

Bulletin No. 632

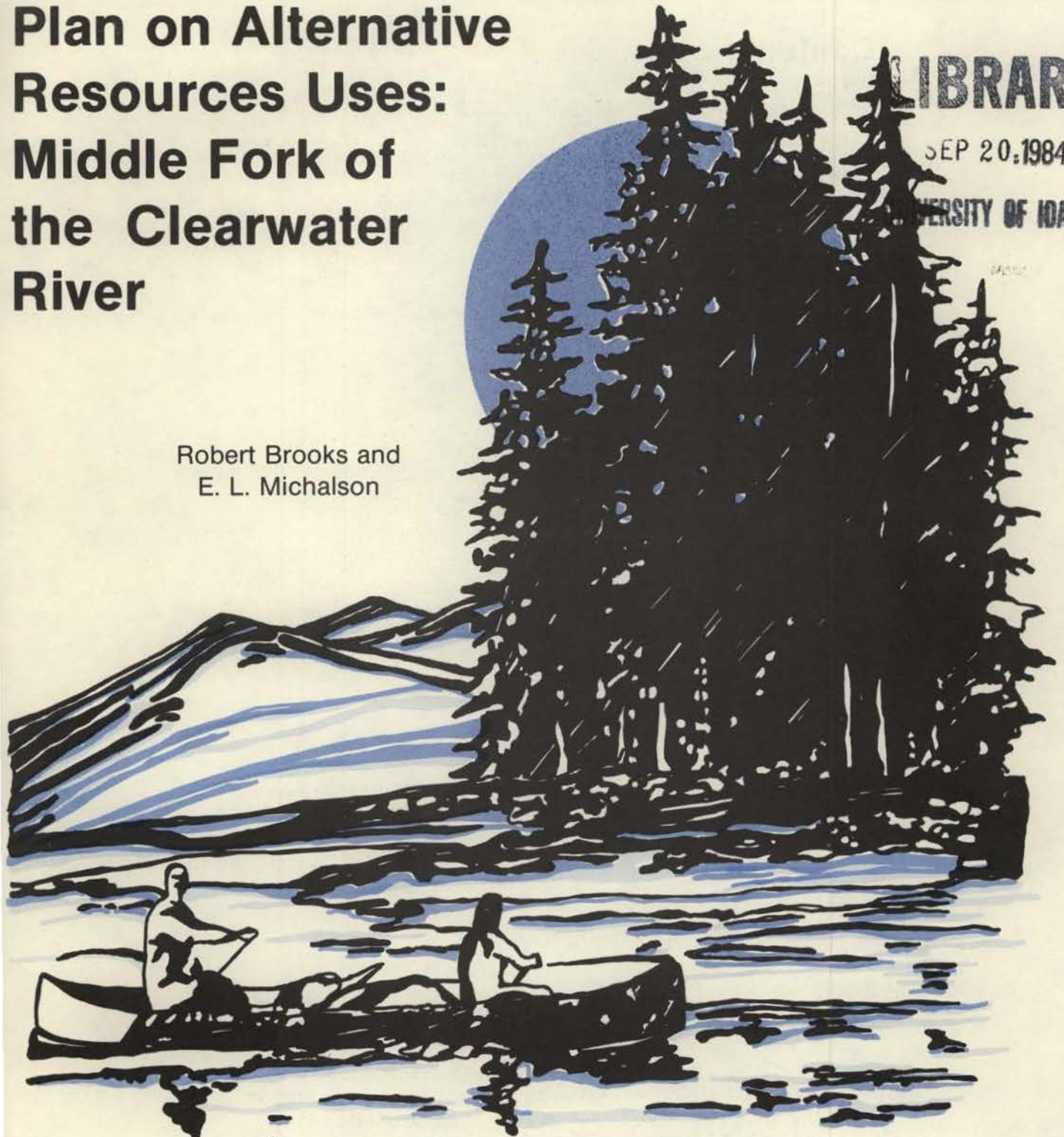
# The Effect of the Wild and Scenic Rivers Plan on Alternative Resources Uses: Middle Fork of the Clearwater River

Robert Brooks and  
E. L. Michalson

LIBRARY

SEP 20 1984

UNIVERSITY OF IDAHO



*Agricultural Experiment Station*

**University of Idaho**

*College of Agriculture*

## Contents

Introduction .....	3
Problem Statement and Objectives .....	5
Research Methodology .....	6
Data Collection .....	6
Agriculture, Timber and Mining Data 6, Scenic Easement Data 6	
Appraisal Techniques: An Application to Valuing Scenic Easements .....	6
Timber Data Including "in-Lieu-of-Taxes" Payments Data 7, Scenic Easement Data 8	
Analysis .....	8
Scenic Easement Payments 8, Timber and Mining Data 10	
Interpretation and Discussion .....	11
Land Values 11, Timber and Mining 11	
References .....	12

## The Authors

Robert Brooks is a research associate, and E. L. Michalson is a professor of agricultural economics. Both are in the University of Idaho Department of Agricultural Economics, Moscow.



Published and distributed by the  
Idaho Agricultural Experiment Station  
Lee A. Bulla, Jr., Director

University of Idaho College of Agriculture  
Moscow, Idaho 83843

The University of Idaho offers its programs and facilities to all people without regard to race, creed, color, sex, or national origin.



# The Effect of the Wild and Scenic Rivers Plan On Alternative Resources Uses: Middle Fork of the Clearwater River

Robert Brooks and E. L. Michalson

## Introduction

The National Wild and Scenic Rivers Act, Public Law 90-542, was enacted in October 1968 by the 90th Congress. The Act established a policy whereby selected free flowing rivers that possess exceptional scenic, recreational, cultural and/or fisheries wildlife environments be preserved in their unique state for present and future generations (U.S. Congress 1968).

