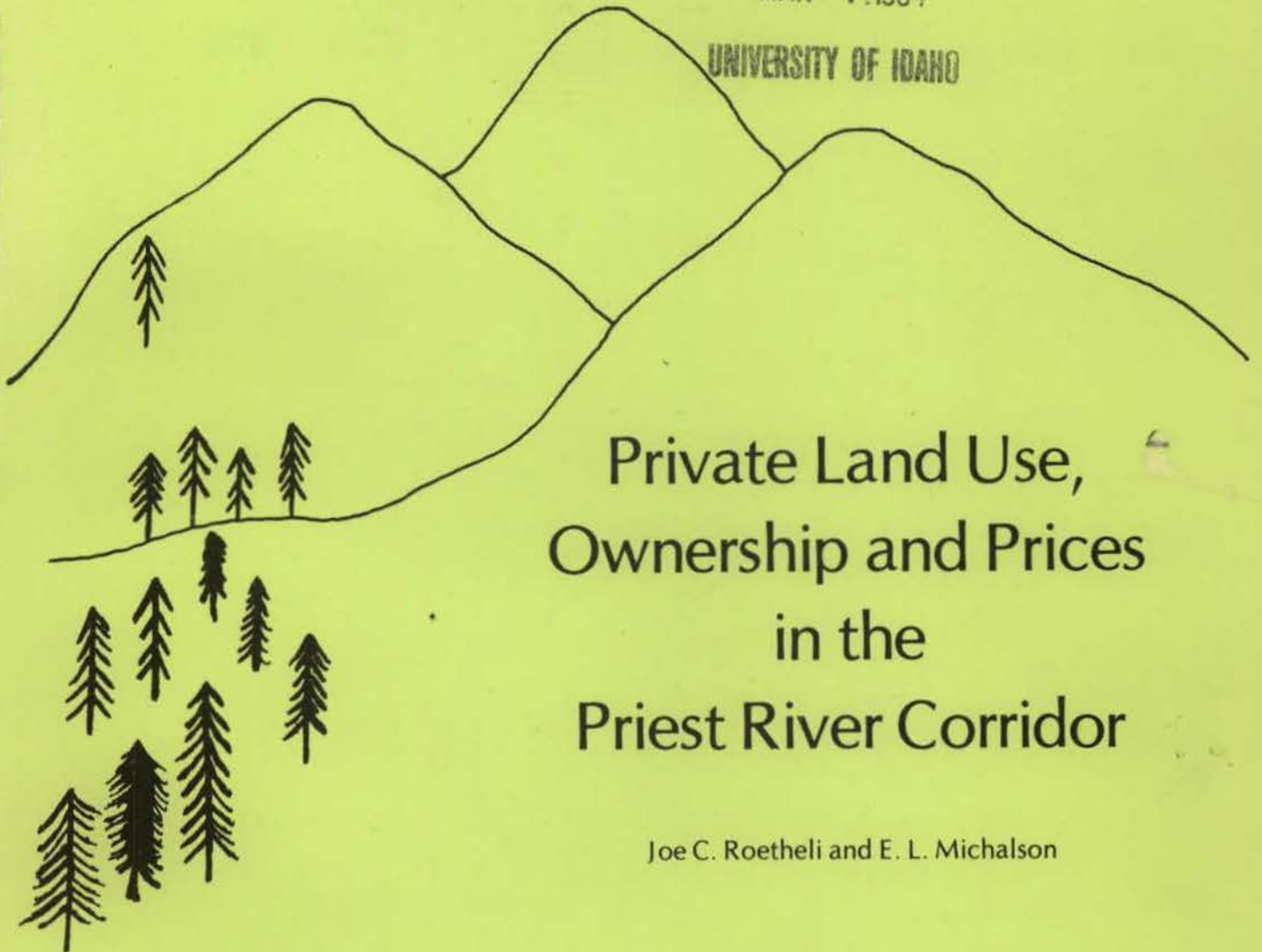


Bulletin No. 570  
December 1976

**LIBRARY**

MAR 7 1984

UNIVERSITY OF IDAHO



Private Land Use,  
Ownership and Prices  
in the  
Priest River Corridor

Joe C. Roetheli and E. L. Michalson



*Agricultural Experiment Station*

**UNIVERSITY OF IDAHO**

*College of Agriculture*

## Table of Contents

Introduction .....	3
Data and Assumption .....	4
Analysis.....	4
Land Use.....	4
Land Ownership .....	7
Property Values.....	8
Summary, Conclusions, Implications.....	9
Appendix .....	11

## About the Authors

Joe C. Roetheli is a research associate and E. L. Michalson is professor of agricultural economics, Department of Agricultural Economics, University of Idaho.

