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CLARK FORK OF THE COLUMBIA RIVER BASIN

COOPERATIVE STUDY

FORESTRY SUMMARY REPORT

PREPARED BY

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ECONOMIC RESEARCH SERVICE
FOREST SERVICE

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FORESTRY SUMMARY REPORT

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CLARK FORK OF THE COLUMBIA RIVER BASIN
USDA COOPERATIVE STUDY

JULY 1979

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1. SUMMARY

Personal per capita income is lower for the people in the basin than the National average. Unemployment is slightly higher than the National average. Much of the basin's income depends on forestry and mining. Under the present situation, both timber supplies and metal ores are being depleted and are becoming more expensive to produce. Some positive action will be required if this area is to maintain or improve the high standard of living for the existing or an expanding population. Forestry and mining account for 60 percent of the total basic income in the basin while agriculture and related industries accounts for 12 percent. About 2 percent of the basin's basic income comes from nonresidents participating in outdoor recreation and related activities (tourism). Over 21.1 percent of all persons employed in the basin in 1970 were employed by either Federal, State, or local governments. State and Federal employment brings in outside money and is considered as basic employment while local government consumes local taxes and is considered as derivative employment. Basic government employment (State and Federal) is about 12.9 percent of total employment, while derivative (local) government employment is about 8.2 percent of total employment.

If the basin's population is to continue to increase at its present rate, which approximates OBERS level C 1/ population growth, it will need an increase of basic employment of 5,400 jobs by 1990 in order to support related derivative employment and projected populations at present standards of living. The two most likely alternatives to that increase in basic employment are lowered standards of living for the larger population or a stagnation and decline in basin population. During the time that there is a need to increase basic employment, there is a persistent decline in the basic employment sectors of agricultural, forest products, mining, and smelting. Other issues addressed in this forestry summary are: (1) recreation, (2) access, (3) rural subdivision, (5) decline in environmental quality due to erosion and to loss in scenic beauty and wildlife habitat. These issues are translated into nine plan objectives and their solutions are summarized in table 1.

The Forestry Scene

Even though forest vegetation covers about three-quarters of the area, the supply of sawtimber is decreasing because of harvest, disease, insects, and classification into reserved status and will continue to decrease under existing levels of management.

1/ For definition, see footnote on page 11.

Present economic conditions do not generally encourage more intensive management on much of the private forest land. The demand for timber is expected to increase. The demand for reserved forest areas is also expected to increase. A large number of private forest landowners have not harvested available timber in order to maintain scenic values. There is potential to produce more timber than at present and at a reasonable cost if more intensive management is applied on the more productive forest lands which need management now and in the future. However, because of the long growth cycle, most of the benefits of this more intensive management would not accrue until after 2020.

A serious limiting factor for improved management is the lack of roads for preharvest management. Funds are not now available to construct these roads on Federal land or to provide the needed management. Delays now are expected to result in higher costs of management in the future.

The Mineral Industry Scene

The copper industry strongly dominates the economic scene of the Upper Clark Fork subbasin and whatever happens to copper affects most of the lives and employment of that area. Although the volume of production remains fairly constant, employment in this sector persistently declines. As with all stock (nonrenewable) resources, the highest quality and least costly to extract ores are being depleted. Lower percentage ores provide less gross revenue per ton mined and less profit for the copper company to work with.

The Agricultural Scene

Less than 5.4 percent of the basin is in cropland. Three percent is in irrigated crops and pasture and about 2 percent is in nonirrigated crops. Crop yields and alternative crops are limited by the cool climate and small uneconomical part-time farms. A lesser factor is irrigation water shortages in late summer. Employment in the agricultural sector is expected to continue its slow decline.

The Outdoor Recreation and Tourism Scene

This basin is an attractive area for recreation. However, many private outdoor recreation developments are in financial trouble and many developed facilities on public land are not completely used during the outdoor recreation season. Local residents and others frequently prefer areas with solitude and without developed facilities. Both motorized and non-motorized use of trails is increasing.

The Environmental Scene

This basin generally has a high-quality environment. Some localized pollution occurs. The principal air pollution problems are from industries near Butte, Anaconda, Missoula, and Columbia Falls.

The principal water quality problems are salts and heavy metals ions in the main stem of the Clark Fork River from Butte downstream.

The more serious erosion occurs along streams as bank erosion. Some small projects are constructed each year to control such erosion.

Subdivision and other human activities are encroaching on winter ranges critical for big game animals and on riparian and wetland habitat that is critical to other wildlife.

Preferred Plan

Five of the nine planning objectives in this Forestry summary can be largely and directly accomplished by the acceleration of existing programs of the Department of Agriculture. The Department can assist indirectly by providing technical advice on the other four planning objectives. As shown in chapter IV and tables 15 and 16, the annual National costs and benefits of the Department of Agriculture's portion of this preferred plan summary amount to \$36.4 and \$36.6 million respectively. Other costs and benefits in the preferred plan would require State and local initiative and possibly assistance from other Departments of the Federal Government. From the standpoint of the residents in the study area, Regional economic effects appear to be much more favorable than from the National perspective. Besides these economic values, the preferred plan has strong nonmonetarily measurable environmental benefits.

An important realization from the study is that the area's Forest resources alone are not enough to support the basic employment to match the population projection used in this study. The same applies to the farming sector. The only other major historical source of basic employment in the basin is the mining sector which, in spite of recent declines, has the mineral resources capable of supporting considerably larger levels of basic employment.

Other than this, the only other source of significant basic employment would be the development of non-land-resource-dependent industries such as in the area of electronics, education, export cottage industries, and tourism.

A summary of the preferred plan for forestry related activities is presented in table 1.

TABLE 1--SUMMARY OF PRINCIPAL ANNUAL EFFECTS OF IMPLEMENTING PREFERRED FORESTRY RELATED PLAN ELEMENTS
CLARK FORK OF THE COLUMBIA RIVER BASIN