The components that comprise the original National Wild and Scenic Rivers System were designated by Congress and included eight "instant"<sup>1</sup> rivers or sections of rivers throughout the United States. In addition to the instant rivers, 27 study rivers were chosen for further evaluation to determine if they contained the necessary characteristics for inclusion into the Wild and Scenic Rivers System. The Middle Fork of the Clearwater River from Kooskia, Idaho, upstream including the Lochsa and Selway rivers (referred to as the Middle Fork System in this publication) is one of the eight instant rivers designated by Congress (Fig. 1).

The Lochsa and Selway rivers both originate on the western slopes of the Bitterroot Mountains on the Idaho-Montana border. They flow westward to their confluence to form the Middle Fork of the Clearwater River at Lowell, Idaho.

The canyons through which the Selway and Lochsa rivers flow are steep-walled and narrow, causing the riverbeds to be boulder strewn and steep with fast flowing currents and exciting rapids. The Middle Fork's canyon is gentler in slope and wider with rolling benches suitable for limited agricultural use and possible residential and commercial development adjacent to the river. In addition, the riverbed is wider, the rapids more subdued and inviting sandbars more numerous.

A classification system was outlined by PL 90-542 to define the different levels of development. These classifications are:

1. **Wild river area** — Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
2. **Scenic rivers area** — Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive, shorelines largely undeveloped but accessible in places by road.

3. **Recreational rivers area** — Those rivers or sections of rivers that are readily accessible by road or railroad. They may have some development along their shorelines and may have undergone some improvement or diversion in the past.

The Middle Fork of the Clearwater and the Lochsa rivers are classified as recreational rivers since they are both readily accessible from U.S. Highway 12 that parallels these rivers from near the Lochsa's headwaters to the Middle Fork's confluence with the South Fork of the Clearwater at Kooskia. The Selway River is classified both a recreational and wild river. The lower Selway River and a section near Magruder Ranger Station is classed recreational while the remaining sections are classified as wild.

According to the Wild and Scenic Rivers Act (PL 90-542), the boundaries of the wild and scenic river shall encompass only those lands directly related to the protection of the scenic and environmental aspects of the programs and include not more than an average of 320 acres per mile on both sides of the river (U.S. Congress 1968). Within the classified boundaries of the Middle Fork System are 5,880 acres of private land, the majority of which lies along the Middle Fork of the Clearwater and Lower Selway rivers. The management of these lands is the responsibility of the Secretary of Agriculture. Under Sec. 3 (b) of PL 90-542, a management plan was to be formulated that considered the developments necessary to administer the program given the area's resources and land ownership patterns.

The recreational opportunities offered by this area are numerous and varied. Because of its proximity to a major east-west route across northern Idaho, the Middle Fork provides a wide variety of recreational pursuits. As a result, substantial revenue is brought into the area's economy by recreationists and tourists who purchase gas, food, lodging and recreational supplies to be used in the area.

The timber industry provides many of the jobs and most of the income for people working in the local area. National Forest lands account for 89 percent of the total acreage within the classified corridor, while private holdings account for 10 percent of the acreage (U.S. Department of Agriculture 1973). Private lands along the Middle Fork contain mostly second growth timber that has been allowed to regenerate naturally resulting in sparse stands. Harvestable timber located on public lands within the river corridor has never been a significant source of timber since this area has been maintained in special aesthetic management zones by the Forest Service.

<sup>1</sup>"Instant river" — a river was protected by law with the passage of the Act while study rivers only have the potential of being under the Act.