*This research was the result of an Agricultural Experiment Station project in cooperation with the University of Idaho College of Mines, with special funding through the Water Resources Research Institute, University of Idaho.*



Published and distributed by the  
Idaho Agricultural Experiment Station  
R. J. Miller, Director

University of Idaho College of Agriculture  
Moscow 83843

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



# Private Land Use, Ownership and Prices In the Priest River Corridor

The Priest River Corridor is an appealing recreational area. Interest in recreational sites has increased as Americans have gained leisure time and become more affluent, mobile and urbanized. This has caused recreational land prices to increase and has brought about an increase in absentee landowners.

The land market for recreational property has been in a boom period, since more people have become affluent and concentrated in urban areas. Many urban residents desire to "get away" from crowded cities and seek the freedom of the natural environment. Many rural residents, including farmers and ranchers, also desire recreational property where they can enjoy a change in environment and scenery. Areas such as the Priest River Corridor provide a beautiful, natural environment for recreational activities.

On the other side of the land market, major landowners who sell land to recreationists realize that such sales dilute their influence in the local community. Thus, the pendulum of community influence swings away from these major landowners as more recreational ownerships are established in the community. Landowners sell for the market price. This is determined by supply and demand conditions. Sellers may consciously or subconsciously incorporate a sur-charge in the price they are willing to supply land for recreational purposes. This in turn increases the market price to compensate for the dilution of their influence in the community. Economic and social impacts may be motivating factors in attempting to keep out "outsiders", especially recreationists. These "outsiders" often desire changes in the community or have opinions contrary to those held by production-oriented landowners. Land use planning and inclusion of a river in the Wild and Scenic Rivers System are two examples of controversial issues about which the two groups may strongly disagree. Recreationists, though, are often willing to pay a higher price for land than would local interests. Sellers seek to obtain the highest price for their land when they decide to sell. Sales to recreational interests often make this possible. This appears to be occurring in the Priest River Corridor.

The Priest River Corridor is the area of interest for this study. It includes all land within one-quarter mile of the Priest River System's shoreline, beginning at the Canadian border and flowing approximately 90 miles to its confluence with the Pend Oreille River at the town of Priest River (Fig. 1). The system includes both Priest Lake and Upper Priest Lake. There is very little private land along or above Upper Priest Lake. The lower portion of the corridor, from the upper end of Priest Lake to the river mouth, is approximately 65 miles long. About 20 miles adjoins Priest Lake. Approximately 30 percent of the land along Priest Lake and about 40 percent along the river below Priest Lake is privately owned. Primary emphasis in this study relates to private land, so this lower portion is of greatest interest.

The Priest River Corridor has many features common to areas where increasing amounts of land are being used for recreational purposes. The combination of river, lake and forested mountain features provides opportunities for a host of outdoor recreational activities—boating, rafting, fishing, hunting, hiking, sightseeing and camping. These features attract recreationists and help engender a desire to own a parcel of land with or near such features. As the demand for such property increases, dynamic and complex relationships are created in terms of land use, prices and ownership. This study was undertaken to explore these relationships.



## Purpose

This study was designed to provide information concerning the land market (land use, prices and ownership characteristics) in the Priest River Corridor of northern Idaho.

## Objectives

The goal of this study was to gain insight into the land market along Priest River and Priest Lake. The specific objectives were to:

1. Determine land use and ownership characteristics.
2. Determine the influence of recreational land buyers on land prices in the corridor.
3. Estimate property prices and competitive relationships of alternative land uses.
4. Identify the relative importance of factors affecting land prices for production and recreational land.

## Data and Assumptions

The land area in the Priest River Corridor pertinent to this study was identified from Bonner County maps. Land classifications were obtained from public records of the county assessor and county recorder. These records provided data on ownership, land use, buildings, assessed values for land and for buildings, feet of water frontage of the property, acreage and number of lots owned by each taxpayer. In addition, the year of last sale and the selling price were obtained whenever possible from transfer tax stamps, deeds, contracts and other tax record information. In addition, ownership information was gathered by mail survey from some property owners.

Attempts were made to obtain data on all parcels in the corridor, but this was not feasible. Some data were not readily available and others were incomplete. Nonetheless, the results do provide insights about the land market in the Priest River Corridor.

Several assumptions concerning the data and the land market were required in this study. Land within each group (production and recreational) was assumed to have similar characteristics so that regression analysis could be used. Recorded sale price was assumed to represent the amount actually paid for the property and to represent the intersection of supply and demand conditions for the particular parcel in question. Sales prices were converted to 1974 dollars by using an index of Idaho land values (normalized values)<sup>1</sup>.