Plan Elements	Plan Objective 1/ Involved	Increased Annual Commodity Production, ^{1/} Quantity/Units	National Economic Development Effects (Annual) Beneficial/Adverse --- \$1,000	Environmental Quality Beneficial/Adverse Effects	Regional Development Effects (Annual) Beneficial/Adverse --- \$1,000	Social Well Being Beneficial/Adverse Effects	Agencies and Programs Involved
Provide 6,152 more basic employment jobs by 1990 (above those from USDA programs)	(1)	Diverse	36,900 30,600	Continued population pressure on wildlife habitat and natural resources. Land, energy, materials used.	73,600 30,600	Sound, viable economy with ad- quate employment for existing and 1990 population	SCS, FS, State, local RCD, BUD, private.
Provide recreation opportunity to match demand.	(2) (3)	Doubled recreation management services; increased camp sites at certain sites; public access sites.	1,840 1,607	Reduced pollution at high-use sites. More public use and pollution control programs. Minor loss of wildlife habitat. Land, energy, and materials required.	1,965 48	Well-balanced high quality recreation; 100 man-years employment. Less recreationists. Reduced trespass.	FS, FSG, BOR, SCS, PL-566, RCD, local government and private.
Accelerate land treat- ment and vegetative management. For: Forest products production	(4)	18 MCF roundwood 5 MCF other wood	35,700 31,000	Reduced erosion and non- point sediment pollution. Improved fishery and wildlife habitat. Some wildlife disturbance during forest thinning and site preparation.	71,400 1,500	Increased income, improved economic stability and maintained agri- culture and forestry.	SCS, ASCS, FS, State, private.
Erosion protec- tion: Forest lands Roads & trails Streambanks	(6)	61,000 ac. 2,460 mi. 51 mi.	--- 1,296	Maintained scenic beauty. Some increased erosion on forest management roads. Consumption of energy and materials.	260 68	1,800 jobs by 1990	
Protect natural beauty	(8)	Use logging methods requiring fewer roads, preventing erosion, reducing damage to wildlife habitat, and using irregular har- vest patterns. Manage stands for balanced timber, wildlife, and landscape systems.	--- 25,130	Reduced erosion and visual impact of logging; improved big game habi- tat, vegetation and for- est health. Reduced pollution from motorized vehicles. Some effects of logging would remain.	5,025 22,765	High capital invest- ments. Less motor- ized access to tim- bered areas. Reduced employment. Increased erosion and pollution in areas.	FS, State and local government, private pressure.
Stop unneeded sub- division of forested lands.	(5)	Avoid 47,000 acres of unneeded subdivision.	460 250	Preserve wildlife habi- tat. Increased building concentration on existing subdivisions.	920 250	Maintain economic re- source base and rural environment. Improved utility service.	State and local government, private pressure.
Preserve wildlife habitat.	(7) (9)	376,900 acres of riparian, wetland, upland, and vernal swamp habitat; 1,342 miles of river.	--- 3,634	Improved aquatic and riparian habitat, with minor reduction of summer flooded wetland floors. Increased timber quality and reduced erosion. Improved wildlife habitat and increased populations of animals.	725 735	Improved quality of recreation; reduced property loss. More mosquitoes. Reduced erosion. Loss of riparian lands. Reduced trail and farm income.	State and local government, private pressure.
TOTAL \$	XXX	XXX	74,900 2/ 93,517 2/	XXX	154,095 55,966	XXX	XXX

1/ Planning objectives are identified by parenthesized numbers throughout the report to assist the reader. Refer to pages 7 and 8 for list of forestry related objectives.

2/ The USDA portion of these values are \$36.6 million benefits and \$26.4 million costs.

II. INTRODUCTION

This is a forestry summary report for the Clark Fork of the Columbia River Basin USDA cooperative study. The study area includes all of Montana west of the Continental Divide except the drainage of the Kootenai River and its tributaries (see map II-1). The study report was approved by the State of Montana and by the Department of Agriculture in 1978 and serves the function of coordinating certain programs among the agencies within the Department and with the State. The study report and this summary meet requirements of the Water Resources Council in that the programs recommended in this study are consistent with the programs in the forthcoming Regional plan of the Pacific Northwest River Basins Commission.

The purpose of this summary is (1) to clarify and condense the Forestry aspects presented in the overall study report, (2) to identify the role of the forest in meeting National, Regional, and local objectives, (3) to inform Federal, State, and local authorities of forestry problems, opportunities, and actions recommended in the study, and (4) to encourage implementation of these recommendations.

This cooperative study was conducted under the authority of section VI of the Watershed Protection and Flood Prevention Act of the 83rd Congress (Public Law 566) as amended and supplemented. By this act the Secretary of Agriculture is authorized to cooperate with other Federal, State, and local agencies in making investigations and surveys of watersheds and rivers as a basis for development of coordinated programs. The Montana Department of Natural Resources and Conservation requested this study and participated in it.

Department of Agriculture participation was through the Soil Conservation Service; Economics, Statistics, and Cooperative Services; and the Forest Service. This forestry summary was developed from the cooperative study report by the Forest Service member on the USDA planning team.

C A N A D A

LOCATION MAP

MAP II-1 PROJECT MAP

CLARK FORK OF THE COLUMBIA RIVER BASIN
MONTANA

MARCH 1977

Source:
Base map prepared by SCS, Portland, Ore., Unit from AMS 1:250,000 series.
Thematic detail prepared by State Staff.
U.S. DEPARTMENT OF AGRICULTURE

M7-SL-23425-27

The study identified 28 problems of which nine are related in some way to forestry or forest lands. The following list shows these forestry-related problems and the objectives for planning within the USDA cooperative study.

Problems

*(1) Declining natural resource base and a related decline in basic extractive employment in forest-related industries.

(2) Imbalanced recreation services and facilities on public lands.

(3) Insufficient access points on streams and public lands forces overuse at existing access sites. Such concentrated use destroys natural beauty.

(4) Improper land and timber management holds timber production below its potential.

(5) Productive commercial forest land is being lost to subdivision, thereby reducing the natural resource base. Subdivisions are also encroaching on critical wildlife habitats such as the riparian and Forest fringe areas.

(6) Erosion and sediment from forest lands cause nonpoint water pollution and a reduction in environmental quality.

(7) Agricultural, residential, and road encroachment on riparian lands reduce natural beauty.

Objectives for Planning

(1) Maintain production from renewable natural resources and attract other basic industries needed to replace declining basic employment.

(2) Adjust supply, kind, and quality of recreational services and facilities to satisfy preferences.

(3) Provide more access points to streams and public lands and disperse recreational use.

(4) Improve land and timber management to bring timber production up to its feasible potential.

(5) Stop subdivision of the better commercial forest land and of critical wildlife habitat.

(6) Reduce sediment from forest lands.

(7) Protect riparian vegetation.

*A parenthesized number is provided for each problem and appears throughout the report to assist the reader.

(8) Clearcutting in large blocks, overgrazing, and erosion destroy natural beauty.

(8) Protect open and green space with better planning and land management.

(9) Wildlife habitat is being lost to agricultural, residential, industrial, and transportation encroachment on riparian, forest fringe, and wetland areas.

(9) Preserve adequate waterfowl, big game, upland, and other wildlife habitat.

Information on the whole study area is summarized within either economic or hydrologic boundaries that best represent the total basin. Some information is further summarized by three economic or three hydrologic sub-areas: the Upper Clark Fork, the Lower Clark Fork, and the Flathead as shown by map III-1.

Physical Dimensions of the Basin

The Clark Fork of the Columbia River Basin in Montana is 13.8 million acres in size, constituting about 8.3 percent of the total area of the Columbia River drainage and providing about 8.8 percent of its average annual flow.

The basin climate varies from humid alpine with over 100 inches of annual precipitation to semiarid with less than 10 inches of annual precipitation. Short growing seasons and cool temperatures during the growing seasons, combined with soil and water limitations, effectively restrict the types of crops and yields that can be produced in the area.

The basin contains a wide variety of mineral deposits. Copper is the single most important metal ore in Montana and over 99 percent of the State's production comes from the Butte District. The basin has substantial deposits of iron, lead zinc, tungsten, and manganese ores. Considerable amounts of gold, silver, arsenic, and bismuth are available as byproducts either from the copper mining at Butte or the smelting at Anaconda. Other minerals are phosphate, mica, silica, barite. The most important gems occurring in the basin are sapphires. Several small deposits of coal and uranium ores are known and considerable exploration is underway for oil and natural gas.