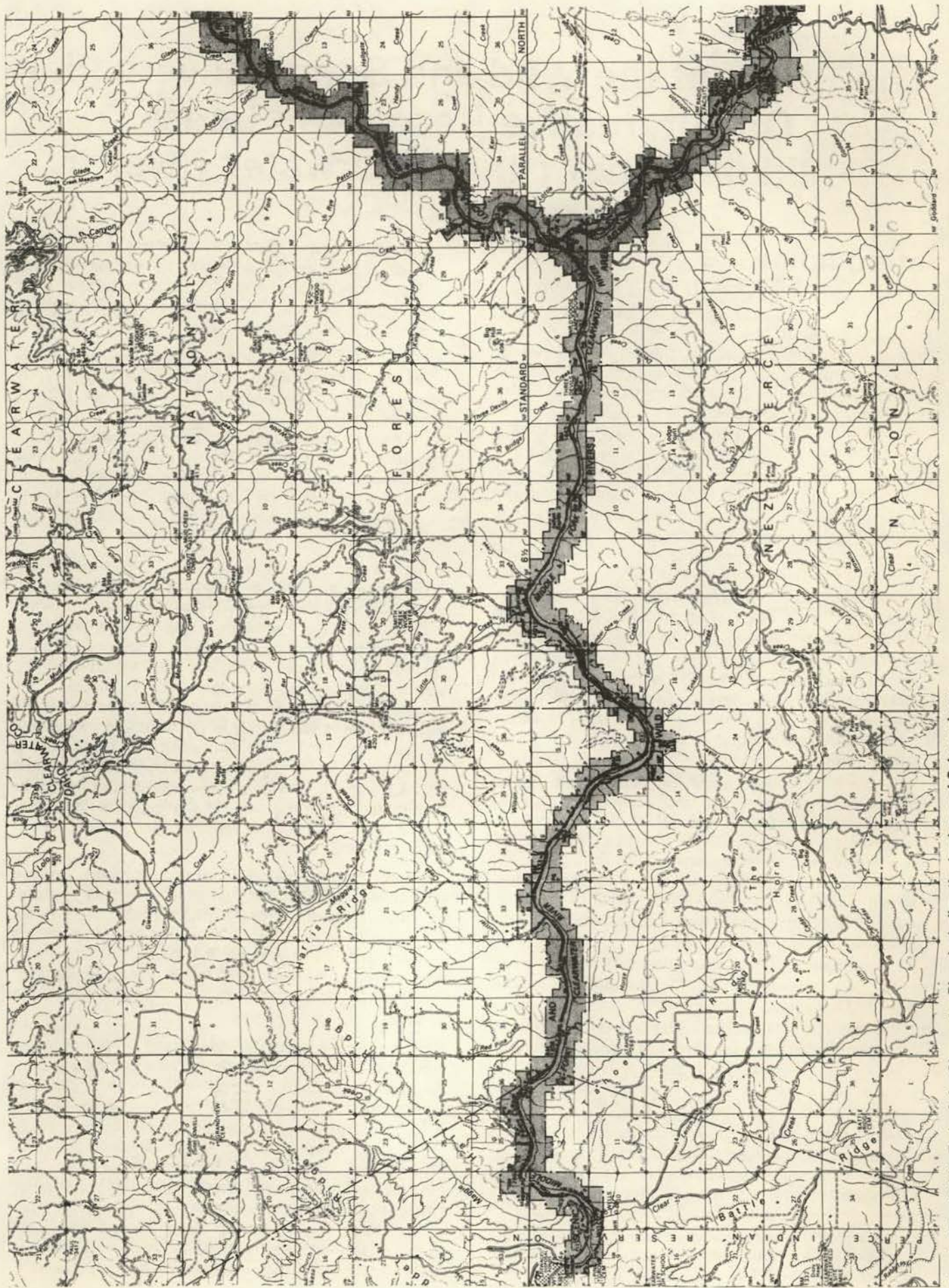


Fig. 1. The Middle Fork of the Clearwater River including the Lochsa and Selway rivers.



The timber stands located on both public and private lands within the corridor are not considered to be commercial timberlands. Timber harvested will have to meet the guidelines set forth by the Wild and Scenic Rivers Act, although management will be required to maintain a healthy cover free from large stands of diseased and dying trees that may create fire or watershed problems.

Agriculture within the wild and scenic corridor is limited to lands located adjacent to the Middle Fork of the Clearwater. Even along this stretch of river, the small acreage devoted to agricultural production consists mainly of forage crops. This forage is used to feed the small number of cattle that are raised within the corridor. The amount of grazing land within the river corridor on both private and public land is also limited. Grazing allotments on federal lands have been phased out although some grazing on State of Idaho lands along the Middle Fork does exist; however, this is not an important factor in the area's economy.

Mining on private land since the passage of PL 90-542 is subject to the provisions of the river plan. Claims existing before the Wild and Scenic Rivers Act, while not subject to the restrictions of the river plan, will be evaluated and an agreement reached reducing any detrimental impacts to the river environment. Although low levels of mineralization are found along most of the classified sections of the river because the Idaho Batholith underlies the majority of the area, income and employment from mining accounts for an insignificant part of the area's economy.

Public lands classified as a wild river area have been withdrawn from entry, while lands classified scenic or recreational do allow mineral leasing subject to regulations specified by the Secretary of Agriculture and the river plan (U.S. Department of Agriculture 1973). In 1970, the Idaho Legislature passed an amendment to the Idaho Dredge Mining Law, 47-1323, which forbids dredging of minerals from the Middle Fork of the Clearwater Wild and Scenic River System (U.S. Department of Agriculture 1973). An area of concern, though, involves mining activity along the tributary streams of the Middle Fork System. Operations of this type could contribute to sediment and pollution in the main river. The Idaho Dredge Law appears to offer protection for water quality from operations of this type.

Proposed open pit mining of kyanite on Woodrat Mountain might have posed problems for water quality from mine tailings in watersheds draining into the classified river areas. Ethel Corporation, however, withdrew its mining application after determining that the project was not economically feasible.

The demand for private recreational land suitable for development on the Middle Fork of the Clearwater System has been increasing in the last few years. To regulate the degree and type of development on private lands located within the river boundaries, the Act empowers the administering agency to purchase rights to the land either in fee title or through scenic easements. If 50 percent or more of the land within the boundaries of a wild and scenic river is publicly owned, PL 90-542 prohibits the acquisition of fee title rights through condemnation. This does not preclude the acquisition of scenic

easements by condemnation where access is necessary (U.S. Congress 1968).

Fee title acquisitions transfer all the rights and interests in the land from the landowner to the United States government. Since not all landowners are willing to sell their land in fee title to the U.S., scenic easements have been and are being purchased from private landowners within the classified area.

A scenic easement is a legal instrument that conveys to the U.S. certain rights to use or control private property for a public purpose. The rights conveyed by scenic easements enable the administering agency to preserve the environmental quality, enhance the scenic qualities and control land use to meet the management objectives of the river plan. Scenic easements do not limit past, present or future use which is compatible with the intent of the Wild and Scenic Rivers Act.

Scenic easements have been compared to city zoning ordinances with one notable exception. Zoning ordinances are generally applied by proceeding without compensation to the owner. Use restrictions under scenic easements, on the other hand, have an effect on the value of the property, and the landowner is compensated for this loss or damage. The difference between value in present restricted use and potential unrestricted use is estimated by a qualified appraiser, and the compensation is based on this variation.

## Problem Statement and Objectives

The classification of the Middle Fork of the Clearwater River as a component of the National Wild and Scenic Rivers System, and the subsequent river management plan drawn up by the Forest Service raised questions regarding the economic impacts of this classification on the area's resources. The wild and scenic designation has caused a number of restrictions concerning land use and land practices that affect the present and future use of the area's resources. This publication deals with the assessment of the economic impacts caused by the river plan. To evaluate effectively these impacts, the following objectives were formulated:

1. Compile an inventory of public and private lands within the wild and scenic corridor;
2. Analyze the processes used to establish the value of scenic easements and evaluate the impacts of the scenic easement program on land values; and
3. Quantify and evaluate the economic impacts of this classification on agriculture, mining and timber including tax payments.