<sup>1</sup>USDA-ERS, Farm Real Estate Market Developments, July 1975, p. 13.

## Analysis

Land use data were summarized from the Bonner County Assessor's records (1974). Analysis of variance was employed to determine ownership characteristics and regression analysis was used to estimate land values empirically and to establish the relative strength of various factors influencing the market price of land and improvements.

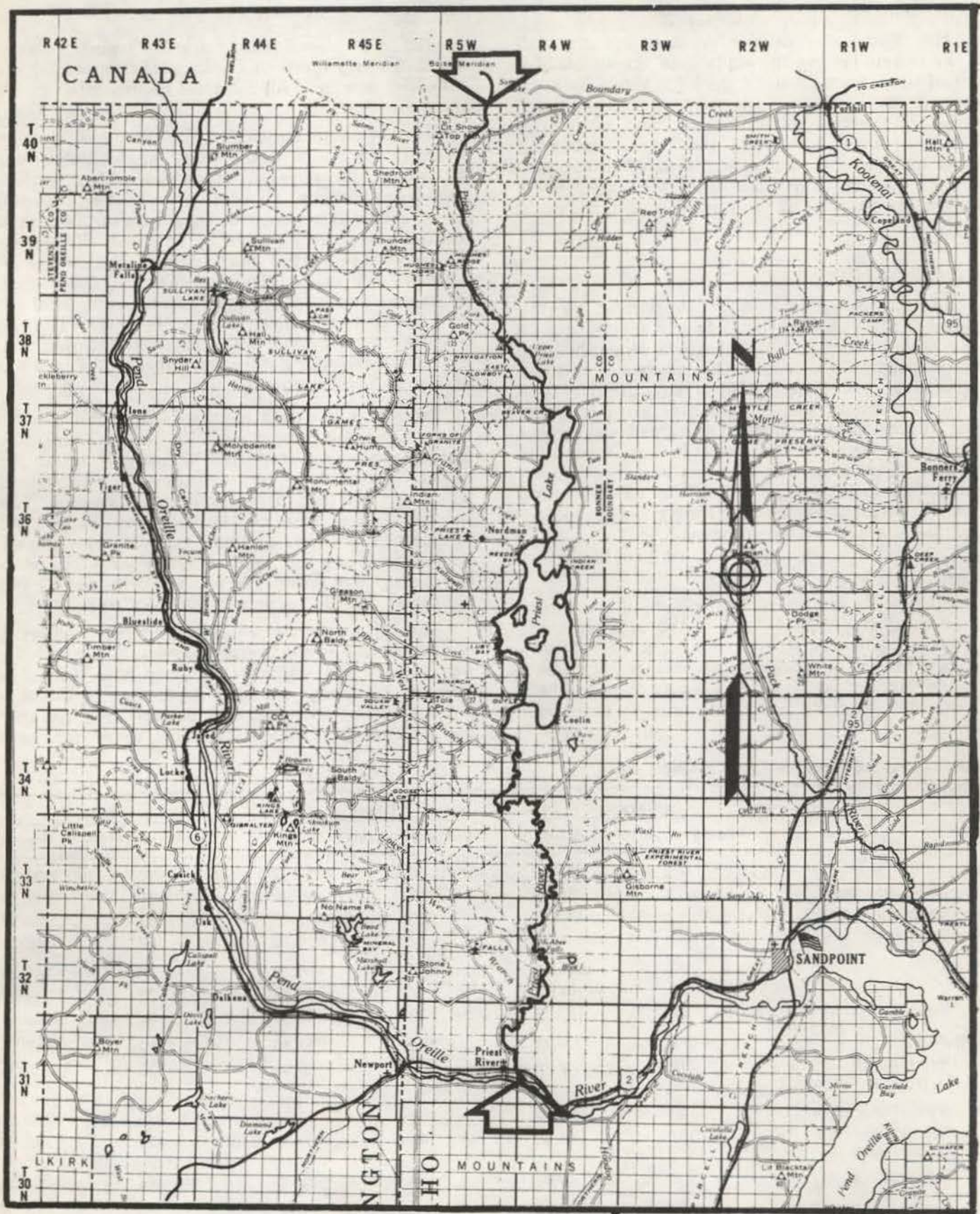
## Land Use

The land classification scheme used for this study follows the general categories used by the Bonner County Assessor's Office. The 11 classifications used by the assessor are condensed into more general classes and described below.

### Farmland

Farmland consists of unimproved grazing, improved grazing and cropland. It represents about one-quarter of the private land in the corridor. Nearly all of the farmland lies along the river. The improved grazing subsector constituted 2 percent of the land included in this study (Table 1). The improvement of grazing land involves some tillage, fertilizing and seeding domestic varieties of grasses. Dry grazing accounted for 18 percent of the private land and includes native unimproved pastureland. Cropland, 7 percent of the total private acreage in the corridor, consists of nonirrigated land used for growing small grains and hay.