The topography of the basin consists of steep mountain slopes and flat river valleys with some well-defined terraces, but relatively few foothills or prairie expanses. Most of the soils in the basin were developed on mountain slopes under conifer forests and most of the basin had hard rock materials rather than shales as parent materials. As a result, there are larger acreages of coarser textured soils than of clays. As a result of this, and man's activities, the basin lands are covered in the following ways:

C A N A D A

LEGEND

- Economic Study Areas
- Hydrologic Study Areas

MAP III I
ECONOMIC AND HYDROLOGIC STUDY AREAS
 CLARK FORK OF THE COLUMBIA RIVER BASIN
 MONTANA

MARCH 1977

Source
 Base map prepared by SCS, Portland Office, Unit from AMS 1:250,000 series.
 Thematic detail prepared by State Staff.
 U.S. DEPARTMENT OF AGRICULTURE

M7-PL-23425-28

Forest cover	76%
Range cover	12%
Crop cover	6%
Urban cover	1%
Water cover	2%
Barren	3%
	<u>100%</u>

The ownership pattern in the basin has had considerable effect on resource development. Ownership and administration of land includes 34 percent private, 4 percent Indian tribal, 4 percent State of Montana, 52 percent National Forest, and 6 percent other Federal.

Socio-Economic Dimensions of the Basin

The 1970 population of the Clark Fork study area totaled 203,658 inhabitants. The 50-year average annual population growth rate has been roughly 0.7 percent, slightly higher than the State average of 0.5 percent for the same period, and considerably below the 50-year United States average of 1.9 percent.

In 1970 about 47 percent of the total population of the study area was classified as rural and 53 percent urban. The 1930 rural-urban ratio for the study area was the same as the present ratio, and it has not varied greatly since that time. There has occurred, however, a modest increase in the rural nonfarm population, a trend that is associated with subdivision of rural farmland.

The Clark Fork study area, although more densely populated than the average for the State of Montana is still considered very sparsely populated. The average density for the study area as a whole was 9.5 in 1970, compared with 57 persons per square mile Nationally. However, a rather different picture unfolds if the study area's populations are divided by the amount of taxable private land.

Subarea	Population density based on total area	Population density based on private land
Inhabitants per Square Mile		
Upper Clark Fork	12.1	27.8
Lower Clark Fork	9.1	28.6
Flathead	7.8	29.6
TOTAL BASIN	9.5	28.6

Western Montana has close ties with the States lying to the west and has been integrated as part of the Pacific Northwest.

In terms of the social structure of the study area, Indians exert their greatest influence in the Flathead subarea. Other non-Caucasian groups account for less than 1 percent in all subareas of the study area.

Property tax is the principal source of local governmental funding. Counties, municipalities, and school districts depend almost entirely upon this tax. There is no general sales tax for support of county or city government, although State government derives some revenues from selective sales taxes. Individual income and corporate taxes also support State government.

Total employment trends have generally paralleled population trends since the employment participation rate (employment/population) for the study area has been approximately the same over time. Employment in the study area totaled 69,322 in 1970, according to the Decennial Census. Since 1940, total employment for the study area has expanded at an average annual rate of 0.7 percent. Unemployment in 1970 was 8 percent, somewhat higher than the National average of 6.7 percent that year.

Measured in current dollars, personal income in the Clark Fork study area totaled \$628 million in 1970. Wages and salaries comprised nearly 84 percent of total earnings.

Per capita income in 1970 was about 10 percent below the State and considerably below the National income per capita. Mean family income for the study area in the base period was \$9,454. Ten percent of the total number of families had incomes below the poverty threshold established by the Federal Interagency Committee on Poverty.

A large number of forces influence economic activity and long-term economic growth. None of these forces can be considered as fixed. Furthermore, these forces vary in their relative influence over time. Changing incomes, shifting tastes, development of substitute products, and changing prices tend to modify trends. Substitute products cause changes in use patterns. The expansion of world markets affects the agricultural industry of the United States and its various regions.

The OBERS series C projections were selected as a baseline projection for the study area. ^{2/} These projections are not predictions of the future but, rather, they are approximations of what may occur if a specific set

^{2/} The term OBERS was adopted to represent a joint effort by the former Office of Business Economics, U.S. Department of Commerce, and the former Economic Research Service of the U.S. Department of Agriculture. Although OBE has become the BEA (Bureau of Economic Analysis), and ERS has become ESCS (Economic, Statistics, and Cooperative Service), the OBERS designation has been continued.

of assumptions are, in fact, to happen. The baseline concept, in simplest terms, means that a particular set of projections is selected as a base against which other projections are compared or analyzed as alternatives. They should not, however, be viewed as quotas or constraints that must be met in the planning process.

Projections of population, employment, and income are shown in tables 2, 3, and 4.

TABLE 2--PROJECTED POPULATION GROWTH, BY SUBAREA, WITH COMPARISONS
1970, 1990, 2000, and 2020
CLARK FORK OF THE COLUMBIA RIVER BASIN

Item	1970	1990	2000	2020
	- - - - - number - - - - -			
Flathead	54,000	66,000	70,000	81,000
Lower Clark Fork	83,000	105,000	116,000	151,000
Upper Clark Fork	67,000	61,000	60,000	52,000
Total Clark Fork Study Area	204,000	232,000	246,000	284,000
Total WRSA 1702	225,000	256,000	272,000	314,000
Montana	694,000	755,000	790,000	902,000

Based on OBERS Series C population projections.

TABLE 3--TOTAL AND BASIC EMPLOYMENT, BY SUBAREA, WITH COMPARISONS
1970 AND PROJECTED 1990, 2000, AND 2020

Item	1970	1990	2000	2020
- - - - - number - - - - -				
<u>Flathead</u>				
Total	17,000	21,000	22,000	27,000
Basic ^{1/}	7,100	8,700	9,100	11,200
<u>Lower Clark Fork</u>				
Total	29,000	39,000	44,000	60,000
Basic ^{1/}	12,600	16,900	19,000	26,000
<u>Upper Clark Fork</u>				
Total	23,000	22,000	21,000	19,000
Basic ^{1/}	11,200	10,700	10,200	9,300
<u>Clark Fork Study Area</u>				
Total	69,000	82,000	87,000	106,000
Basic ^{1/}	30,900	36,300	38,300	46,500

Based on OBERS Series C population projections.

TABLE 4--PERSONAL INCOME, TOTAL AND PER CAPITA, BY SUBAREA
1970 AND PROJECTED 1990, 2000, AND 2020
(1967 CONSTANT DOLLARS)

CLARK FORK OF THE COLUMBIA RIVER BASIN

Item	1970		1990		2000		2020	
	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total
	dollars	1,000 dollars	dollars	1,000 dollars	dollars	1,000 dollars	dollars	1,000 dollars
Flathead Subarea	2,637	142,147	5,594	370,522	7,136	499,520	12,930	1,047,330
Lower Clark Fork	2,639	218,306	5,599	587,895	7,142	828,472	12,941	1,954,091
Upper Clark Fork	2,752	184,356	5,838	356,118	7,447	446,820	13,493	701,636
Total Clark Fork Study Area	2,676	544,809	5,666	1,314,535	7,214	1,774,812	13,040	3,703,057

Based on OBERS Series C projections.

^{1/} Basic employment is that which brings outside money into the study area. To maintain a viable economy, enough outside money must be brought into the area to pay for goods and services brought from outside the area.

III. FORESTS AND RELATED ECONOMY

Forest lands are defined as those normally having at least 10 percent canopy cover of trees.

About three-quarters of the Clark Fork study area is covered with forest vegetation and three-quarters of that forested area is capable of producing industrial quality wood. This large natural resource base supports a substantial wood products industry.