The objectives were designed to answer questions raised by private landowners and public land managers. Specifically: (1) What effects have the scenic easements had on land values? Has the compensation been equitable and consistent? (2) What economic effects has the classification had on agriculture, timber and mining? Has there been a decrease in productive activities because of the restrictions? The answers to these questions about resource use will provide both landowners and river managers a means to administer more effectively the river environment and its resources.



## Research Methodology

The methodology developed for this research included statistical techniques. These enabled the researchers to analyze the scenic easement program and descriptive statistical techniques that allowed for analysis of impacts on the value of the agricultural, timber and mining resources. Specifically:

1. Ordinary least squares regression techniques were used to evaluate the scenic easement program. The technique permitted the determination of significant variables that influence easement payments. This allowed for an evaluation of the consistency of the appraisal process and the equity of the easements payments.
2. The economic impacts on the other resources — agriculture, timber and mining — were estimated using analysis of time series data. By compiling data on these resources over time, you can estimate the change in value caused by the Wild and Scenic Rivers Act.

The collection of data necessary to achieve the research objectives was extensive. Both structured and unstructured interviews were held with U.S. Forest Service personnel, county officials and local industry owners and managers. Structured questionnaires were also administered to private landowners within the river corridor.

## Data Collection

**Agriculture, Timber and Mining Data** — Data dealing with the agricultural production along the Middle Fork of the Clearwater was difficult to obtain. Although the benches located along the Middle Fork are used to raise some forage crops, no major agricultural production exists within the wild and scenic river corridor area. Further, the Idaho Agricultural Statistics and the U.S. Agricultural Census do not list production by areas within counties. Consequently, it was not possible to determine the effect the wild and scenic restrictions have had on the value of agricultural production within the river corridor. A review of the river plan, however, for the Middle Fork System and informal discussions with local residents led to the conclusion that agricultural production is not significant within the Middle Fork's wild and scenic corridor.

The collection of timber data to assess the impacts of the Wild and Scenic Rivers Act on the value of this resource involved structured interviews with private sawmills around the area. Mill operators in Kamiah, Kooskia, Grangeville and Syringa, Idaho, and Hamilton, Montana, were contacted. Forest Service personnel were also contacted using personal semistructured interviews. The Nezperce and Clearwater forest supervisors' offices supplied timber harvest data from 1967 to 1977 on each ranger district affected by the Act. This time series data provided a basis for evaluating the impacts on timber production in the area. Finally, unstructured interviews were held with district rangers, forest supervisors and regional supervisors to record their feelings and insights on the impacts of PL 90-542 on the timber industry.

The information on "in-lieu-of tax" payments made to Idaho County was collected through interviews with the assessor for Idaho County and the U.S. Forest Service's regional accounting office in Missoula, Montana. The data consisted of payments made from 1970 through 1977 based on the 25 percent criterion.<sup>2</sup>

**Scenic Easement Data** — The scenic easement program was started along the Middle Fork of the Clearwater River in 1970. From November 1970 through May 1979, 87 scenic easements were purchased from private landowners within the wild and scenic corridor. The information necessary to evaluate the consistency and value estimates of the easements was collected from appraisal reviews of the properties compiled by the U.S. Forest Service in Grangeville, Idaho.

The data used to analyze the easement process were obtained from summaries of the easement appraisals done for the U.S. Forest Service. These "Summaries of Estimated Just Compensation" contained all the relevant data concerning the properties and demonstrated the methodology used in calculating the easement values.

## Appraisal Techniques: An Application to Valuing Scenic Easements

Real estate value has traditionally been estimated based on three appraisal techniques. These methods are the income capitalization approach, the market data or sale comparison approach and the cost or inventory approach. Typically, all three methods are used in valuing a property. There are instances, though, depending on the nature of the property, the reason for the appraisal and which method provides the best supportive information, where one approach may influence the final determination of value more than the others (Suter 1974).

Scenic easement values were determined by qualified appraisers under contract with the U.S. Forest Service. Only the market data and cost approach were used in a before and after technique to arrive at a fair estimate of the effect of the scenic easement restrictions. Since few of the properties involved commercial operations, the income approach was not applicable.

The before and after technique allowed the appraiser to value the property in its highest and best use without the easement restrictions and then reappraise the property in its highest and best use, assuming the easement restrictions were in force. Highest and best use is typically that land use which yields the highest net benefit to the landowner. Building or improvement values were calculated on local replacement cost less depreciation caused by time. The value of the improvements is not affected by the scenic easement restrictions since the contributory value of the improvements remains the same in the before and after estimates.

The estimated land values before the restrictions are based on sales of similar properties that, in most cases,

<sup>2</sup>The U.S. Forest Service is required by law to return 25 percent of the revenue collected from products of national forest lands in a county back to that county.



lay outside the wild and scenic boundaries but in the Clearwater River corridor. This allowed for appraised values to be determined that were not influenced by the Wild and Scenic Rivers Act. The comparable sales were all adjusted for time, size, location, slope, frontage and other features to give a fair estimate of value per acre for the property being appraised. The after value is arrived at in similar fashion, except those sales encumbered with similar restrictions are used as comparables in the process of determining the value after the acquisition of a scenic easement. The loss in value attributable to the scenic easement is the difference between the before and after figures.

After the U.S. Forest Service has checked the appraisal process and found it acceptable, the landowner is offered the difference as just compensation. Just compensation is the payment for private property taken for a public use (Suter 1974). The amount the purchasing agency pays and the amount the owner receives will equal the difference between the fair market value before and after the taking.<sup>3</sup>

**Timber Data Including "in-Lieu-of-Taxes" Payments Data** — The wild and scenic Middle Fork System lies completely inside the boundaries of Idaho County, which contains a large acreage of harvestable timber. The impacts of wild and scenic restrictions on this resource are undocumented at this time. To evaluate the impacts, a presentation of the data and a study of the wild and scenic restrictions and other influential factors are essential.