**PRIEST RIVER SYSTEM  
LOCATION MAP**

Scale  
0 1 2 3 4 5 Miles



## Timberland

The timber classification accounts for over half of the private land in the study area. Somewhat over half of these acres lie along the lake. Virgin timber is forested areas which have never been harvested. About 10 percent of all private land meets this definition; most lies along the lake. Timberland which has had some harvesting is classified as reproduction forestry. This constitutes the largest single portion (44 percent) of the private land in the study area.

## Recreational Land

Recreational sites occupy 18 percent of the private land in the corridor. Nearly 80 percent of the parcels of recreational property lie along the lake, yet 60 percent of the recreational acreage is along the river. This suggests that sites along the river tend to be substantially larger than those along the lake. Most of the 456 lots (classified as recreational acreage in lots) lie along the lake. Some land is assessed for recreational purposes which is not surveyed as lots. Nearly 200 such parcels lie along both the lake and river. However, those along the river average nearly twice the size of those along the lake.

## Subdivision

Subdivision acreage in lots is used as a category of surveyed subdivisions. Most of this land lies along the lake. Subdivision acres (a class different from subdivision lots) is a category for land within a subdivision but not surveyed as a lot at present. These parcels are generally irregularly shaped and larger than lots.

## City

The city classification includes parcels of land within the city limits of Coolin plus commercial and industrial acreages. All 50 acres in this category are along the lake.

Further characteristics of the land and improvements in the study area provide insights concerning the value and physical properties of the private land improvements. One-half of the lake properties have waterfront access with an average of 200 feet of frontage per parcel (Table 2). In 1974, 60 percent of the lake properties had buildings. An average of 2.2 buildings existed on these parcels. The average assessed value was \$2,687 per building and \$400 per acre for land. The mean size parcel consisted of 4.5 acres, but the median was considerably lower than this. The mean selling price per parcel on the lake was \$8,485 or \$1,885 per acre.

Properties along the river had different characteristics. Of these properties, 60 percent had river frontage with an average of 870 feet of frontage per parcel. Only 20 percent of these properties had buildings, but they averaged 3 buildings each. The average assessed value per building was \$1,370 and for land it was \$66 per acre in 1974. The average size parcel along the river had 18.6 acres, but again the median was lower. The last sale price was \$7,493 per parcel or \$400 per acre in 1967 dollars.

Thus, a greater percentage of the lake properties had buildings and the average assessment per building was greater for the lake property than for river property. Although a higher percentage of the lake properties had frontage, the average frontage (per parcel with frontage) was much larger for river

Table 1. Land use in the Priest River Corridor, 1974.

Item	Lake		River		Total	
	Number of parcels	Acres	Number of parcels	Acres	Number of parcels	Acres
Farm	23	175.12	76	2910.22	99	3085.34
Improved grazing	3	15.79	15	195.99	18	211.78
Unimproved grazing	19	158.33	34	1895.47	53	2053.80
Crop land	1	1.00	27	818.76	28	819.76
Timber	43	3635.05	41	2746.24	84	6381.29
Virgin timber	20	1151.28	2	63.35	22	1214.63
Reproduction forest	23	2483.77	39	2682.89	62	5166.66
Recreational	898	864.71	254	1254.40	1152	2119.11
Recreational (acreage in lots)	318	132.26	5	26.99	323	159.25
Recreational acres	199	604.62	199	1118.75	398	1723.37
Subdivision (acreage in lots)	381	127.83	46	80.33	427	208.16
Subdivision acres	0	0.0	4	28.33	4	28.33
City	89	49.10	0	0.0	89	49.10
Total	1053	4723.98	371	6910.86	1424	11634.84

Source: Developed from records of the Bonner County Assessor's Office, 1974.



properties. The size of parcel sold was also larger along the river, but the selling price per acre and assessed value per acre were lower than those along the lake. These averages appear reasonable considering that much of the land along the river remains in agricultural use, while most private land along the lake is classified as recreational parcels.

## Land Ownership

Changes in ownership and use of the land occurs as the process of converting production land to recreational parcels continues over time. Changes in land use dramatically alter the composition of private ownerships. Substantial changes in use have occurred in the Priest River Corridor in the past 20 to 30 years. This change in land use has resulted in a substantial growth in absentee landowners. At one time most of the private land in the corridor was owned as farms and timberland with the owner residing on the property. Today many of the parcels are unoccupied most of the year.