Commercial forest land is defined as that which can produce more than 20 cubic feet of wood per acre per year. As shown in table 5, about 58 percent of the 10-county land area is commercial forest land. See map V-II. (Map V-II was compiled prior to the existence of RARE II information)

Ease of harvest and environmental constraints are not considered when defining the area of commercial forest land. Therefore, some of the forest classed as commercial is not available for harvest. Trees around campgrounds and homes are generally cut only when they become dangerous. Trees on very steep slopes are hard to reach and should remain to protect the slopes from erosion. Some tree-covered areas on National Forests will be left uncut to protect scenic values.

Of the 1970 commercial timber base, 39 percent of it is prime forest land, capable of growing in excess of 85 cubic feet of industrial wood per acre per year. It is on this portion of the timber growing base that financial returns to management are high enough to attract investment capital. On the other 52 percent of the timber growing base, the rate of return is less attractive and the land cannot economically receive intensive management until such time that the projected value for wood increases or there are technological innovations in management, manufacturing, or marketing of timber products.

Thirty percent of the commercial timber growing base is in private ownership consisting of forest industries, farmers, and miscellaneous private entities. Only 11 percent of these private commercial forests have the capacity to grow more than 85 cubic feet of wood per year as shown in table 6.

Thirty percent of all the commercial forest land is controlled by more than 8,000 private owners. However, as few as 250 owners control 72 percent of the private timber base. About half of private owners control less than 40 acres each and together they own only 3 percent of the private timber base. These relationships are shown in table 7.

TABLE 5--LAND AREA BY FOREST LAND CLASS--TEN-COUNTY STUDY AREA
CLARK FORK OF THE COLUMBIA RIVER BASIN

Land Class	Thousand Acres
Commercial forest land <u>1/</u>	7,823
Unregulated	36
Deferred <u>2/</u>	100
Noncommercial forest land:	
Unproductive-nonreserved	833
Productive-reserved <u>3/</u>	863
Unproductive-reserved	<u>749</u>
Total forest land	10,404
Nonforest land	<u>3,090</u>
Total land area	13,494
Source: Forest Survey	1970

1/ Includes all areas presently or prospectively suitable and available for timber growing, including productive areas currently inoperable or inaccessible but not in wilderness or potential wilderness areas.

2/ Areas deferred pending study to determine appropriate land use. Since 1970 about 2,297,000 acres of commercial and noncommercial National Forest land have been designated as roadless areas. About 1,387,000 acres of this are commercial forest.

3/ Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization because of (a) legal withdrawals, (b) administrative withdrawals such as forested administrative sites, natural, areas, lands not available for timber production because of conflicts for nontimber uses.

LEGEND

FOREST PRODUCTIVITY

Commercial

Non-commercial

DEFERRED OR RESERVED AREAS

LOCATION MAP

MAP V-11

COMMERCIAL AND NONCOMMERCIAL FORESTS CLARK FORK OF THE COLUMBIA RIVER BASIN

MONTANA

MARCH 1977

LEGEND

FOREST PRODUCTIVITY

Commercial

Non-commercial

DEFERRED OR RESERVED AREAS

New Study Areas

Inventoried Roadless Areas

Existing Wilderness & Primitive Areas

C A N A D A

IDAHO

Source:
Base map prepared by SCS, Portland, Oreg., Unit from AMS 1:250,000 series.
Thematic detail prepared by State Soil
U.S. DEPARTMENT OF AGRICULTURE

Clark Fork of the Columbia River Basin

LINCOLN CO.
SANDERS CO.
MINERAL CO.
MISSOULA CO.
GRANITE CO.
BLAINE CO.
LEWIS & CLARK CO.
TOWNE CO.
SILVER BOW CO.
BLAINE CO.

LOCATION MAP

MAP V-11
COMMERCIAL AND NONCOMMERCIAL FORESTS
CLARK FORK OF THE COLUMBIA RIVER BASIN
MONTANA

MARCH 1977
0 10 20 MILES
SCALE 1:100,000

TABLE 6--COMMERCIAL FOREST LAND BY OWNERSHIP GROUP AND PRODUCTIVITY CLASS 1/--TEN-COUNTY STUDY AREA

CLARK FORK OF THE COLUMBIA RIVER BASIN

Productivity Class 2/	All Ownerships	National Forest	Other Public	Forest Industry	Farmer and Miscellaneous Private
cu ft /Ac /yr	Thousand acres				
120'+	1,260	1,188	19	21	32
85'-119'	2,468	2,195	75	86	112
50'-84'	1,955	597	383	322	653
20'-49'	2,140	601	457	286	796
All classes	7,823	4,581	934	715	1,593

Source: USDA Forest Resource Bulletin INT-10, 1970, by Alan W. Green and Theodore S. Setzer, table 16, adjusted to represent study area

1/ The classification of forest land in terms of inherent capacity to grow crops of industrial wood

2/ Growth in cubic feet per acre per year on all trees 4.0 inches or larger in diameter in fully stocked stands at culmination of mean annual growth.

3/ Since publication of the main report in 1976 the acres for National Forest land were reduced and proportioned as follows:

120'+	568
85'-119'	1,886
50'-84'	1,100
20'-49'	327
All classes	3,881

The statistics for private land are likely to change in the near future with the completion of the new survey work currently underway by the Montana State Division of Forestry, DNRAC.

TABLE 7--OWNERSHIP OF PRIVATE COMMERCIAL FOREST LAND BY SIZE OF OWNERSHIP--TEN-COUNTY STUDY AREA

CLARK FORK OF THE COLUMBIA RIVER BASIN

Size of Ownership (Acres)	Owners		Acreage Owned	
	Number	Percent	Thousands	Percent
0 to 39	4,489	51.3	70	3.0
40 to 159	2,845	32.5	234	10.1
160 to 639	1,178	13.4	347	15.1
640+	247	2.8	1,657	71.8
All sizes	8,759	100.0	2,308	100.0

Based on Montana Forest Fire Protection Assessment Rolls--1974.

NOTE: Map V-II was compiled prior to the existence of RARE II information and is included here not so much for the inventory of roadless areas, which is out of date, but to show the extent of forest land perceived to be capable of growing 20 cubic feet of wood fiber per acre per year at the culmination of mean annual increment.

Utilization: Kind, Volume, and Value of Output

In spite of significant mortality, the annual harvest of timber has been considerably below the estimated annual sustainable cut during the past several years. In 1970 the total harvested was approximately 75 percent of what was considered sustainable according to the comparison of net annual growth with harvest of sawtimber on all ownerships (table 8). There are a number of reasons the harvest has been less than annual growth. Some of the timber is found in marginal areas where harvesting costs are prohibitive. Weather, strikes, and fluctuations in the marketplace have also played their roles. More stringent environmental controls, limited funding for management, and delays to allow time for management planning have reduced and delayed timber harvest and management.

Eighty-five percent of the timber harvested from the forest land in the Clark Fork study area was used as sawlogs for lumber production while the rest was used for veneer logs, pulpwood, and other uses. Some logging residues, which in the past would have been left in the forest, were also removed. This and other removals are not accounted for in the sawtimber inventory and amounted to about a 10 percent extension of the output from the measurable part of resource (table 9).

In considering the value of output, wood must be considered first as unprocessed sawlogs, or cordwood, and secondly as finished lumber, plywood, etc. Initially there is a stumpage charge, usually based upon the quality of the timber stand, the relative ease of harvesting, and location of the forest. The approximate raw material value of the wood removed in 1970 was \$18.5 million in 1967 dollars. The value added to this raw material as it was processed into lumber and plywood brought the wholesale worth of this material to approximately \$200 million in 1972 dollars.

