which create nesting holes that are subsequently used by many other species.

Current old growth has evolved without any interference or assistance from man. It represents an essentially undisturbed, natural habitat. Management, therefore, consists mostly of recognizing old-growth stands and avoiding practices or activities which change the physical structure of the stand or which create disturbance sufficient to displace dependent species. Long-term management, on the other hand, includes recognition of existing old growth, but also includes designation of future old growth and management practices which promote old-growth conditions.

The Kootenai is managing for two kinds of old growth. Undesignated old growth consists of existing old-growth stands which are located in the nondevelopmental Management Areas such as wilderness, primitive recreation, etc. These stands will go through natural changes with the possible exception of protection from fire. Some of these stands may not change character for the next 100 years, but will go through gradual, internal changes which maintain overall stand integrity over time. It is, however, very important to know where these stands are located and approximately how large they are. This information is needed because old growth, in order to be effective, should be well distributed, representative of the habitat types found in an area, and of sufficient size to meet territorial and behavioral needs of dependent wildlife. Knowledge regarding location and extent assists in identifying whether sufficient old growth is present in an area.

Undesignated old growth will be complemented, in this regard, by designated old growth to ensure that distribution and abundance are sufficient to meet the needs of dependent species. Designated old growth consists of existing old growth and some mature stands that will be protected to insure sufficient amount and distribution for old growth timber dependent species. A minimum of 10 percent of the Forest acreage below 5,500 feet elevation will provide old-growth habitat at any given time in a combination of undesignated and designated old growth in well distributed and sufficiently large stands.

The Kootenai has conducted an inventory of all existing old growth, and has made designations for old growth (Management Area 13) on the basis of location and amount as indicated by the inventory.

Efforts have been made to field check many of the old growth stands. As field checks expand and inventory procedures improve, the specific locations of identified old growth may fluctuate, but the maintenance of at least 10 percent of existing old growth will remain necessary for viable populations of dependent species to exist. Table III-11 and the accompanying Forest map locate where old growth timber is deficient (less than 8%) and explain the reasons for its limited supply.