Table 3 indicates the distribution of private ownership of land in the Priest River Corridor by residents of various geographic areas of the United

States. Five areas were delineated based on mailing address of property tax bills: northern Idaho (from Lewiston to the Canadian border); eastern Washington (east of the Cascades); others in the Pacific Northwest; California; and others (owners residing outside of the Pacific Northwest and California). Nearly one-quarter of the parcels along the river are owned by residents of California while nearly one-half of the lake ownerships are held by residents of eastern Washington, primarily Spokane. Only one-quarter of the parcels in the Priest River Corridor are presently owned by residents of northern Idaho. However, these residents do own larger parcels, so they own more than one-quarter of the area land.

One question brought to mind by the high proportion of absentee landowners is: do recreationists from the various areas buy properties with different characteristics? Only parcels classified as recreational by the county assessor were considered in this portion of the analysis, since insufficient data were available on other types of property. Analysis of variance was used on many variables to test if land bought by the people from the various areas had different attributes.

The results of this analysis are shown in Table 4. Only feet of frontage per acre, the ratio of assessed value to last sales price per acre and sales price per

Table 2. Priest River and Priest Lake land and improvement characteristics, 1974.

Item	Lake		River		Total	
	Number of parcels	Amount	Number of parcels	Amount	Number of parcels	Amount
Feet of frontage	502	102,060	181	157,427	683	259,487
Number of buildings	633	1,366	59	180	692	1,546
Assessed value of buildings	633	\$3,670,069	59	\$246,601	692	\$3,916,670
Assessed value of land	994	\$1,907,394	300	\$454,780	1294	\$2,362,174
Acreage	1053	4,723.98	371	6,910.86	1424	11,634.84
Last selling price	513	\$4,353,152	121	\$906,685	634	\$5,259,837

Source: Developed from records of the Bonner County Assessor's Office, 1974.

Table 3. Distribution of private land ownerships in the Priest River Corridor, 1974.

Mailing address	River		Lake		Total basin	
	Number	Percent	Number	Percent	Number	Percent
Northern Idaho <sup>1</sup>	85	34	200	23	285	25
Eastern Washington <sup>2</sup>	30	12	401	46	431	38
Other Pacific Northwest (PNW) <sup>3</sup>	38	15	207	3	245	22
California	59	23	45	5	104	9
Other	41	16	27	3	68	6
Total	253	100	880	100	1,133	100

<sup>1</sup>Addresses of Idaho residents from Lewiston to the Canadian border.

<sup>2</sup>Addresses of Washington residents east of the Cascade Mountains.

<sup>3</sup>Addresses of Pacific Northwest residents excluding northern Idaho and eastern Washington.

Source: Developed from records of the Bonner County Assessor's Office, 1974.



acre had no statistically significant difference in mean value among the groups.<sup>2</sup> Residents living nearest the study area own most of the buildings, but they have also owned their land longer providing more time for construction. Owners living outside of the Pacific Northwest have the greatest average frontage but the least frontage per acre. This results from the owners outside the PNW having the largest average parcels of recreational land. Residents of eastern Washington owning Priest River Corridor property have the highest total assessed value per acre despite having the smallest parcels. They do have more buildings than other groups with the exception of northern Idaho residents. Residents of eastern Washington also have the highest assessed value of land per acre. Meanwhile, Californians have assessed land values only slightly over half of those of eastern Washington residents, yet Californians have more frontage on average.

Analysis of variance indicated no difference in sale price per acre among groups (Table 4). However, a statistical difference was detected among groups when the sale price per acre was normalized (1974 dollars). Some of this difference results from land purchases made in different years, so that the same dollars in two different years represent different real amounts (discounting over time). Residents of eastern Washington apparently paid the highest price per acre. They were early buyers, thus probably have some of the most desirable sites. This would be consistent with their having the greatest frontage per acre and being assessed at the highest rate. On the other hand, Californians are paying the least per acre

<sup>2</sup>A statistical difference in this section implies a 95 percent probability that the average values are different or a 5 percent chance of error.

while obtaining more actual frontage than most groups. They also have the lowest assessments. Perhaps they bought undeveloped land, less desirable sites or more river sites which may have lower value.

The ratio of assessed land value to last sales price should be an indicator of how good a job the tax appraisers are doing, if buyers from each of the areas have similar ability to judge land when buying. This also should suggest if assessed value is a good indicator of sale price (Are the two values proportionately related?) No statistically significant difference could be noted among the groups on this variable despite a rather wide range of the averages. This suggests that this ratio may be so widely distributed that the test can detect no difference. It does indicate extreme range in the ratio. In fact, this ratio ranges from 0.01 to 1.94 for land sold between 1960 and 1974 with all sale prices normalized. This could result from owners having since sold a portion of the property considered in the sale price (low ratio) or from a non bona fide sale (full value not the same as the transaction price recorded), such as a sale to a friend or relative (high ratio). Consequently, assessed value alone was not an accurate indicator of sale price.