Employment and Income in Primary Processing

Employment and income in the primary wood products sector are mainstays of the economy of the study area. In 1970 there were 1,305 workers employed in logging camps and as logging contractors. Essentially, they produce rough primary forest or wood products. In addition, there were 4,370 employees in the wood processing industries such as sawmills, etc. Earnings for the loggers and logging contractors totaled \$5.4 million in 1970 and earnings from other primary processing of wood products totaled \$44.8 million.

TABLE 8--INVENTORY, GROWTH, AND HARVEST RELATIONSHIPS ON COMMERCIAL
FOREST LAND BY OWNERSHIP GROUPS--1970

CLARK FORK OF THE COLUMBIA RIVER BASIN

Concept	National Forest	Other Federal & State	Forest Industry	Farmer and Miscellaneous Private	All Ownerships
- - - - - Millions of Cubic Feet - - - - -					
<u>Growing stock 1/</u>					
Inventory	9,300	1,580	1,490	2,490	14,860
Annual gross growth	269	33	30	57	389
Mortality (loss)	69	7	10	10	96
Net Growth	200	26	20	47	293
Potential gross growth	463	53	43	88	647
- - - - - Millions of Board Feet - - - - -					
<u>Sawtimber 2/</u>					
Inventory	31,600	6,170	6,910	9,620	54,300
Annual gross growth	838	138	134	218	1,328
Mortality (loss)	247	29	43	39	358
Net growth	591	109	91	179	970
Harvest	412.6	87.4	(- - - 229.5 - - -)		729.5

Source: Forest Survey and River Basin Staff

1/ All live trees 4.0 inches or larger in diameter. These data are used in forest management.

2/ All live trees 9.0 inches or larger in diameter (d.b.h.). These data have been used in timber harvest. Recently the harvest criteria have changed to allow the harvest of 8 inches d.b.h. trees for all but lodgepole pine and 7 inches d.b.h. lodgepole pine as sawtimber.

TABLE 9--HARVEST FROM SAWTIMBER INVENTORY BY PRODUCT ON COMMERCIAL
FOREST LAND--1970

CLARK FORK OF THE COLUMBIA RIVER BASIN

Product	Million Board-Feet	Percent of Total
Sawlogs	621.9	85.3
Veneer logs	97.1	13.3
Pulpwood	3.5	.5
Commercial poles	1.6	.2
Mine timbers	2.2	.3
Miscellaneous industrial wood <u>1/</u>	1.4	.2
Posts, fuelwood, and miscellaneous farm timbers	<u>1.7</u>	<u>.2</u>
All products <u>2/</u>	729.5	100.0
Logging residues <u>3/</u>	59.3	8.1
Other removals <u>3/</u>	13.4	1.2

Source: USDA Forest Service Resource Bulletin INT-10, 1974.

1/ Includes house logs, converter poles, piling, shingle bolts, excelsior bolts, match stock, charcoal wood, etc.

2/ Debit against inventories volume.

3/ Not accounted for in inventory above because it is dead or too small.

Employment and Income in Related Trade and Service Industries

Basic industry to total industry employment multipliers were derived from census data for the study area and subareas. These multipliers approximate the relationship between forestry and forest products industry compared with total industry. These multipliers were used to develop data in table 10.

Data from table 10 were combined with levels of earnings in types of employment to develop tables 11 and 12, which show the relative economic importance of the forest industry to the income and employment of the basin.

Capital Investment in Forestry Industries 3/

Capital investments in mills and equipment have been increasing in most industries State-wide. Almost without exception, lumber and wood products industries have led the field in new capital investment, accounting for over 25 percent of the State total in recent years. After such heavy expenditures for new mills and equipment, one would expect increases in productivity in terms of value added per employee hour, but such increases are not evident. Perhaps more lag-time is needed to bring out these gains--or perhaps the heavy investments have merely forestalled decline in labor productivity. Factors contributing to keeping labor productivity down include: decreased size of trees which reduces harvest and mill efficiency; shift of harvesting to more inaccessible and steeper sites which reduces harvesting efficiency; and stricter regulation of logging practices on public land to protect the environment which has increased costs and reduced harvest labor efficiency. The maximum installed production capacity of 1,094 million board feet for the whole lumber industry in the study area exceeded net growth, allowable cut, and actual cut for 1970.

Forest Products Projections and Related Economic Effects

The National projections, disaggregated to this river basin, indicate a 24 percent increase in industrial roundwood by 1990 and a 60 percent increase by 2020 over the annual harvest volume of 1970. Most of the production would be of saw and veneer logs (from large-diameter trees). Demand for pulpwood will also increase from 0.7 million cubic feet in 1970, to 5.9 million cubic feet in 1990, and to 16.6 million cubic feet in 2020. The demand for other roundwood, such as posts and poles, will remain relatively constant (table 13).

3/ Material paraphrased from A Profile of Forestry Employment in Montana, by Richard L. Porterfield, USDA Forest Service Research Paper INT-172, 1975.

TABLE 10--FORESTRY AND RELATED INDUSTRY EMPLOYMENT

CLARK FORK OF THE COLUMBIA RIVER BASIN

Item	Subareas			Study Area Total
	Flathead	Lower Clark Fork	Upper Clark Fork	
	- - - - - Persons - - - - -			
SIC 24 1/	---	---	---	5,339
SIC 26	---	---	---	336
Forest Management	---	---	---	940
Total Basic Employment	2,183	4,101	331	6,615
Secondary Employment	<u>2,870</u>	<u>5,008</u>	<u>325</u>	<u>8,203</u>
Total Employment	5,053	9,109	656	14,818

Source: U.S. Census and River Basin Planning Staff, 1970.

1/ SIC = Standard Industrial Classification: SIC 24 includes logging, lumber, and wood products. SIC 26 includes pulp, paper, and allied products.

TABLE 11--FORESTRY AND RELATED INDUSTRY EARNINGS

CLARK FORK OF THE COLUMBIA RIVER BASIN

Item	Subareas			Study Area Total
	Flathead	Lower Clark Fork	Upper Clark Fork	
	- - - - - (\$1,000) - - - - -			
SIC 24 1/	---	---	---	38,099
SIC 26	---	---	---	3,143
Forest Management	---	---	---	7,165
Total Basic Employment	15,975	30,012	2,420	48,407
Secondary Employment	<u>19,889</u>	<u>34,706</u>	<u>2,252</u>	<u>56,847</u>
Total Earnings	35,864	64,718	4,672	105,254

Source: U.S. Census and River Basin Planning Staff, 1970.

Earnings from USDA Forest Service Research Paper INT-172, 1975.

1/ SIC = Standard Industrial Classification

TABLE 12--IMPORTANCE OF FORESTRY INDUSTRY RELATED TO TOTAL INDUSTRY
CLARK FORK OF THE COLUMBIA RIVER BASIN

Item	Subareas			Study Area Total
	Flathead	Lower Clark Fork	Upper Clark Fork	
	- - - - - (\$1,000) - - - - -			
1. Manufacturing Employment	66	99+	10	66
2. All Basic Employment	31	32	3	21
3. Wages and Salaries	40	40	3	27
4. Personal Income	24	26	2	17

Source: U.S. Census and River Basin Planning Staff, 1970.