FIGURE III-8

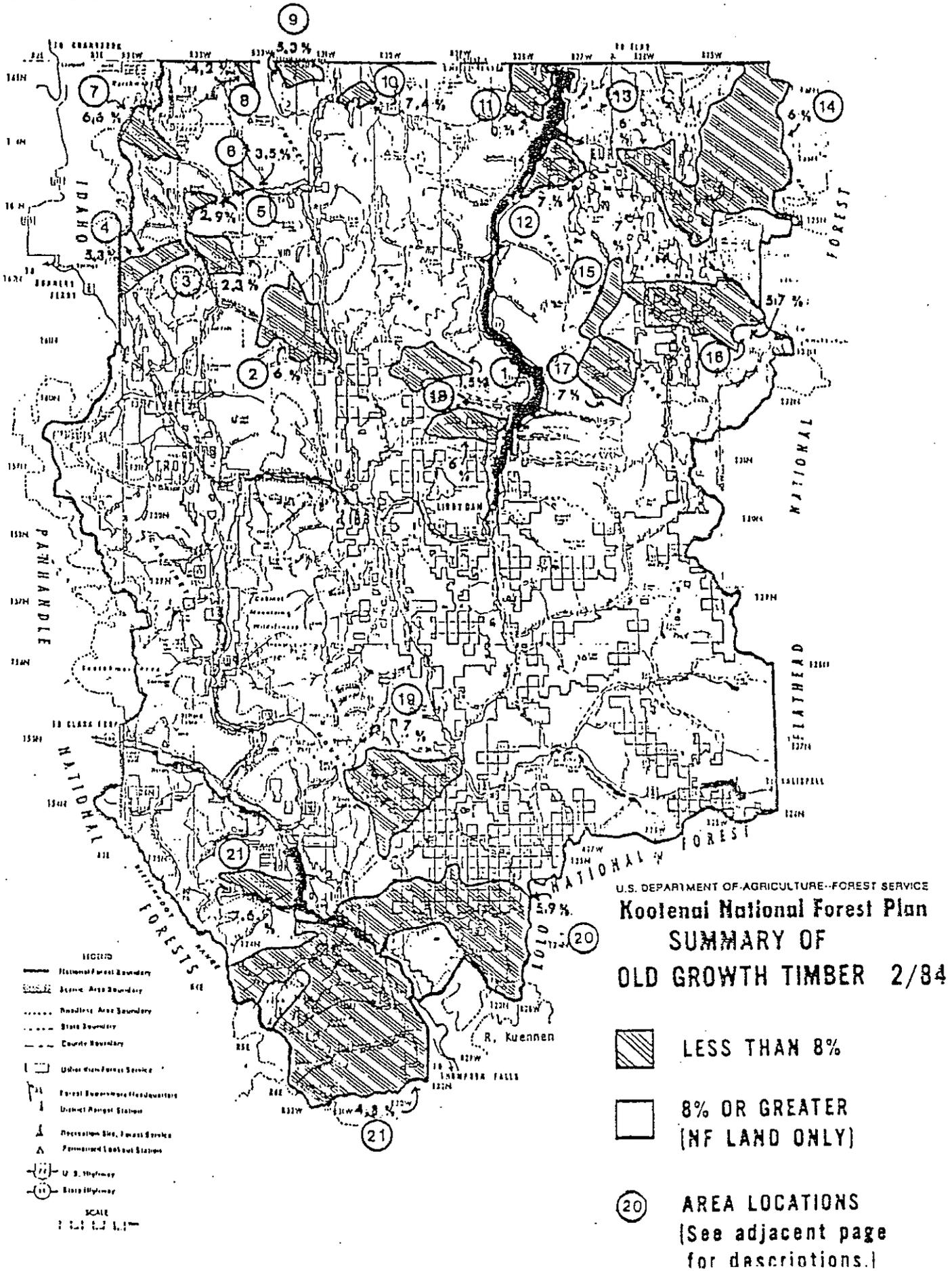


Table III-11

AREAS DEFICIENT IN OLD GROWTH TIMBER (LESS THAN 8%)
 (See Old Growth Timber Map for Area Locations)

AREAS	DESCRIPTIONS	% OLD GROWTH
1	1910 fire	1.5%
2	1910 & 1925 fires	W.1/2=5.0%, E.1/2=6.0%
3	1910 fire	2.3%
4	Some high elevation, poorly stocked ground; small fires in the upper end in 1925, 1952, 1967 and some area burned by the 1910 fire on the east side	5.8%
5	1917, 1925, and 1940 fires	2.9%
6	1919 and 1940 fires in small areas plus logged-over	3.5%
7	1918, 1931, and 1940 fires plus some non-stocked ground and past logging	6.6%
8	1931 and 1973 fires and past logging	4.2%
9	1920, 1921, 1924, 1926, 1928, 1931, and 1973 fires	5.3%
10	1910, 1919, and 1920 fires	7.4%
11	Lots of intermingled private ground; past logging	0%
12	Non-stocked, rocky ground along the reservoir	7%
13	Intermingled private ground and past harvest	6%
14	Lots of ground above 5500', some non-stocked ground, logging at lower elevations, small burn areas	6%
15	Long history of harvest: a few fires in 1919, 1921, 1936	7%
16	Long history of harvest, a few fires in 1910, 1921, 1922, 1926, 1934, 1936	5.7%
17	Major fire in 1889 and inclusions of the 1910 fire, past harvest	7%
18	Past harvest; some non-stocked ground	4.6%
19	Lots of rocky ground, heavy harvest at low elevation; 1910 fire	7%
20	1910 and subsequent fires; heavy harvest in accessible areas	5.9%
21	1910 and subsequent fires, heavy harvest in accessible areas	S.end=4.8% N.end=7.6%

e. Fish

On the Kootenai, fisheries habitat includes about 3,030 miles of viable fishing streams and 37,000 acres of lakes and reservoirs supporting an estimated 1,016,000 catchable size trout (6"+). The rivers, streams, lakes and reservoirs on the Forest support populations of rainbow, westslope cutthroat, brown, bull, and brook trout, and mountain whitefish. A white sturgeon population is located just below Kootenai Falls on the Kootenai River, and a ling fishery exists along portions of both the Kootenai and Tobacco Rivers. The lower-elevation lakes on the Forest support populations of lake, brook, rainbow, and cutthroat trout, yellow perch, largemouth bass, pumpkinseed sunfish, kokanee salmon, northern pike, and bullhead catfish. The numerous high-elevation mountain lakes on the Forest contain rainbow, cutthroat, and brook trout. In all, the Kootenai Forest has 16 species of game fish, of which six species are trout. The most popular to fishermen are the westslope cutthroat and rainbow. The fishery resource is one of the highest used resources by the public on the Forest.