Data taken from the U.S. Forest Service show the actual volumes cut and sold in million of board feet from the three affected ranger districts. As Table 1 illustrates, no trend is apparent in the amount of timber harvested from the affected range districts in Idaho County.

Table 2 shows Idaho County timber harvest figures compiled by the Western Wood Products Association's 1977 Statistical Yearbook. These data are gathered from all producing mills in the county. Once again, because of the aggregation problem, no figures are computed for only the Middle Fork System. The variations in timber harvest in both of the above identified tables show no declining trend since 1970 when the River Plan was introduced.<sup>4</sup> The variability in the cut and sales data appear to be more a function of general economic conditions, and in the case of the U.S. Forest Service, the amount of money available to develop sales rather than any effects resulting from the River Plan.

Harvestable timber on private property within the Middle Fork System is limited to two or three parcels of land that are restricted by scenic easements which permit only selective cutting. Commercial timber on public lands lying within the corridor is classified by the U.S. Forest Service in unregulated and special management categories

to maintain the aesthetics of the river environment. The affected areas have been under special management for years because of soil stability problems, extreme slopes and preservation of scenic qualities associated with U.S. Highway 12.

A major concern of the timber industry with the River Plan is productive land lying outside the corridor but accessible only through the impacted area. Those sections of the river classified as recreational pose no problems regarding either existing or potential access for timber cutting. In contrast, sections classified as a wild river area prohibit both timber harvest and access.

**Table 1. Volume of timber cut and sold from the three affected ranger districts in the Middle Fork System, 1968-1977.**

Districts	Year	Cut (MMBF)	Sold
Selway	1968	15.00	50.38
	1969	33.85	14.85
	1970	40.28	3.36
	1971	29.32	4.49
	1972	28.75	6.01
	1973	9.05	25.94
	1974	7.15	4.15
	1975	3.77	2.99
	1976	10.54	19.29
	1977	3.55	.51
Lochsa	1968	14.16	14.42
	1969	19.49	3.15
	1970	26.61	16.35
	1971	18.21	17.33
	1972	5.58	13.46
	1973	15.08	18.77
	1974	8.70	25.89
	1975	8.90	1.10
	1976	20.50	17.40
	1977	30.34	15.34
Powell	1968	8.21	18.91
	1969	13.11	22.23
	1970	14.37	12.81
	1971	13.63	13.47
	1972	15.06	.63
	1973	15.74	22.21
	1974	9.75	16.27
	1975	15.10	9.08
	1976	14.50	19.20
	1977	17.21	34.42

Source: Unpublished Forest Service records supplied by supervisor's office, Orofino, Idaho, 1978.

**Table 2. Timber production in Idaho County in million board feet, 1969-1977.**

Year	Timber production (MMBF)
1969	180
1970	174
1971	195
1972	213
1973	214
1974	166
1975	185
1976	247
1977	251
	203

Source: Western Wood Products Association, 1977 Statistical Yearbook.

<sup>3</sup>Fair market value is "the highest price, estimated in terms of money, that a property will bring if exposed for sale in the open market..."

<sup>4</sup>The linear regression model was not significant at the 95 percent confidence level with 7 degrees of freedom.

$$\text{MMBF} = -14134b_0 + 7.26(\text{time}) \quad R^2 = .42$$

$$(-2.21) \quad (2.24)$$



Finally, Idaho County receives payments from the federal government to compensate for the loss in tax revenues from federal lands within the county boundaries. Twenty-five percent of the revenue the U.S. Forest Service received from timber sold from national forest lands located in Idaho County was returned to Idaho County through 25 percent fund payments.

In 1976, Congress passed the National Forest Management Act, PL 94-588. This act requires that the U.S. Forest Service return 25 percent of the revenue from not only timber sales but also grazing, purchaser road credits and other uses to the county of origin. In addition to this law, Congress enacted PL 94-565, Payment in Lieu of Taxes Act, that requires the federal government to make payments to units of local government in which entitlement lands are located (U.S. Congress 1976). Table 3 presents the payments made to Idaho County through the 25 percent fund from 1970 to 1978 and PL 94-565 for 1977 and 1978. Trend regression was not used on this data since the institutional changes made in 1976 would cloud the validity of the results.

**Scenic Easement Data** — The scenic easement program initiated along the Middle Fork System was designed to preserve the quality of the river environment from adverse land practices on private properties. An inventory of the private and public lands located within the boundaries of the wild and scenic Middle Fork System revealed that private lands account for 10.6 percent of the total acreage while state and federal lands comprise the remaining 89.4 percent. Table 4 summarizes the breakdown in actual acreages.

To accomplish the goal of maintaining an aesthetically pleasing environment on the private lands, the U.S. Forest Service authorized the acquisition of four types of easements based on the land use in effect on a particular parcel of land. The most restrictive easement

classification, accounting for 4.5 percent of the total easements purchased, is the agricultural-timber easement that, while allowing the landowner a homesite, completely prohibits recreational subdivision. Commercial easements are acquired only where prior commercial uses exist and account for only 1 percent of the total easements, excluding the communities of Syringa and Lowell. Residential easements are the most common type of easement purchased and account for 92 percent of the total. These easements allow for recreational homesite development, subject to limitations specified by the easement. The final easement category, no buildings, prohibits buildings of any type because of the property's location. They account for 2.3 percent of the easements purchased. Table 5 gives a breakdown of these easements.