## Property Values

Two categories of land were analyzed for differences in sale price per acre and for factors which influence sale price substantially. Parcels of 20 acres or more were categorized as production land, and parcels of 5 acres or less were classified as recreational land.

The assessed value of land was compared for production and recreational use. Average assessed value

Table 4. Average values of variables in the Priest River Corridor for groups of owners, 1974.

Item	Idaho	Eastern Washington	Pacific Northwest	California	Others Outside PNW
Number of observations	86	251	48	37	24
Year*	67.24	63.00	64.50	66.20	67.70
Number buildings*	1.85	1.67	0.98	0.70	0.33
Feet of frontage	57.90	55.81	51.65	67.95	82.29
Frontage/acre*	151.88	184.03	151.63	120.63	91.02
Acre*	.846	.462	.613	1.27	1.68
Total assessed value/acre*	20707	22869	15685	7907	5760
Assessed value of land/acre*	4085	5028.	4669	2975	3271
Ratio of assessed land value to last sale price	.745	.747	.630	.829	.461
Sale price/acre	13347	19189	18516	15262	14559
Normalized sale price/acre*	49915	78686	66770	44157	49171

\*Indicates a statistical difference among some of the means at the 95 percent confidence level.

Source: Developed from records of the Bonner County Assessor's Office, 1974.



for land was less than \$50 per acre for production land. Recreational land was assessed at approximately \$4,000 per acre. Some of this difference is readily apparent when sale price per acre for the two uses is compared.

Production land sold for an average of \$355 per acre including buildings (all prices are inflated to 1974 dollar values for comparability). Three factors found most influential in affecting sale price of production land were: (1) feet of frontage per acre, (2) the inverse of the acreage, and (3) the number of buildings on the parcel of property (see Appendix for more detail). Buyers of production land apparently desired some frontage but not huge amounts, since the influence of this factor declined as large amounts of frontage were included. Very large parcels sold for less per acre than did smaller size units. The "average" production parcel, upon which the above results are based, consisted of 60 acres with 3.25 buildings and 12 feet of frontage per acre. Nearly 90 percent of these parcels were along the river.

Recreational land sold for substantially more per acre than production land. The "average" acre of recreational land along the lake including buildings sold for about \$45,000 per acre. Much of this is for associated buildings. The "average" parcel was one-quarter acre in size and there was one building for every two parcels or two buildings per acre with each parcel having 30 feet of frontage. About 85 percent of the recreational parcels were along the lake. The factors having the greatest influence on sale price were: feet of frontage per acre, inverse of acreage in the parcel, number of buildings per parcel and location of the land along the river rather than along the lake (if along the river, it sold for an average \$12,600 per acre less than land along the lake).

The above variables were used in preliminary equations to test for differences in sale price paid by permanent residents of the delineated areas. Since the permanent residence variable was not very influential in affecting sale price per acre, we concluded that the difference in price paid by residents of various areas was a result of different land characteristics, rather than people from one area being willing to pay more than people from a different area for the same characteristics. This suggests that on average, buyers from all regions have similar ability to judge the value of the land. Buyers paid market price regardless of area of permanent residence.

Total assessed value is based on variables already used in the model, so it could not be used in the model at the same time as the other variables. When used separately, it did not perform as well as the included variables. Even though the sales prices were normalized by using the index of Idaho land values, a time variable was included in earlier models to examine if the average increase in land prices in the Priest River Corridor was different from increases in the state average. No time effect was found. Therefore, we concluded that the increases in average

Idaho land prices and those of the Priest River Corridor were comparable.

Another set of variables used in earlier models was the percent of a parcel which was classified for recreational, farm or timber use. None of these variables was important. This indicates that division used to separate production land from recreation land is reasonable, since the two equations indicate a definite difference in normalized sales price. The number of parcels owned in the Priest River Corridor also did not influence the price paid per acre.

Some of the difference in average sale price per acre between production and recreational use is the result of the value of buildings being spread over many more acres for production land and other differences in characteristics. However, a large part of the difference results from sellers realizing that they can ask and receive more for land sold to recreationists. Recreationists are willing to pay more per acre than are production users. Therefore, the satisfaction derived by recreationists is greater than the satisfaction provided by the net income to those using the land for production purposes. This implies that supply and demand for recreational land is different from production land.