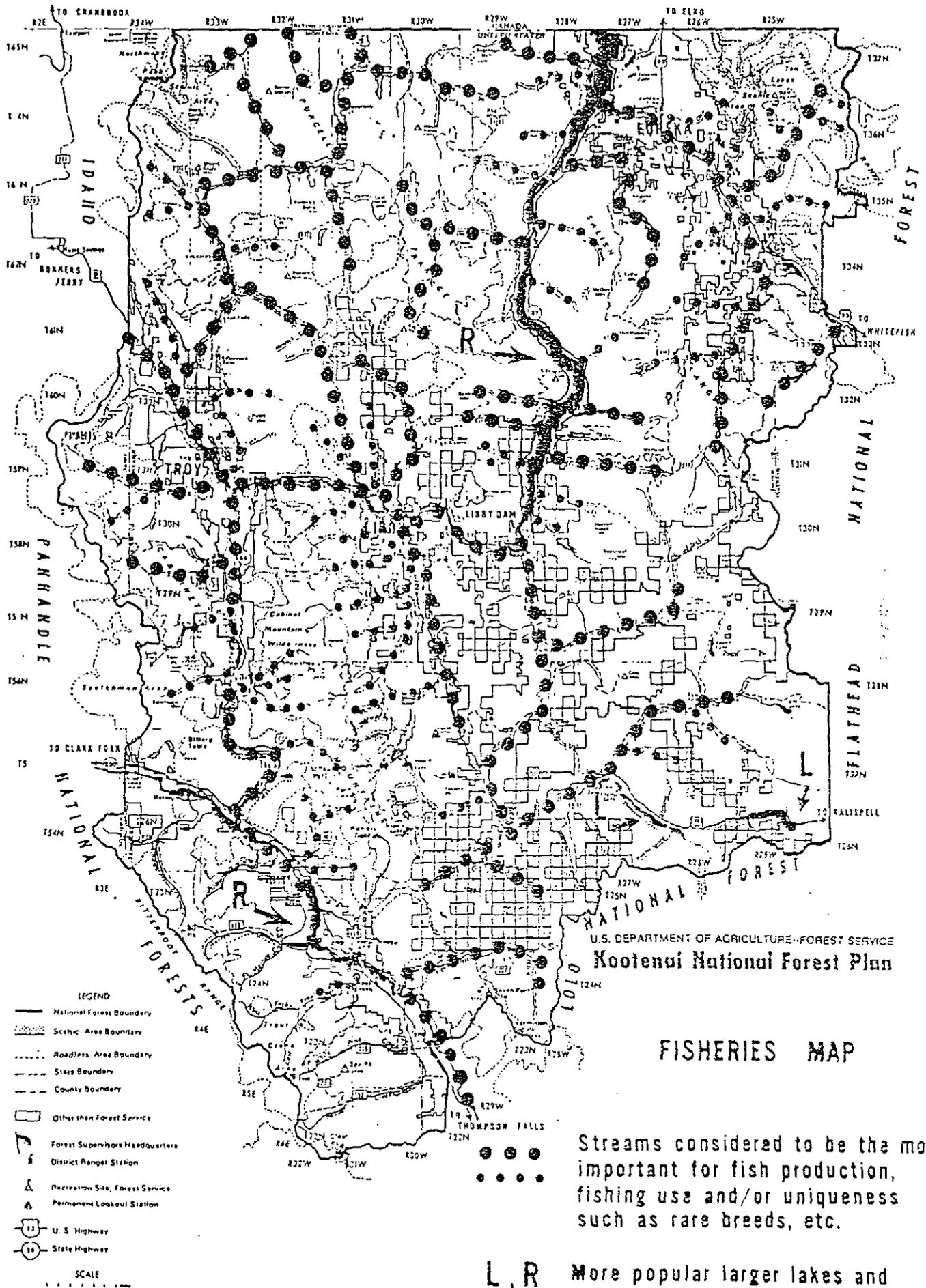
To simplify the process of managing for a number of different species, indicator species are selected as guides as to what is happening to that species and to others. Because trout are the predominant species on the Forest and the most sensitive to change, they are used as the indicator species. Although some trout, such as cutthroat, are more sensitive to habitat change than others, all stream trout species are used as indicators in order to include both spring and fall spawning activities. If a change in the species is observed (change in population, signs of disease, for example), then the habitat of that species must be closely examined to find the cause.

There are two categories of trout: the resident trout, which live and die generally within a mile of where they were hatched, and the adfluvial or migrant trout which hatch in streams, migrate to larger bodies of water, and return to their home streams to spawn when they reach sexual maturity. Unlike salmon, the trout do not die after spawning.

Because of the high demand for trout, state restrictions or constraints have been imposed on areas where fishing pressure is relatively high, such as along the Kootenai River.

Even though trout fishing opportunities are plentiful, fish productivity in a relative sense is considered low for many of the streams and lakes when compared to streams and lakes elsewhere in the Northern Region. Reasons for this situation include both low, alkalinity and water temperatures.

Quality trout habitat in some areas has shown signs of decreasing due to (1) sediment from road building and timber harvest impacting spawning gravels, (2) dewatering by private landowners, (3) removal of riparian cover (eliminating needed woody debris and winter thermal protection), (4) mining activities which degrade water quality, and (5) artificial barriers to spawning fish, i.e., improperly installed culverts.



Streams considered to be the more important for fish production, fishing use and/or uniqueness such as rare breeds, etc.

L, R More popular larger lakes and reservoirs. Other smaller lakes are not shown.

Fish habitat improvement projects designed to correct problems created by timber harvest and road building are funded with dollars authorized by the Knutson-Vanderberg Act (1930), also called KV money. Other projects are paid for directly by funds allocated for the fisheries program. Other funding may be forthcoming in time from the Northwest Power Planning Council, a group made up of two representatives from each of the states of Idaho, Montana, Oregon, and Washington. One of the purposes of the group is to develop plans for the protection, enhancement, and mitigation of fish and wildlife resources affected by hydrodevelopment in the Columbia River Basin. Some funds are earmarked for the individual states, to be administered cooperatively by land management agencies and the various state fish and game departments.

Three main hydropower dams are located on the Forest, providing for reservoir-fishing opportunities. The reservoirs are Lake Koocanusa, Noxon Rapids Reservoir, and Cabinet Gorge Reservoir. Popularity for fishing Lake Koocanusa is increasing due to the variety of fish present and the increasing kokanee salmon fishery. Noxon Rapids and Cabinet Gorge are on the lower Clark Fork River and are not as popular due to water fluctuations and low fish productivity. Recently, however, smallmouth bass have been introduced and, along with largemouth bass, are developing into a potentially significant fishery. Nevertheless, if water level fluctuations should increase in magnitude and/or frequency (such as for meeting peak power demands or for increased power generation), the fisheries resource could decline accordingly.