## Analysis

**Scenic Easement Payments** — The acquisition of scenic easements from the private landowners within the Middle Fork System has resulted in numerous statements alleging inconsistencies in the appraisal techniques and inequities in the easement payments. Even though 66 percent of the landowners favor the wild and scenic river program, they resent the controls imposed by the easements. The easement values were hypothesized to be a function of various independent variables that economic theory and appraisal practice indicated determine value. The formulation of the regression model that estimated the scenic easement values and analyzed the techniques followed the general function form:

$$Y = b_0 + b_1X_1 + b_2X_2 \dots + b_nX_n + E$$

where:

y = indexed value of the scenic easement/acre

b<sub>i</sub> = regression coefficient

x<sub>1</sub> = number of easement acres

x<sub>2</sub> = type of easement

x<sub>3</sub> = distance to Kooskia

x<sub>4</sub> = percent of easement acreage developable

x<sub>5</sub> = river frontage (feet)

x<sub>6</sub> = highway frontage (feet)

E = error term

To demonstrate any consistency within the appraisal process, a basis for comparison needed to be established. The indexing of the scenic easement values to a common base year ensures that all are compared under the same value for the dollar. Nineteen-seventy (1970) was selected as the base year since the scenic easement program was initiated at that time.

**Table 3. Payments made to Idaho County by National Forest through the percent fund and PL 94-565, 1970 to 1978.**

Fiscal year	Payment in-lieu-of taxes	25 percent fund	
		Clearwater Forest	Nezperce Forest
1970	—	326,268	342,120
1971	—	249,476	185,305
1972	—	342,009	410,212
1973	—	476,702	764,339
1974	—	463,563	546,404
1975	—	253,683	327,655
1976	—	104,424	543,171
1977	416,000	1,262,707	1,364,024
1978	416,000	861,253	819,506

Source: Unpublished Forest Service records provided by the regional Forest Service office, Missoula, Montana, 1978.

**Table 4. Inventory of public and private ownerships located along Middle Fork System, 1977.**

Ownership	Acres	% of total
National Forest	48,869	89.0
Other federal	111	0.2
State	100	0.2
Private	5,880	10.6
	55,960	100.0

Source: U.S. Department of Agriculture, Forest Service. Management Guides: Middle Fork of the Clearwater, 1973.

**Table 5. Scenic easements by classification purchased by the U.S. Forest Service from 1970 to 1978.**

Classification	Number	Acreage
Agricultural-timber	4	257
Commercial	1	.4
Residential	80	2,422
No buildings	2	13.5
Total	87	2,693

Source: U.S. Forest Service, Grangeville, Idaho, Acquisition Program, Wild and Scenic Rivers — Middle Fork of the Clearwater.



The first equations were estimated in linear form. Table 6 shows the best linear model developed. Only  $X_1$  and  $X_4$  were included in the final model since the other variables were statistically insignificant. The negative sign for  $X_1$ , number of easement acres, tells us that as the number of acres increases, the price per acre decreases. This is consistent with actual market phenomena. The positive sign for  $X_4$ , percent of the easement acreage developable, is also logical. As the percentage of developable land increases, the per acre value of the easement also increases.

This model was determined to be statistically significant. Although only one of the regression coefficients was significant at the 95 percent level based on t tests, the model's F statistic, that measures the ability of the independent variables to explain the variation in the dependent variable, was significant at the .01 level. Fig. 2 illustrates the relationship between the indexed value of the easement and the number of scenic easement acres. The data points plotted are representative of the total sample. The  $R^2$  value for the linear model showing the relative fit of the regression line to the data was .42. Plots of the data indicated a curvilinear equation might provide a better fitting model. A number of logarithmic

**Table 6. Linear regression model developed to predict easement payments in the Middle Fork System, 1978.**

$$y = 157.05 - 1.33X^1 + 904.73X^4$$

(1.18)                      (6.08)<sub>a</sub>

$R^2 = .42$   
 $F = 29.21$   
 $N = 83$

<sup>a</sup>The number in parentheses are t statistics, and the \* shows whether regression coefficients are significantly different from zero at the 5 percent level of significance.

models were specified and run. The log-log model, where the dependent and independent variables were in log form, resulted in significant regression coefficients and a higher F statistic than the linear model's, although the adjusted  $R^2$  value was slightly lower (Table 7).

Many scenic easements were purchased after these data were collected. Using these easements, it was possible to check the predictive ability of the two models. Ten scenic easement payments, indexed for time, were checked against the values calculated by the models. Table 8 illustrates this comparison.