TABLE 13--OBERS C PROJECTED ROUNDWOOD DEMAND
CLARK FORK OF THE COLUMBIA RIVER BASIN

Items	1970	1990	2020
- - - million cubic feet - - -			
<u>Roundwood Harvest</u>			
Saw and veneer logs	119.1	143.0	175.4
Other roundwood	2.0	2.2	2.6
Pulpwood	<u>0.7</u>	<u>5.9</u>	<u>16.6</u>
All Roundwood	121.8	151.1	194.6

Source: River Basin Planning Staff. Based on OBERS C projections.

Outdoor Recreation

The real resource for outdoor recreation in the study area is the natural attractiveness of its landscape. Much of this same landscape is simultaneously used to supply wood and to generate employment and income from its utilization. A portion of the outdoor recreation activity is dispersed and is nonconsumptive. Another portion of the outdoor recreation activity focuses upon localized attractions and requires special attention in the form of management and maintenance. Facilities provided at these localized attraction areas represent an additional economic resource.

The current level of recreation participation in the study is estimated to be 14.9 million activity occasions as shown in table 14. A portion of this activity takes place in Glacier National Park which recorded 1.57 million visitors in 1975. Recreation on National Forest land was estimated at 10.2 million recreation days of use in 1975. Recreation days are not the same as activity occasions. ^{4/}

For the four National Forests constituting the bulk of the forest land, the current budgets for recreation maintenance and recreation construction are \$605,000 and \$1,000 respectively.

Gross receipts and cost information are not available on private enterprise in outdoor recreation for the basin.

The 16 largest communities in the study area budget about \$280,000 for recreation programs on 971 acres of urban parks. This budget amounts to about \$290 per acre of urban park and represents an average of about \$3 per person living within the limits of the same 16 cities.

Outdoor Recreation Projections

Outdoor recreation activity occasions are projected to increase from 14.9 million to 21.9 million by 1990 and to 36.2 million by the year 2020 for the 16 activities (table 14). These projections were made by the Recreation Data Subcommittee of the Pacific Northwest River Basin Commission and are based on OBERS series C population projections and with estimated rates of growth in per capita participation differing for each kind of activity.

^{4/} An activity day is any part of a day in which a person engages in an activity one or more times. A recreation day is different in that it is a person's visit to a site or area during any reasonable portion of a day regardless of his activities while there. For example, a person may spend a recreation day at a lakeshore campsite. While there he may go swimming twice for one activity occasion, fish for one period, water ski for another, picnic twice, and camp--for a total of five activity occasions.

TABLE 14--OUTDOOR RECREATION PROJECTIONS

CLARK FORK OF THE COLUMBIA RIVER BASIN

Activity	1970 <u>1/</u>	1990	2020
Thousands of Activity Occasions			
Camping	1,682	2,551	4,217
Picnicking	724	1,187	1,928
Swimming	272	481	925
Sightseeing and driving for pleasure	5,040	7,360	12,169
Fishing	642	731	914
Boating	249	443	843
Water skiing	97	185	376
Walking and hiking	1,501	2,117	3,191
Hunting	377	430	557
Playing outdoor games	477	816	1,517
Bicycling	408	724	1,382
Golfing	80	149	292
Horseback riding	164	231	363
Attending outdoor sporting and/or culture events	1,535	1,909	3,213
Snow activities	524	938	1,833
Other	<u>1,096</u>	<u>1,618</u>	<u>2,455</u>
Total	14,868	21,870	36,175

Source: Recreation Committee, Pacific Northwest River Basin Commission.

1/ Many of these activities were tabulated on weekend use only.

One of the outstanding trends in nonurban areas is the pronounced shift to dispersed recreation activities. While existing facilities continue to be used, especially those associated with water-oriented activities, the recreationist is expanding his horizon and now roams far and wide in search of new opportunity. The key to this new phenomenon is the mobility and self-sufficiency of the user. A mobile and self-sufficient recreationist is a discriminating user who will go to the place that provides the type of recreation and quality of environment desired on a given day. For the four National Forests constituting the bulk of the forest land, the annual budget for adequate maintenance of the recreation program is projected to increase from the current \$1,080,000 to \$1,740,000 in 1990 and \$2,550,000 in 2020. The backlog on construction is \$1,904,000, including facilities for 200 camper stalls at critically overused sites. If the trend continues, new types of services will be needed and some traditional services will have to be deemphasized.

Desired Future Conditions

(1) If the study area residents desire "full employment" there must be a corresponding increase in basic employment to support the projected increase in population. Extractive basic employment in mining, agriculture, and forestry is declining and other sources of basic employment must be found to bring outside money into the basin. For "full employment," 36,300 basic full-time jobs (an increase of 5,400 jobs over 1970 in addition to replacement of 1,950 jobs projected to be lost during the same period) will be required by 1990, and 46,500 basic employment jobs will be required by 2020 to support derivative employment of 45,700 and 59,500 in order to support the projected populations of 232,000 and 284,000 respectively.

(2) Phase out or reduce maintenance of relatively unused recreational facilities on public land and implement new management practices and construct 200 new camping stalls at overused sites and provide services at new locations that the public needs and will use.

(3) Acquire general recreation access to public lands at 39 additional locations and fishing access at 62 additional stream locations in order to spread access use so that no sites are overused to the extent that they detract from the natural beauty of the areas which they serve.

(4) Improve production efficiency on 1,984,000 acres of commercial timber land and produce the basin's economically competitive share of the National wood using markets regardless of projections such as OBERs series C in table 13.

(5) Stop unnecessary subdivision of 47,000 acres some of which is the study area's better commercial forest land and wildlife habitat and which has been projected for subdivision by 1990.

(6) Provide erosion and sedimentation control on 62,000 acres of forest land and on 52 miles of streambank along the upper Blackfoot and Little Bitterroot Rivers and stop erosion on 2,500 miles of eroding forest trails, roads, and gullies.

(7) Maintain 104,000 acres of riparian vegetation along lakeshores and streams, the loss of which will be due mainly to residential and agricultural encroachment.

(8) Effectively minimize damage to open and green space and to natural beauty in general.

(9) Have maximum numbers of wildlife within the carrying capacity of the presently nondeveloped land. Protect about 1,350,000 acres of big game winter range near the forest fringe and 16,400 acres of upland habitat and about 138,000 acres of wetland habitat.

IV. RECOMMENDED FORESTRY PROGRAM AND EFFECTS

In the recommended compromise plan there are areas of complementarity in which both economic development and environmental quality are improved through resource development. Conversely, there are areas where development for one objective decreases the satisfaction of another objective. These are the areas in which tradeoffs were identified and plan elements were changed or deleted in order to develop the preferred plan using feedback that the study team received from the public.

Elements of the plan which can be complementary with other plan elements include:

- moratorium on subdivision of commercial forest land and the preservation of open and green space and wildlife habitat.
- acceleration of land treatment measures that preserve and enhance resources for long-term use and improved timber management, harvest, reforestation, and employment opportunities.

Elements of the plan which could compete with other plan elements include:

- new manufacturing industry for new basic jobs and associated increased population growth versus water pollution abatement, and the control of erosion, sediment and subdivisions.
- more complete manufacture of wood products and associated increased population growth versus water pollution abatement and the preservation of riparian vegetation and natural beauty.
- that part of land treatment emphasizing production versus providing food and cover areas for upland game.

The following elements are included in the preferred early action plan to be accomplished by 1990.

- (1) Provide more manufacturing for export and more services to people from outside the basin in order to retain the projected loss of 1950 basic employment jobs from the present population and increase basic employment by about 5,400 jobs for the increased population anticipated. Programs of government and private industry would be directed toward attracting new basic industry to the basin.