Chapter 4 deals with activities on the Forest and the effects of them on the various resources. The section on water quality and fisheries pinpoints the major cause of water degradation as sediment, primarily from road building and to a lesser degree from timber harvest. Timing of activities, such as placement of culverts in streams, is critical to the long-term productivity.

7. Locatable Minerals, Oil and Gas, and Common Variety Materials

Summary of Changes between the Draft and Final EIS

The Mineral Potential Map has been revised to indicate more recent information concerning minerals potential in the Star Gulch area of Pellick Ridge in the Scotchman Peak roadless area. In summary, the mineral potential has been reduced from a high to moderate rating based on recent core-drilling samples.

In addition to the silver-copper mining proposal being developed by ASARCO at the south end of the Cabinet Mountains near Noxon, a similar proposal for another mine in the same area is being developed by U.S. Borax.

An oil and gas environmental assessment entitled "Environmental Assessment Oil and Gas Lease Applications - Kootenai National Forest Lands Exclusive of Wilderness, Proposed Wilderness, Wilderness Study Areas, and the Northeastern Portion of the Forest" dated October 22, 1982 documents the possible environmental consequences associated with leasing and provides the basis for the Forest's lease stipulations.

Known mineral resources on the Forest range from "locatable" minerals (such as gold and silver) for which mining claims can be staked to common variety materials, such as sand, gravel and building stone. Historically, these commodities have played an important role on the Forest. In recent years there has been speculation that the Forest may also overlie deposits of oil and gas. It is not known at this time whether or not economic deposits of oil and gas do, in fact, exist beneath the Forest.

Over the years the Forest has supported many small mines and a few large ones. These have produced lead, zinc, copper, silver, gold, tungsten, barite, vermiculite, and building stone. Most of these mines have been inactive for many years, but the few mines in production today contribute substantially to the nation's mineral wealth.

Principal among the currently producing mines within the Kootenai Forest are; the ASARCO Troy mine south of the town of Troy, and the W.R. Grace Zonolite Mine northeast of Libby. The Troy mine, which produces both silver and copper, is currently the nation's biggest silver producer. The Zonolite Mine is the largest producer of vermiculite in the world.

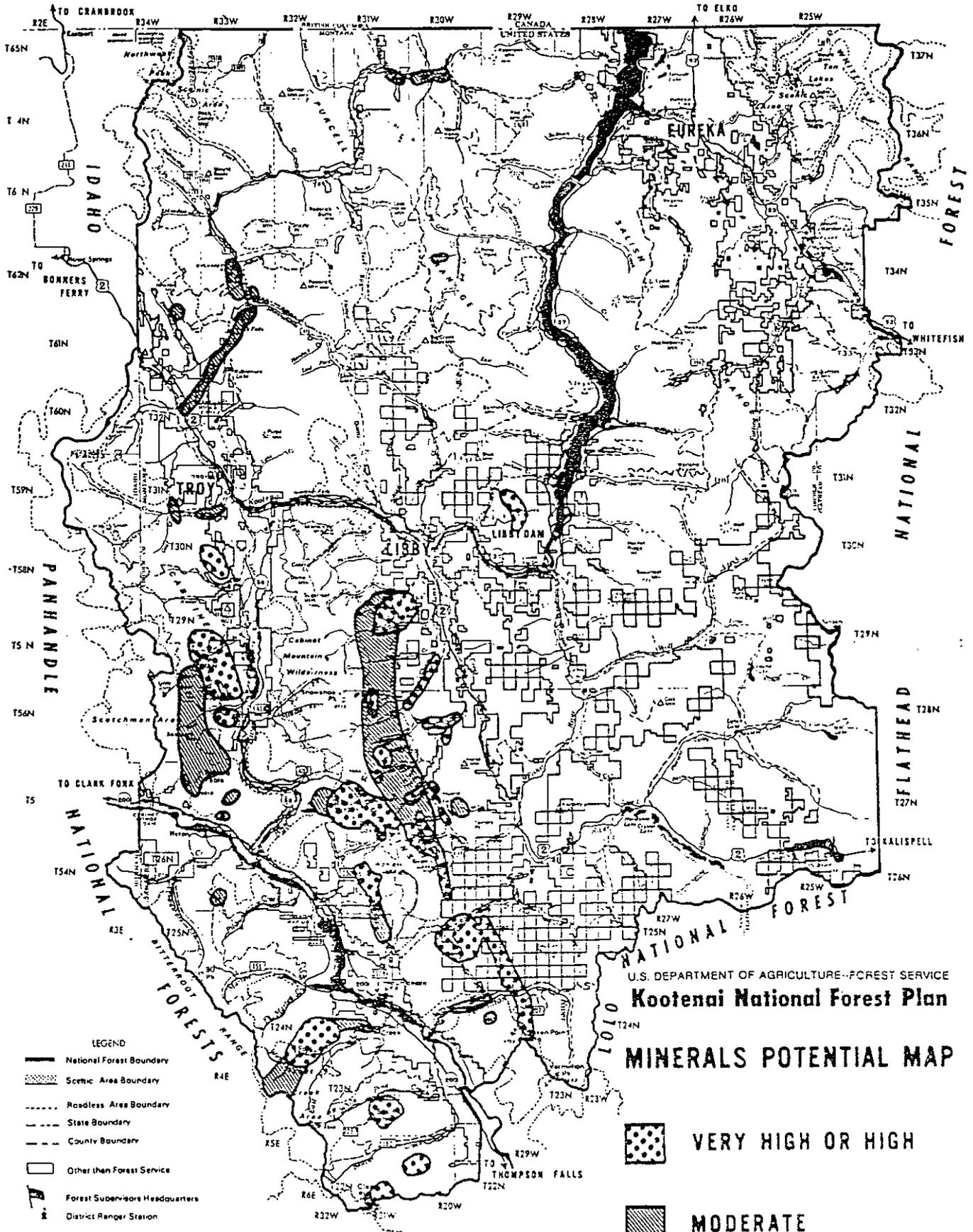
The Forest is currently processing a proposal submitted by ASARCO for the installation of another major silver-copper mine. This mine would be located at the south end of the Cabinet Mountains near the town of Noxon. The annual production from this mine is estimated to equal that of the Troy mine and is expected to be in production for 24 to 29 years.