**Table 7. Logarithmic transformed regression model used to estimate scenic easements in the Middle Fork System, 1979.**

$$\ln y = 6.800 - 0.9095 \ln X^1 + .6515^{**} \ln X^4$$

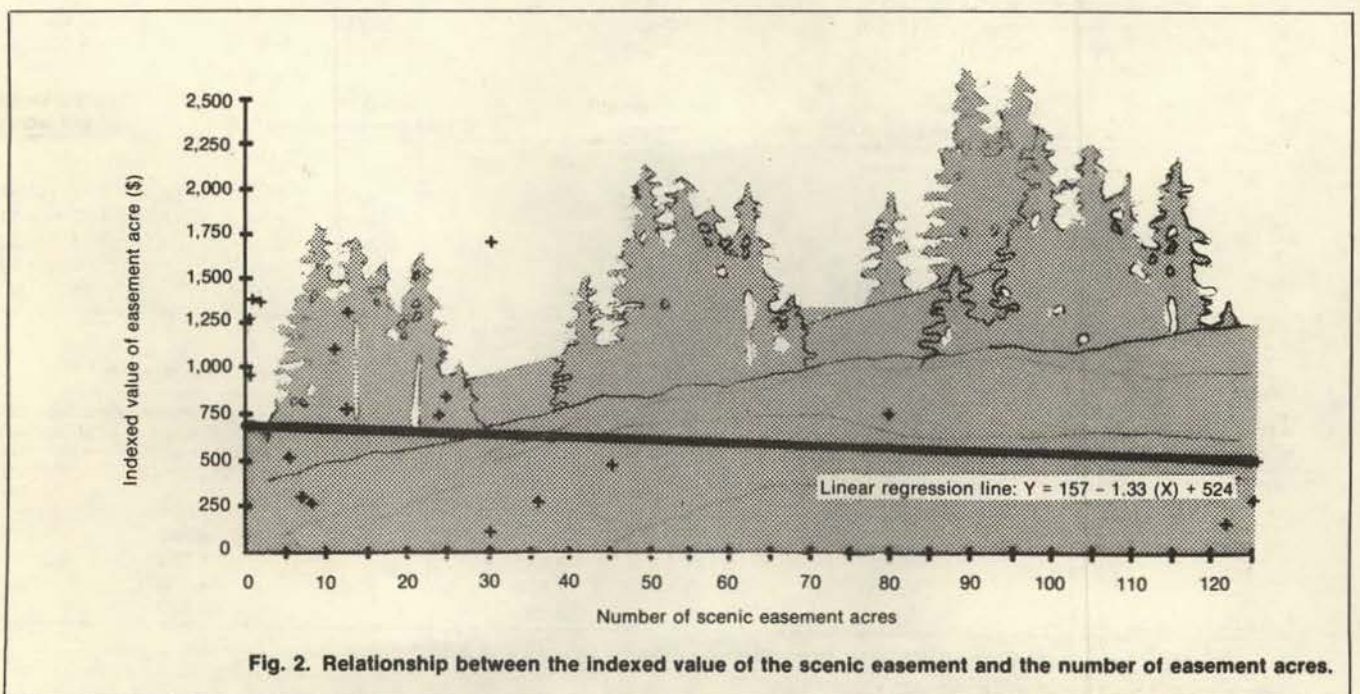
(-2.15)                      (9.06)<sub>a</sub>

Adjusted  $R^2 = .40$   
 $F = 66.72$   
 $N = 83$

<sup>a</sup>The number in parentheses are t statistics, and the \* and \*\* shows whether regression coefficients are significantly different from zero at the 5 and 1 percent levels of significance, respectively.

**Table 8. Actual and estimated scenic easement payments based on the regression models formulated for the Middle Fork System.**

Actual value	Estimated linear value	Estimated logarithmic value
1,211.00	1,053.00	183.00
1,250.00	1,061.00	4,271.00
1,193.00	1,061.00	3,558.00
163.00	599.00	94.00
750.00	1,060.00	1,686.00
525.00	943.00	54.00
341.00	770.00	61.00
724.00	819.00	81.00



**Fig. 2. Relationship between the indexed value of the scenic easement and the number of easement acres.**



Since the scenic program was initiated, several tracts of land subject to scenic easement restrictions have resold on the market. An analysis of these encumbered properties vs. unencumbered properties indicated the effect the easement had on land values. Table 9 presents the five sales that were analyzed.

The upper portion shows the appraised value of the property with and without improvements before the easements were purchased, and the lower portion shows the same five properties after they were sold with scenic easement restrictions. The comparison of encumbered properties within the wild and scenic corridor to unrestricted property lying outside the corridor was also used to determine the effect the restrictions had on land values. Generally, three or more comparable properties are used to determine market value. Because of a lack of comparable sales, though, only one property with characteristics similar to the five study parcels was located. This property sold for \$4,500 per acre in 1977.

The appraised, sale and comparable property values were indexed to 1978 prices. This was done by using farm real estate indexes and a 15 percent annual increase in value.

Table 10 illustrates the effects of the wild and scenic designation on the value of private land restricted by easements. Comparison of the appraised values without easements to the sale value with easements indicated a +1 to -60 percent change in value for encumbered properties. Comparing the sale values of restricted properties within the corridor to the comparable property outside the corridor indicated a 8 to 41 percent decrease in value for properties within the corridor.

Sale number five was a notable exception in both cases, though, having sold for twice the adjusted appraised value or the comparable's sale value. This difference may have been a desire for the open space characteristics offered by the scenic easement.

**Timber and Mining Data** — The evaluation of the economic impacts of the wild and scenic designation on the timber, agricultural and mining resources was based on analyzing time series data.

Timber is one of Idaho County's most abundant resources. Consequently, any restrictions or reductions in supply will have an impact on the economy of the area. According to the management guides for the Middle Fork System, timber within the corridor will not be considered a primary resource value. PL 90-542 does not prohibit timber harvest on recreational sections of the river. The harvesting method used, though, must comply with management objectives and maintain the aesthetics of the environment.

The potential yield of Idaho County's forests have been reduced in part by the Wild and Scenic Rivers Act, but largely because of the reduction in commercial forest land base from designations like RARE II and the Selway Bitterroot Wilderness. The anticipated lost timber volume caused by these designations cannot be made up, but according to Richard Deden, Group Leader for Timber Management, U.S. Forest Service, the reduction in potential yield caused by the various designations will not decrease programmed harvest (annual sales program).

An analysis of the tax payments made to Idaho County through the 25 percent fund and in lieu payments does

**Table 9. Appraised and sale values of five properties located within the Wild and Scenic River Corridor subject to scenic easements.**

Sale no.	Appraised value without easement			Improvement value	Land value less improvements	Real estate value per acre
	(year)	(acres)	(value)			
1	1970	160	\$ 9,000	0	9,000	56.25
2	1973	3.33	42,000	28,500	13,500	4,054.00
3	1975	5.42	24,300	10,830	13,470	2,485.25
4	1975	6.44	17,500	17,500	22,500	3,493.79
5	1977	1.50	25,000	17,500	7,500	5,000.00

Sale no.	Sale value with easement			Improvement value	Land value less improvements	Real estate value per acre
	(year)	(acres)	(value)			
1	1973	160	\$ 9,000	0	9,000	56.25
2	1974	3.33	36,000	29,000	7,000	2,102.00
3	1977	5.42	23,000	5,000	18,000	3,321.00
4	1978	6.44	36,000	36,000	29,000	4,503.00
5	1978	1.50	37,500	17,500	20,000	13,333.00

**Table 10. Comparison of appraised, sale and comparable per acre values adjusted for time in the Middle Fork System.<sup>1</sup>**

Adjusted appraised value without scenic easement <sup>2</sup>		Adjusted sale value with scenic easement <sup>3</sup>		Comparable's sale value without scenic easement	
(indexed)	(15%/year)	(indexed)	(15%/year)	(indexed)	(15%/year)
141	172	113	113	—	—
9,134	9,377	3,334	3,676	4,880	5,175
3,029	3,780	3,541	3,819	4,880	5,175
4,327	5,314	4,503	4,503	4,880	5,175
5,331	5,750	13,333	13,333	4,880	5,175

<sup>1</sup>All prices have been indexed to 1978 prices using Farm Real Estate Indices and a 15 percent annual increase.