(2) Provide an increase of \$1,135,000 per year from Forest Service funding for recreational services maintenance and \$1,891,000 of construction funds to build facilities including 184 camper units at critically overused sites on the National Forests.

(3) Acquire fishing access at 40 stream sites and general recreation access to public land at 19 additional locations on National Forests and secure legal rights-of-way for existing accesses.

(4) Accelerate land treatment to increase production on 1,150,000 acres of commercial forest.

(5) Declare a moratorium on subdividing the better commercial forested lands until existing subdivided tracts are occupied unless specific need can be shown, particularly in riparian and forest fringe areas or else require mitigation for lost habitat.

(6) Accelerate technical and financial assistance to eliminate erosion and sediment production on 61,000 acres of forest land; 51 miles of streambanks; and 2,460 miles of roads and trails.

(7) Protect riparian vegetation on 79,000 acres along streams and lake-shores under easements, acquisition, and zoning programs.

(8) Preserve and protect present open and green space through legislation that would require an esthetic compliance code for new buildings, improved logging methods and esthetic harvest of timber, and careful design and construction of roads and utility lines to harmonize with natural beauty of the area.

(9) Manage wildlife habitat for wildlife. Purchase, lease, or arrive at management agreements on about 66,000 acres of private big game range. Purchase, lease, or arrive at management agreements on maintaining 105,200 acres of wetlands for wildlife habitat. Provide food and cover areas on 9,700 acres on and near agricultural lands for upland game through technical assistance, lease, acquisition, or management programs.

Tables 15 and 16 displays these recommendations using the planning principles and standards set forth by the U.S. Water Resources Council. The total annual cost for the U.S. Department of Agriculture's portion of the recommended plan is estimated to be \$36.4 million while the annual benefits accrued to this part of the plan is estimated to be \$36.6 million.

TABLE 15--COMPARISON OF FORESTRY RELATED ELEMENTS BETWEEN ALTERNATIVE PLANS
CLARK FORK OF THE COLUMBIA RIVER BASIN

Account Plan Element and Effects 1/ 2/	Difference of Preferred--vs. Development Plan	Development Plan	Preferred Plan	Environmental Plan	Difference of Preferred--vs. Environmental Plan
----- Thousands of Dollars -----					
<u>National Economic Development Account</u> (Annual Benefits and Costs)					
A. Additional Basic Industry 1/ Benefits Costs	None 3/ None	36,900 30,600	36,900 30,600	None None	+ 36,900 + 30,600
B. Recreation Funding & Camp. Stalls Benefits Costs	None None	1,580 1,261	1,580 1,261	None None	+ 1,580 + 1,261
C. Additional Access Sites Benefits Costs	None + 138	260 208	260 346	None 138	+ 260 + 208
D. Land Treat. Acceleration Benefits Costs	None None	35,700 31,000	35,700 31,000	None None	+ 35,700 + 31,000
E. Preserve Present Land Use Benefits Costs	None None	460 250	460 250	None None	+ 460 + 250
F. Erosion & Sediment Control Costs	+ 1,296	None	1,296	1,296	None
G. Protect Riparian Vegetation Costs	+ 2,800	None	2,800	2,800	None
H. Protect Natural Beauty Costs	+ 25,130	None	25,130	25,130	None
I. Preserve Wildlife Habitat Costs	+ 834	None	834	5,247	- 4,413
Total Forest Related Plan Benefits Costs	None + 30,198	74,900 63,319	74,900 4/ 93,517 4/	None 34,611	+ 74,900 + 58,906
----- Units as Shown -----					
<u>II. Environmental Quality Account</u> Beneficial and Adverse Effects					
A. <u>Preservation of Natural Beauty</u> 1. Protected rivers (miles) 2. Protected riparian land (acres)	+ 1,342 + 79,000	None 3/ None	1,342 79,000	2,416 79,000	- 1,074 None
B. <u>Biological and Ecological Systems</u> 1. Wetland habitat (acres) 2. Upland habitat (acres) 3. Winter game range (acres)	+ 77,200 + 9,700 + 183,000	28,000 None None	105,200 9,700 183,000	118,000 9,700 1,301,000	- 12,800 None -1,118,000
C. <u>Quality of Water and Land Resources</u> 1. Reduced erosion (acres) 2. Reduced road & trail eros. (mi.) 3. Reduced stream erosion (mi.)	+ 61,000 + 2,460 + 51	None None None	61,000 2,460 51	61,000 2,460 51	None None None
D. <u>Irreversible Commitments</u>	None	None	None	None	None

TABLE 15--COMPARISON OF FORESTRY RELATED ELEMENTS BETWEEN ALTERNATIVE PLANS (cont'd)
CLARK FORK OF THE COLUMBIA RIVER BASIN

Account Plan Element and Effects 1/ 2/	Difference of Preferred--vs. Development Plan	Development Plan	Preferred Plan	Environmental Plan	Difference of Preferred--vs. Environmental Plan
----- Thousands of Dollars -----					
<u>III. Regional Development Account</u>					
A. <u>Primary Value to Users</u>					
1. Basic industry 1/	None 3/	36,900	36,900	None	+ 36,900
2. Forest production	None	35,700	35,700	None	+ 35,700
3. Recreation	None	1,840	1,840	None	+ 1,840
4. Resource preservation	None	460	460	None	+ 460
Total Primary	None	74,900	74,900	None	+ 74,900
B. <u>Secondary Income Value to Basin</u>					
1. Basic industry 1/	None	36,900	36,900	None	+ 36,900
2. Forest production	None	35,700	35,700	None	+ 35,700
3. Recreation	None	125	125	None	+ 125
4. Resource preservation	None	460	460	None	+ 460
5. Environmental installation	+ 6,010	None	6,010	6,010	+ None
Total Secondary	+ 6,010	73,185	79,195	6,010	+ 73,185
----- Units as Shown -----					
C. <u>Net New Full-Time Jobs</u>					
1. Forestry	None	1,000	1,000	None	+ 1,000
2. Recreation	None	100	100	None	+ 100
3. Erosion control	+ 80	None	80	80	None
4. New manufacturing	None	6,152	6,152	None	+ 6,152
5. Other USDA programs	None	18	18	None	+ 18
Total New Jobs	+ 80	7,270	7,350	80	+ 7,270
D. <u>Regional Economic Base from Improved Forest Production (acres)</u>	None	1,150,000	1,150,000	None	+1,150,000
E. <u>Total Plan (1,000 Dollars)</u>					
1. Federal cost (annual)	+ 6,623	30,928	37,551	7,147	+ 30,404
2. Regional cost (annual)	+ 23,575	32,391	55,966	27,464	+ 28,502
3. Total cost (annual)	+ 30,198	63,319	93,517	34,611	+ 58,906
<u>IV. Social Well Being Account</u>					
A. <u>Life, Health, and Safety</u>					
Improved water quality (miles)	+ 18	68	86	58	+ 28
B. <u>Recreational Opportunities</u>					
1. New fishing access (sites)	None 3/	40	40	None	+ 40
2. New public land access (sites)	None	19	19	19	None
3. Improved recreation quality	None	Basin-wide	Basin-wide	Basin-wide	None

1/ In some cases the listed values contain effects from more than just the forestry plan elements. For example, basic industry and new manufacturing values are largely unrelated to the forestry program although increases in forest production, in wood utilization, and in more secondary manufacturing of wood products within the basin would make some contribution to the values shown. The reason for including these values is to bring into perspective the independence of national population projections that have been disaggregated to subnational areas and the natural comparative advantages of subnational areas to provide basic employment for these populations. In this case the forests alone are not capable of supporting the employment for the population projection used for this study. The same applies to the farming sector. The only other historical source of basic employment in the Clark Fork River Basin is the mining sector which, in spite of recent deadlines, has the mineral resources capable of supporting considerably larger levels of basic employment. Other than this basin, the only other source of significant basic employment would be the development of non-land-resource-dependent industries such as in the area of electronics, education, and cottage industries.