A variety of small lode and placer mines produce small amounts of gold on an occasional basis in locations spread across the west half of the Forest.

As the historic and contemporary mining activity might suggest, considerable portions of the Forest have a high potential for mineral production. The southwest quarter of the Forest has many areas that are considered to have high potential for silver-copper production. Several known deposits are currently being evaluated through exploratory drilling to estimate production potential. Additional silver-copper deposits are actively being sought by several companies.

A large area in the west half of the northwestern quarter of the Forest is considered to be prospective for large deposits of lead and zinc. Knowledge about the potential of this area is general at this time, although two companies are conducting reconnaissance-level exploration now. It is possible that the level of knowledge about the area's lead and zinc potential could increase significantly.

Several areas on the Forest are considered prospective for gold. These areas are concentrated mainly along the east side of the Cabinet Mountains and, to a lesser degree, along the Yaak River drainage.



U.S. DEPARTMENT OF AGRICULTURE--FOREST SERVICE
Kootenai National Forest Plan

MINERALS POTENTIAL MAP

- LEGEND**
- National Forest Boundary
 - Scenic Area Boundary
 - Roadless Area Boundary
 - State Boundary
 - County Boundary
 - Other than Forest Service
 - Forest Supervisors Headquarters
 - District Ranger Station
 - Recreation Site, Forest Service
 - Permanent Lookout Station
 - U. S. Highway
 - State Highway

- VERY HIGH OR HIGH
- MODERATE
- LOW

SCALE
 0 1 2 3 4 5
 Miles

Common variety materials are abundant on the Forest, and are used primarily for construction of logging roads. The materials consist mainly of gravel, building stone, and rock, used as an aggregate material.

Interest in the oil and gas potential of the Kootenai is relatively new. This interest has been spurred by discovery of large oil and gas fields in the geologic province known as the Western Overthrust Belt. Although the Kootenai lies within the Overthrust Belt, it is unknown at this time whether or not the local geology is suitable for oil and gas discoveries.

Because of the geologic unknowns involved, the probability of finding oil and gas is difficult to assess. Historically the area has been considered unfavorable for finding oil and gas, but new geologic insights and preliminary seismic data have looked quite favorable to some in the petroleum industry. On the other hand, others in the industry remain skeptical about the area's potential. It may take several years of exploration before a reliable assessment can be made of the Forest's oil and gas potential. For the time being, the Forest considers the potential for oil and gas to be moderate across the entire Forest.

8. Landownership, Special Uses, and Agreements

a. Landownership

Landowners with large tracts of private land within Kootenai Forest boundaries include Champion Timberlands (which includes the former St. Regis Corporation), and Plum Creek Timber Incorporated (formerly Burlington Northern Timberlands). Another large landowner is the State of Montana. These private and State lands, although generally distributed throughout the Forest, are concentrated in four general locations; Eureka-Fortine area, Troy-Bull Lake area, Libby-South Highway 2 area, and the Clark Fork River Valley area. The heaviest concentration of private timber company lands occur in the Wolf Creek-Pleasant Valley area of the Forest (southeastern corner). These lands occur as large blocks and as checkerboard patterns. The largest concentration of noncorporate private land is in the Eureka-Fortine area (northeast corner of the Forest).

Isolated tracts of private lands surrounded by National Forest lands occur in various locations on the Forest. While there are other instances of National Forest lands surrounded by private lands, the majority of these situations are in the Eureka-Fortine area.

Checkerboard and isolated parcels of both public and private lands can create problems of rights-of-way, easements, cost-share road programs, and management of other resources such as fisheries habitat where a stream may pass through various ownerships and be influenced by activities detrimental to it such as mining and agriculture. At times, "management compatibility" problems can occur when adjacent lands are being managed for conflicting objectives, such as managing for primitive recreation and timber production side-by-side. Ownership adjustments and consolidation can correct some of these problem areas.

The Kootenai has identified about 69,000 acres of National Forest system land considered appropriate to exchange for private and State lands and has identified about 91,000 acres of available private and State lands that would be desirable to acquire (88,000 acres of lands desirable to acquire were displayed in the Draft EIS). Decisions on whether or not to exchange lands are based on meeting land management objectives such as providing improved grizzly habitat or roadless recreation.