<sup>2</sup>Appraised values are without easement restrictions.

<sup>3</sup>Sale values are with easement restrictions in effect.



not appear to have been adversely affected by the classification. Since the inception of the Act, payments from the 25 percent fund have varied but in general have increased over the 8 year period 1970 to 1978 as shown by Table 3. Payments in lieu of taxes are based on a county's population or the number of entitlement acres within the county and thus are generally stable.

## Interpretation and Discussion

The economic impacts of the Wild and Scenic Rivers Act, PL 90-542, on the agricultural, timber, mining, recreational and land resources in the Middle Fork of the Clearwater were varied.

The acquisition of scenic easements on private lands lying within the wild and scenic boundaries raised a number of questions concerning the equity of the payments and the process used to calculate their value. The regression model indicated the various appraisers emphasized that the size of the easement area and the development potential of the easement contributed significantly to value.

The appraisal process is not a precise science and in many instances is subjective. The value of a tract of land is the result of one's perception of this land. A number of factors that economic theory and appraisal practice indicated may influence value were not significant based on the model's results. The lack of significant explanatory variables and a relatively low R<sup>2</sup> value constrained any definitive statements as to the equity of the payments.

**Land Values** — The effects of the wild and scenic designation on the value of private land subject to scenic easement restrictions was also a major concern of the area's landowners. Depending on the method of comparison, encumbered properties decreased in value as much as 60 percent compared to the time adjusted appraised value without the easement restrictions.

The comparison of sales inside and outside the corridor was also used. Only one sale outside the corridor was located that was similar to sales two through four in size, slope and access. After adjusting this sale's physical characteristics and updating its value caused by time, the ensuing comparison indicated a 15 to 40 percent reduction in value for those properties encumbered with scenic easements. Sale number five was an exception. This property sold for 158 percent more than the comparable property. This increase was not the norm and indicated one

buyer's desire for a specific property. Although the number of parcels studied was small, the reduction in value of property lying within the wild and scenic boundaries has justified the compensation paid to the owners for the scenic easements.

**Timber and Mining** — Timber located on private lands in the Middle Fork System is limited, although a few parcels do have harvestable stands. Several scenic easements provide for the harvest in time, and a number of silvicultural practices are available to the landowners as long as a percentage of the existing crown is left.

The timber located on public lands along the recreational sections of the wild and scenic corridor will continue to be managed as a travel influence zone. This management will consist of selectively removing diseased and dying trees to maintain the spectacular view for travellers along U.S. 12. Timber harvest on the wild sections of the Middle Fork System are prohibited. These sections lie within the Selway Bitterroot Wilderness and are subject to the more stringent guidelines of the Wilderness Act.

The impacts on timber management are and will be hard to assess. Although the wild and scenic designation reduced the total timber base, there has been no impact on the actual volume of merchantable timber cut from the National Forest with lands in the wild scenic corridor. Potential timber lying outside the recreational portions of the corridor will not be affected. Access to this timber will be possible through the corridor as long as the river management guidelines are met.

Mining activity in the Middle Fork System is sparse because of the low levels of mineralization in the area. Small deposits of gold and other minerals can be found, but not enough to support a commercial operation. River rock deposits pose a problem in that the Idaho Dredge Mining Law prohibits dredging in the corridor, while the State Department of Transportation feels that this is the only economically feasible area in which to obtain gravel for maintenance of U.S. 12.

Mining claims in existence before the passage of PL 90-542 have been allowed to continue. The managing agency is making every attempt to see that the mining operators are following the river management plans. New mining claims, on the other hand, are required to meet the specifications of the Wild and Scenic Rivers Act and the river management plan.



## References

- Christophersen, K. A. 1974. Economic effects of wild and scenic rivers restrictions on private property. Ph.D thesis, Washington State Univ., Pullman.
- Suter, R. C. 1974. The appraisal of farm real estate. The Interstate Printers and Publisher, Inc., Danville, IL.
- U.S. Congress. 1968. Wild and Scenic Rivers Act of 1968. PL 90-542, 90th Congress, S. 119 U.S. Gov't. Print. Of., Washington, D.C.
- U.S. Congress. 1976. Local government payments. PL 94-542, 94th Congress, HR 9719. U.S. Gov't Print. Of., Washington, D.C.
- U.S. Department of Agriculture. 1978. Farm real estate market developments. National Economic Analysis Division, Economics, Statistics, and Cooperative Service, Washington, D.C.
- U.S. Department of Agriculture. 1973. Management guides — Middle Fork of the Clearwater including the Lochsa and Selway. U.S. Forest Service, Washington, D.C.
- U.S. Department of Agriculture. 1970-1977. RIM Handbook. U.S. Forest Service, Washington, D.C.
- U.S. Department of Agriculture. 1970(?). River plan — Middle Fork of the Clearwater including the Lochsa and Selway. U.S. Forest Service, Washington, D.C.
- Williams, H. L., and W. D. Davis. 1968. Effect of scenic easements on the market value of real property. Amer. Inst. of Real Estate Appraisers 36:15-23.