## Summary, Conclusions, Implications

The Priest River Corridor is definitely an appealing recreational area. Interest in recreational sites has increased as Americans, and especially residents of the Pacific Northwest, have become more affluent, mobile and urbanized. Spokane, WA is less than 100 miles from the Priest River Corridor. Many people from Spokane have purchased recreational sites in the corridor. The increased demand for recreational sites has placed upward pressure on the land prices in the corridor, has induced some owners to develop recreational sites and has brought about an increase in members of absentee landowners. Only one-quarter of the owners of land in the Priest River Corridor were residents of northern Idaho in 1974. Californians owned one-quarter of the parcels along the river; residents of eastern Washington owned half of the parcels along the lake.

Only 25 percent of the private land in the study area is classified as farmland and most of this is in pasture. Over 50 percent of the private land is classified as timber. Recreational sites occupy 18 percent of the private land in the study area.

A greater percentage of lake than river properties had buildings, and the average assessment per building was also higher for lake parcels. The average feet of frontage was larger for river properties, but a higher



percentage of lake properties had frontage. The size of parcel sold along the river tended to be larger, but the assessed value per acre was lower than for lake property. Much of this difference is due to more farmland lying along the river.

Recreational landowners with permanent addresses nearest the study area owned most of the buildings. Owners residing outside of the Pacific Northwest owned very few buildings. Residents of eastern Washington who own recreational property in this corridor have the highest assessed value of land per acre. Californians have the lowest. Residents of eastern Washington paid the highest price per acre (normalized); Californians paid the least. Since these variables (groups) were not important in the regression analysis, we concluded that groups paid different prices because the land they purchased had different characteristics on average and not because of the factor of permanent residence. One reason for Californians paying lower prices and having lower assessments is that they own more land along the river than along the lake and river property tends to be less valuable.

Important factors influencing sale price per acre were: number of buildings per parcel, feet of frontage per acre, the inverse of the acreage in the parcel and whether the property was along the river or the lake. The average sale price was \$45,400 (1974 dollars) per acre for recreational parcels but only \$355 for production land. Most of this difference is in the value of buildings and improvements. However, sellers also realize that recreationists are willing to pay more for land with recreational features than production users will pay for the same land. These price differences provide owners and buyers with "ballpark" estimates of transfer value of property. The economics of supply and demand and the unique characteristics of each parcel will ultimately determine the sales price per acre for any parcel.

The substantial difference in sale price per acre for production and recreational land suggests that sellers realize that recreationists are willing to pay premiums for land with desirable recreational features. By selling to recreationists, major landowners may be reaping higher prices for their land now. However, they may be diluting their influence in the community for a long period of time to come. Sellers should carefully consider this tradeoff before making a sale. Sales to individuals who move to the Priest River Corridor as permanent residents affect this influence most. Non-residents can not vote for office-holders or in bond issue and tax levy elections. However, they can exert considerable influence through pressure groups such as the Sierra Club and other environmental groups. They can also communicate with federal and state agencies. Thus, sales to recreationists may substantially dilute the community influence of production-oriented landowners in such controversial issues as land use planning and classification of the Priest River into the Wild and Scenic Rivers System.

The tax base of the Priest River Corridor has been altered substantially by recreational use. Average assessed value of land in parcels over 20 acres was under \$50 per acre in 1974. For parcels of less than 5 acres, the average assessed value of land was nearly \$4,000 per acre. Over 21,000 acres of recreational land are in this corridor. Assuming that all land would be assessed similarly if recreational use did not exist, then it follows that recreational use has increased the assessed value of land in this corridor by more than \$8 million. There may be some speculative value in present production land prices because of potential recreational use. This would suggest that this estimate may be low. Recreationists tend to have more buildings on a given acreage than do production-oriented users. This further increases the assessed value of the corridor. Thus, the payment of taxes increases sharply because of the recreational use of land in the community.

What local tax-supported services are desired by recreationists? Additional roads and road maintenance are almost certainly required. More law enforcement officers and equipment may be needed because a wealth of items are stored at recreational homes, and all are attractive to burglars, TVs, boats, hunting and fishing equipment, etc. The potential for vandalism is greater in locations having many homes and few permanent residents. Recreationists also create a need for more cleanup in areas of heavy use than would be provided for production-oriented uses. Garbage collection requirements are increased. Additional employees are required in the county assessor's and recorder's offices. Concentrations of recreation homes may create a need for additional fire protection, water supplies and sewage disposal facilities.

Some government services are affected very minimally by recreationists. This is especially true in areas where the owners are not permanent residents. School enrollment, library use, public transportation and county health programs are not affected substantially by recreationists.

The local area does not benefit as much from recreationists as it would from permanent residents in terms of the flow of money into the community. Most recreationists bring the bulk of their supplies from their permanent home rather than buying them after arriving at the recreational area. They may buy gasoline or items they run short of at a local store, but the majority is brought in. However, materials for buildings and improvements are often purchased locally, and this aids the economy of the surrounding communities.