The Kootenai has recently entered into negotiations with Plum Creek Timber Incorporated (PCTI) for an exchange of lands within the Silver Butte-Vermilion checkerboard area, located in the south central portion of the Forest adjacent to the Cabinet Mountains Wilderness. This proposed land exchange involves about 32,000 acres of PCTI lands and 35,000 acres of Kootenai National Forest lands. Purposes of the exchange would be to enhance grizzly bear management, provide increased roadless recreation opportunities, and to resolve the checkerboard ownership pattern existing in that area. The intent is to consolidate the National Forest ownership in the Silver Butte-Vermilion checkerboard area and to consolidate the PCTI ownership in several areas in the southeast corner of the Forest. For further discussion refer to Chapter II of the EIS and Appendix 9 of the Proposed Forest Plan.

b. Special Uses

There are currently about 470 special use permits in effect on the Forest. Most of these special uses are associated either with water uses or roads. Other types are for utility and communication sites, or are related to recreation and agricultural uses.

c. Rights-of-way and Cost-Share Agreements

The Kootenai usually enters into about 12-15 rights-of-way agreements per year. The agreements deal primarily with timber sale roads and capital investment projects such as bridges and roads.

The cost-share road program deals primarily with the sharing of road costs with adjacent landowners for timber harvest. The Kootenai cost-share program includes seven cost-share agreement areas involving two cooperators. These are Champion Timberlands (which includes the former St. Regis Corporation) and Plum Creek Timber, Inc. Three new cost-share agreement areas are proposed with the State of Montana.

d. Corridors

There are eleven existing electric transmission lines on the Kootenai Forest. Seven belong to the Bonneville Power Administration (BPA), two to the Washington Water Power Company, one to Pacificorp (formerly the Pacific Power and Light Company), and one to Northern Lights Rural Electric Cooperative. All the lines, except the Northern Lights REC line, are a part of the northwest power transmission grid and are interconnected. All of the lines are of two sizes, 115 kv and 230 kv.

e. Property Boundaries

There are a total of 3,000 miles of property boundary on the Forest and a program has been on-going for about 9 years to survey and monument these boundaries and corners. About 60 miles of property boundary are located each year and this program level is expected to continue unless future budgets are reduced significantly.

9. Watershed

Drainages on the Kootenai supply water to the Columbia River Basin. Forest management activities directly affect the quality and quantity of water contributed to this system. Average annual water yield from the Kootenai National Forest is estimated to be 4.1 million acre feet on 3.0 million acres of land (both Kootenai Forest land and the private land within the Kootenai boundaries). Water quality is characterized as generally excellent.

For purposes of analyzing land designation implications, the Forest was delineated into 112 major drainages. Most of the streams on the Forest have channel stability ratings of "fair to good" and can generally withstand up to a 14 percent increase in peak flow without excessive channel damage.

Almost two-thirds of the Kootenai National Forest, particularly the west half, is subject to watershed problems; frequent flooding and concentrated high water yields, sedimentation, and small slumps below clearcuts and roads. Early-winter, warm-climate-type snowpacks prevail on much of the Forest, and can yield large amounts of water during mid-winter unseasonably-warm periods. Forest-wide flooding has occurred approximately once every six years due to this phenomenon. Local, as well as, downstream damages below harvest areas are common following these climatic-snowpack interactions. Climatic data and researchers (Troendle and Leaf, 1980) have documented prevalence of this Pacific Maritime-type climate in northwestern Montana.

The relationships between water yield, stream damage, climatic events and timber harvest activities are not always clearly defined. Without any runoff, channel damage will not occur regardless of harvest activities which have occurred in the drainage. During midwinter rain and/or melt events, damages have occurred in drainages without prior timber harvest. Between these extremes, recent research (Christner and Harr, 1982) has shown that smaller climatic events can trigger significant flow increases and stream damage if significant ground disturbance has occurred in a drainage. In an effort to keep these activities below the threshold level that is considered to contribute to channel instability and downstream flooding problems, the Forest applies the equivalent-clearcut-area concept as a guideline. This approach defines the maximum area within the drainage that can be cutover based upon elevation, aspect, slope, and degree of ground disturbance. Proposals for activities which exceed this guideline require further analysis and review prior to implementation. The Forest Planning Model (FORPLAN) included constraints, as part of the minimum management requirements, to model these harvest guidelines.

A set of guidelines are used on the Forest to help carry out activities in a manner that will protect stream channels and downstream landowners (see Planning Records). Drainages that are at, or above, water-yield increases described in these guidelines and/or which have been damaged in the past (primarily due to rain-on-snow events) include the following:

<u>Drainage Name</u>	<u>Location on Forest</u>
Emerson Creek	Western Portion
Keeler Creek and some tributaries	Western Portion
Raymond Creek	Western Portion
Star Creek	Western Portion
Kedzie Creek	West-Central Portion
Studebaker Creek	West-Central Portion
Quartz Creek and some tributaries	Central Portion
Grave Creek and some tributaries	Northeast Portion
Wigwam River	Northeast Portion
Harvey Creek	Eastern Portion
Paul Creek	Eastern Portion

Of the 112 drainages used for planning purposes, 15 drainages (totaling 663,000 acres) have private lands in excess of fifty percent of the drainage. Resource impacts in these drainages are largely dependent upon decisions of the private landholders. Wherever possible, Forest Service activities in these drainages are coordinated with private activities to prevent downstream problems.