2/ In some cases the listed values contain effects from more than just forest land. For example, riparian lands, wildlife habitat and fishing access sites can be some distance from forest lands.

3/ None means zero.

4/ The USDA portion of these values are: \$36.6 million benefits and \$36.4 million costs.

TABLE 16--FORESTRY RELATED ELEMENTS OF THE PREFERRED PLAN AND EFFECTIVENESS IN SATISFYING NEEDS
CLARK FORK OF THE COLUMBIS RIVER BASIN

		P L A N E F F E C T I V E N E S S			
PLAN ELEMENTS (Early Action 1990)		Units	Identified Needs	Plan Provides 1/ 2/	Remaining Unmet needs
1.	Additional basic industry employment, including those from USDA programs	Nos. full-time jobs	7,350	7,350	None
2.	Need added funding for recreational services on public land and added camping stalls at overused sites	\$1,000/yr. Camp stalls	1,135 184	1,135 184	None None
3.	Additional access sites: to public lands to fishing streams	Nos. sites Nos. sites	19 40	19 40	None None
4.	Land treatment acceleration to improve production and efficiency of commercial forest resource use	Acres	1,560,000	1,150,000	410,000
5.	Preserve present use of commercial forest	Acres	47,000	47,000	None
6.	Erosion and sediment control: Forest land Roads and trails Streambanks	Acres Miles Miles	61,000 2,460 51	61,000 2,460 51	None None None
7.	Protect riparian vegetation	Acres	79,000	79,000	(Continuing)
8.	Protect open and green space Natural beauty	Acres	All	All	(Continuing)
9.	Preserve wildlife habitat Big game range Upland game Wetlands	Acres Acres Acres	1,300,000 13,600 122,800	183,000 9,700 105,200	1,117,000 3,900 17,600
PREFERRED PLAN EFFECTIVENESS ON WOOD PRODUCTION		Thousands of Cubic-feet	42,000	23,000	19,000

1/ In some cases the listed values contain effects from more than just the forestry plan elements. For example, basic industry and new manufacturing values are largely unrelated to the forestry program although increases in forest production, in wood utilization, and in more secondary manufacturing of wood products within the basin would make some contribution to the values shown. The reason for including these values is to bring into perspective the independence of national population projections that have been disaggregated to subnational areas and the natural comparative advantages of subnational areas to provide basic employment for these populations. In this case the forests alone are not capable of supporting the employment for the population projection used for this study. The same applies to the farming sector. The only other historical source of basic employment in the Clark Fork River Basin is the mining sector which, in spite of recent deadlines, has the mineral resources capable of supporting considerably larger levels of basic employment. Other than this basin, the only other source of significant basic employment would be the development of non-land-resource-dependent industries such as in the area of electronics, education, and cottage industries.

2/ In some cases the listed values contain effects from more than just forest land. For example, riparian lands, wildlife habitat, and fishing access sites can be some distance from forest lands.

V. OPPORTUNITIES FOR IMPLEMENTATION OF THE
PREFERRED PLAN'S FORESTRY ELEMENTS

Provision of more manufacturing for export and more services to people outside the basin in order to sustain basic employment for the present population and anticipated increasing populations are largely limited to technical coordination under RC&D programs and advice on forest products technology under Forest Service programs. Economic Research Service can provide data on freight differentials and market-source situations. Creation of new manufacturing is largely limited to the private sector. United States Department of Agriculture programs and policies are directed toward maintaining and improving production from renewable natural resources which tends to maintain employment in the Forestry sector.

Local communities need to decide for themselves on growth or no-growth goals. If communities opt for a growth goal, they can get technical and some financial assistance from programs administered by agencies of the U.S. Departments of Commerce, Labor, Housing and Urban Development, Interior, Transportation, and Agriculture. There are numerous State and local agencies to assist community growth. However, the development of most basic manufacturing is limited to the private sector. The communities in this basin should emphasize their excellent environmental conditions when trying to attract new industry.

Technical and financial assistance for the acquisition and development of fishing access sites can be provided in RC&D areas under existing program measures and in PL-566 projects under recreational facilities measures. Public land access sites can be acquired and developed under existing Forest Service and Bureau of Land Management programs, depending on the levels of funding and popular moral support. Montana Department of Fish and Game has an active program for acquisition of fishing access sites.

The Department of State Lands has the ability to acquire public access to State land; however, most State lands are operated as lease holdings to individuals which can reduce the States' flexibility on these lands. The Bureau of Outdoor Recreation provides some funds for acquisition and development of access sites. The Bureau of Reclamation and the Corps of Engineers can incorporate public access to water recreation in their projects. Land treatment assistance on private lands can be accelerated under cooperative Federal/State/private forestry programs on forested lands, depending on availability of funds. Land treatment on State lands and rights-of-way are the responsibility of the particular State agency administering those lands. The greatest investment in and responsibility for land treatment, however, still depends on the individual landowners.

Stopping the subdivision of wildlife habitat and commercial forest land depends on State and local laws and their enforcement. However, technical assistance in identifying critical wildlife habitat and productive capability of lands before they are subdivided is available from the Soil Conservation Service, Forest Service, Fish and Wildlife Service, and Montana Department of Fish and Game.

Land treatment to reduce erosion and sediment production can be accelerated under Public Law 46 (Agricultural Conservation Program) for non-Federal lands and under Forest Service programs for National Forest lands. Emergency flood prevention funds are often used in rehabilitating critical areas of streambank erosion. More pressure is being brought to bear by Section 208 water quality management studies to prevent nonpoint pollution from sediment. Again much of the burden for land treatment to prevent erosion and sediment production rests with private landowners, county road departments, cities, and Montana Department of Highways.

Protection of riparian vegetation on private lands depends on local and State laws. The Soil Conservation Service and Forest Service can advise private owners on the logic of protecting vegetation on those lands and the Forest Service can protect riparian lands on the National Forest under ongoing programs.

A certain amount of natural beauty of open and green space can be preserved on National Forest lands and design requirements for utility lines and roads can be enforced on those lands by Forest Service programs. Similar control on private lands would require State and local action.

ERRATA

Please make the following corrections:

1. Table 12, page 24

Change units of measurement in the table from "\$1,000" to "Percent of Item Total".

2. Footnote 1 for tables 15 and 16, pages 32 and 33

Change "deadlines" to "declines" in the next to last sentence, and delete "basin" in the last sentence.

Please bring any further corrections to our attention:

Area Planning and Development
U.S. Forest Service
P.O. Box 7669
Missoula, MT 59807

VI. FUTURE STUDY EVALUATION NEEDED

There needs to be a reevaluation of existing freight rate structuring and a change to a cost-of-service policy as compared with existing raw material freight subsidy. Existing freight rates tend to hold Montana in a raw material/extractive export economy. At the same time, manufactured goods are charged higher rates which tends to keep manufacturing out of Montana.