These are some implications of recreational use of land in an area such as the Priest River Corridor. Recreationists do add to the tax base but desire some local services. The precise impact of recreationists on the local economy and on local government is beyond the scope of this study. It would be a topic worthy of in-depth study.



## Appendix

The regression equations developed to estimate property values and importance of factors affecting values follow.

### Recreational:

$$\hat{Y} = 11,077.62X_1 + 112.12X_2 + 6,548.19X_4 - 12,627.24X_5$$

(3.73)      (7.15)      (10.38)      (-1.63) t values

$R^2 = 0.721$        $F = 96.96$        $\bar{Y} = \$45,400$

### Production:

$$\hat{Y} = 23.76X_1 + 19.33X_2 - 0.45X_3 + 16,141.61X_4$$

(1.77)      (3.19)      (-3.86)      (9.37) t values

$R^2 = 0.986$        $F = 69.16$        $\bar{Y} = \$355$

where:  $\hat{Y}$  = estimated normalized sale price per acre  
 $\bar{Y}$  = average normalized sale price per acre for data

$X_1$  = number of buildings on property

$X_2$  = feet of frontage per acre

$X_3$  = feet of frontage per acre squared

$X_4$  = acres in parcel

$X_5$  = 1 if property is along river and 0 if it is along lake

The t values are used to determine if the variable is statistically significant in the equation. As a rule of thumb, the t value should be at least 2.0 in order to be 95 percent certain that the variable is statistically important in explaining variation in Y. The absolute t values can be used to rank the variables in the equation (largest t value implies the most impor-

tance).  $R^2$  can range from 0.0 to 1.0 and indicates the amount of variation in Y which is explained by the X variables. Therefore, the model for production property should do a better job of predicting sale price than the recreation model. The F statistic is a measure to test if all the X variables combined are statistically significant in explaining the variation in Y.

To use the equations to estimate the value of a parcel of land, find the values for the appropriate X variables and plug them into the equation. For example, if you wish to estimate the value of one-quarter acre of recreational property on the lake with two buildings and 50 feet of frontage, you would proceed as follows:

$$X_1 = 2 \text{ buildings}$$

$$X_2 = 50 \text{ feet divided by } 0.25 \text{ acre} = 200 \text{ feet of frontage per acre}$$

$$X_4 = 1.0 \text{ divided by } 0.25 \text{ acre} = 4.0$$

$$X_5 = 0, \text{ since the property is along the lake}$$

$$Y = 11,077.62 (2.0) + 112.12 (200.0) + 6,548.19 (4.0) - 12,627.24 (0.0)$$

$Y = \$70,772$  per acre or  $\$17,693$  for the one-quarter acre parcel. This would be in 1974 dollars. To inflate these 1974 values to 1976 values multiply by 1.2<sup>3</sup>. Such an estimate should be used only as a guideline. The unique characteristics of the parcel may alter the actual value from this estimate.

<sup>3</sup>USDA-ERS, Farm Real Estate Market Developments, July 1976, p. 13, (302/254 = 1.2).



*The State is truly our campus. We desire to work for all citizens of the State striving to provide the best possible educational and research information and its application through Cooperative Extension in order to provide a high quality food supply, a strong economy for the State and a quality of life desired by all.*



Auttis M. Mullins  
Dean, College of Agriculture  
University of Idaho



## SERVING THE STATE

This is the three-fold charge of the College of Agriculture at your state Land-Grant institution, the University of Idaho. To fulfill this charge, the College extends its faculty and resources to all parts of the state.

**Service** ... The Cooperative Extension Service has active programs in 42 of Idaho's 44 counties. Current organization places major emphasis on county office contact and multi-county specialists to better serve all the people. These College of Agriculture faculty members are supported cooperatively by federal, state and county funding to work with agriculture, home economics, youth and community development.

**Research** ... Agricultural Research scientists are located at the campus in Moscow, at Research and Extension Centers near Aberdeen, Caldwell, Parma, Sandpoint, Teton, Twin Falls and at the U.S. Sheep Experiment Station, Dubois and the USDA/ARS Soil and Water Laboratory at Kimberly. Their work includes research on every major agricultural program in Idaho and on economic and community development activities that apply to the state as a whole.

**Teaching** ... Centers of College of Agriculture teaching are the University classrooms and laboratories where agriculture students can earn bachelor of science degrees in any of 20 major fields, or work for master's and Ph.D. degrees in their specialties. And beyond these are the variety of workshops and training sessions developed throughout the state for adults and youth by College of Agriculture faculty.