There are two municipal watersheds on the Forest: Flower Creek which supplies Libby, and O'Brien Creek which supplies Troy. Management activities are coordinated through the Water Quality Bureau of the Montana State Department of Health, the agency responsible for overseeing municipal watersheds. Road building and stream crossing associated with timber harvest activities are approved by the Bureau. Major concerns in municipal watersheds and all other watersheds include excessive water yield and sedimentation, as well as public health and sanitation.

Three major hydroelectric dams are located within the Forest boundary (Kooconusa, Noxon, and Cabinet Gorge). Hydrologic coordination with the Corps of Engineers and Washington Water Power is required to address problems such as powerpole locations and protection in floodplains. The impacts of Forest land management on sedimentation of the reservoirs and tributary spawning streams are also important considerations, not only to the public but to other agencies such as the Montana Department of Fish, Wildlife, and Parks, and the U.S. Fish and Wildlife Service.

Total Forest lake and reservoir acreage is 37,000 acres. The Forest also includes 3,200 miles of perennial streams, and adjacent to the Forest are an additional 1,300 miles of perennial streams on private land. The important Forest fishery resource requires hydrology input to mitigate land management impacts on sedimentation.

10. Cultural Resources

The Kootenai Forest has many known historic and prehistoric sites and it is likely that many more will be uncovered as projects are planned for areas previously unexamined. Prehistoric sites can take the form of camps, trails, rock art, cambium-peeled trees, quarries, burial grounds, and others.

Man has probably inhabited this area for at least 7,000 years (Thoms et al., 1984). Most of the remains of this prehistoric activity are located in the Kootenai Valley and along the tributaries of the Kootenai River. Most certainly the resources of the surrounding mountains were exploited, but fewer sites have been located there.

These early people were wandering hunters and gatherers, taking advantage of the wide range of mineral resources here, as well as the varied plant, animal and aquatic life. Although the lifestyle of these early residents is becoming more clear, there is still much to be learned about the interaction of these people with their environment.

The last prehistoric group to inhabit the area were the Kootenai Indians. The time of their arrival as well as their origin remains one of the great puzzles of North American prehistory. Their language is unique and distinctive from that of their neighbors. Ethnographic research of the Kootenai tribe was only recently undertaken, beginning in the 1940s with the work of Turney-High and continuing to the present (Manning, 1983). These studies suggest a lifestyle highly influenced by the European culture--the introduction of the horse, of fur trapping and trade, of missionaries, of mining and homesteading. Sites relating specifically to this era have yet to be clearly distinguished from sites of earlier activities.

Certain sites are still in use by Native Americans exercising their rights under the American Indian Religious Freedom Act.

Several major activities dominate the history of the 19th and 20th centuries within this region, all represented by recorded sites on the Forest. These include fur trade, missionaries, mining, homesteading and agriculture, transportation, logging, and public management of the resources. All of these themes are represented by recorded sites on the Forest.

11. Range

Livestock numbers in Lincoln and Sanders Counties have decreased steadily over the past 10-year period, indicating a declining importance of livestock production to the local area's economy. At present, 61 people have permits to graze cattle on Kootenai lands. Livestock use on the Kootenai totals about 13,000 Animal Unit Months (AUMs) per year. This use is based on 41 active grazing allotments with about 3100 animals being grazed.

The amount of potential livestock forage equals or exceeds current and projected demands (see chapter 2 and 4).

Livestock grazing on the Kootenai is limited by the nature of available range (transitory), the lack of over-wintering facilities, the remoteness of the available range, and the expense of providing adequate water and range developments. Demand is expected to be satisfied under current production levels.

Opportunities for the Forest to expand the range program are limited by the lack of primary range, the availability of suitable transitory range, the problems in moving stock to take advantage of that range and private sector interest in facing these problems. Many acres on the Forest are either too steep for stock use, the acres of transitory range are too widespread for stock to economically use them, or the range is too distant from potential users to be considered an economical opportunity. Limited as it is, transitory range is still the only opportunity for expansion. However, there are ways to make the current program more cost-efficient through consolidation of small allotments, establishment of a system that would set priorities for the use of range dollars, and by updating active allotment plans.

12. Energy

The consumption of fossil fuel energy has become an item of great concern over the last few years. The fuel consumed in the administration of the Kootenai National Forest is noted below. Additional energy, well in excess of that consumed by the Forest Service, is used by road builders, loggers and recreationists. The use of energy in Forest related activities is strongly related to the amounts of road building and logging that is done on the Forest.

As can be seen from the following table, the need to conserve fuel has resulted in decreasing fuel consumption by the Forest Service. This has been due to increased awareness of driving habits, quotas being applied and adhered to, and more economical vehicles being purchased or rented. It is expected that this trend will continue.

TABLE III-12

ENERGY CONSUMPTION

<u>Year</u>	<u>Fuel Consumed (gals.)</u>	<u>Miles Driven</u>
FY 1979	180,000	2,257,480
FY 1981	171,599	2,287,089
FY 1983	137,325	2,101,074

13. Human and Community Development

The Kootenai Forest has a positive impact on local employment. During FY 1986, the Forest employed 342 permanent and up to 144 temporary and seasonal workers at one time. Other people work for the Kootenai Forest through other authorities, such as volunteers through the Volunteers in the National Forest Act (there were 25 volunteers in 1986). Some outside agencies pay the salaries of enrollees, such as the State which pays for those working for the Kootenai through the Adult Work Experience. Additional programs include the Youth Conservation Corps (YCC), the Senior Citizens Employment Program (SCSEP), and the Youth Employment Program (YEP). In 1984, volunteers including campground hosts totaled 85 participants; YCC a total of 10; SCSEP, 16; YEP and AWE, 26.

The Kootenai presently employs 105 women and 18 minorities in permanent positions. This represents 31% and 5% of the permanent workforce, respectively. In addition, about 63% of the temporary workforce are women and about 13% are minorities, in keeping with the goals of the Forest's Affirmative Action and Equal Employment Opportunity programs.

14. Air Quality

The air quality of northwestern Montana is generally good except in the vicinity of communities with paper and sawmills. Seasonal degradation occurs as a result of smoke from wildfires and prescriptive burning, woodburning stoves, and dust from road sanding. Smoke management will continue to be an important part of planning and use of prescriptive burning to assure that air quality is not degraded. Woodburning stoves and dust from road sanding will need to be dealt with on a community-by-community basis.

15. Visual Quality

Through the years, natural occurrences, such as wildfires, and Forest management activities, such as timber harvesting and road building, have altered the appearance of the Forest. Recognizing that a large part of the enjoyment people gain from the Forest are pleasing views, Forest management includes measures to be taken during timber harvesting and road building to protect the viewing resource. The degree of this protection depends on the type of landscape involved and whether or not the area is "seen" and how often. How often an area is seen usually depends on whether or not it is close to a major road or highway, or whether it is viewed from a town. From this frequency-of-viewing and the type of landscape, is derived a "visual quality objective" or "VQO." VQO's are viewing standards or objectives, to be met during the design and implementation of a project and are (in order of "most protection" to "least protection") preservation, retention, partial retention, modification, and maximum modification. The VQO's of retention and partial retention are considered to be the most sensitive to change.

A baseline of these sensitive VQOs was determined by Forest landscape architects so that the viewing changes could be quantified. It was determined that 434,000 acres were most sensitive to change (acres seen from roadsides or from population centers) and therefore should receive maximum protection. A "retention" visual quality objective was assigned to them. An additional 909,000 acres were identified as needing some protection from change, but not as much as those in the "retention" category; a "partial retention" visual quality objective was assigned to those. The acreage allocated for each of the four VQOs by alternative is described in the timber harvest section of Chapter 4.

16. Fire Management

In addition to the 2,246,000 acres of National Forest land on the Kootenai National Forest, there are 633,000 acres of private land within and adjacent to the Forest that are a concern for fire protection.

Early fire history records for the 19th and 20th centuries show large fires (Class C and larger) occurring on the Kootenai in 1872, 1889, 1910, 1917, 1919, 1925, 1929, 1936, 1953, 1967, 1970, 1973, 1974, and 1979. Many stands of lodgepole pine which are now in 60-70 years old originated after the 1910 burn. Less dramatic but equally influential through time are the numerous small fires (Class A and B) occurring throughout the Forest. For the period 1970-79, these accounted for 96% of all fires. Lightning storms reach a peak in late June-August, with an average of 390 acres burned per year (1960-74).

The functional influence that fire has expressed on the land within and adjacent to the Kootenai National Forest is well documented (Davis and Bailey 1979, Schultz 1980, Bevins 1979) and can be seen in the nature and composition of the Forest. Through evolutionary selection, fire has shaped the structural adaptations of many of the species and research suggests that some herbaceous plants and trees not only endure fire well but appear to require it on a periodic basis to reproduce and compete successfully (Habeck and Mutch 1973, Kozlowski and Ahlgren 1974, Wright 1978).

The majority of the plant cover on the Forest is referred to as postfire secondary successional stages dominated by mixtures of Douglas-fir, ponderosa pine, western larch, lodgepole pine, and spruce. The understory vegetation is variable along elevational gradients.

The goal of fire management is to assure that land management objectives are met through a fire protection and use program which is cost effective and responsive to the Forest Plan. To meet this goal the Forest is undergoing an active Fire Management Planning process that uses the fundamental aspects of fire protection -- protection of life and property, plus the ecological aspects of fire including fire behavior, fire effects, and fire's historical role in the forest ecosystem.

Fire Management Planning provides for the assessment of conditions (fuels, topography, weather) and risks (lightning, people, equipment), and determines the necessary detection, prevention, presuppression, and suppression forces needed. This includes the necessary delegations of

authority and chain-of-command, and required communications and law enforcement including the necessary investigation of fire causes.

Fuels management is an important aspect of Fire Management, and its purpose is to reduce the man-created and natural fuel hazards to a pre-determined acceptable level.