

Employment and Income in the Western U.S. Attributable to BLM Recreation

This Executive Summary highlights the employment and income levels attributable to recreation activity on BLM lands in the western United States. Results are presented individually, by state, and regionally for the West as a whole. These numbers allow BLM to better understand the economic benefits attributable to recreational activity on its land and to factor that information into land management decisions.

The assessment of economic impacts was done by the University of Wyoming, Department of Agricultural and Applied Economics, using IMPLAN input/output models. The two major inputs to the model were recreation visitor day data and daily recreation expenditure data. The BLM's Recreation Management Information System (RMIS) was the source of the FY00 BLM recreation visitor day information on a region-wide and state-by-state basis. Recreation expenditure data were gathered from available studies for use in the model. The Technical Appendices provides additional detail on how data were acquired and modified for use.

This project was completed via an Assistance Agreement between the Bureau of Land Management and the University of Wyoming, Laramie. Dr. Roger Coupal was the Principal Investigator representing the team at the University. Loren Cabe, BLM Senior Economist, served as the BLM's Agreement Representative. If questions arise about this project, then please contact one of the following individuals:

Loren Cabe
Senior Economist
Planning, Assessment, and Community
Support, WO-210D
DFC, PO Box 25047, WO 210D
Denver, Colorado 80225-0047
Phone: 303-236-6312

Dr. Roger Coupal
Principal Investigator
Dept. of Agricultural and Applied
Economics
University of Wyoming
Laramie, Wyoming 82071-3354
Phone: 307-766-5246

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
A. Economic Impacts Attributable to Recreation on BLM Lands	1
B. BLM Recreation Visitor Days	3
C. Procedures for Estimating Direct Expenditures	7
D. Visitor Expenditures	10
E. Summary of Economic Impacts of Recreation Activities on BLM Lands in the Western United States.....	12
F. Problems with Assessing BLM Recreation Data	18
G. Recommendations	19
APPENDICES	
I. VISITOR DAY AND EXPENDITURE DATA	23
II. BLM RMIS RECOMMENDATIONS	49
III. COMPARISON OF RMIS WITH OTHER RECREATION DATA SOURCES ...	60
IV. DETAILED RESULTS OF THE STATE ECONOMIC IMPACT ANALYSES ...	83
BIBLIOGRAPHY	132

{LEFT BLANK}

A. Economic Impacts Attributable to Recreation on BLM Lands

The Bureau of Land Management (BLM) is one of the largest landowners in the Western United States. The Agency's resources are used for grazing, mineral extraction, timber, and, increasingly, for recreation. The goal of this report is to provide information for BLM managers and administrators to begin evaluating the current status of recreation management in the agency. The report has two objectives: first, to estimate the economic impact recreation on BLM lands has in the Western United States and second, to compare existing information on recreation to the BLM's Recreation Management Information Systems (RMIS) data. The executive summary indicates the results of the state economic impact analyses for the western U.S. The summary provides conclusions and recommendations for improving the accuracy and comparability of BLM RMIS data.

Recreation on BLM lands is an important source of economic activity in the west. The Bureau of Land Management manages over 262 million acres in the western U.S. (Figure 1, Lower pane). Alaska has 86.6 million acres of BLM land which is almost twice the total acreage of agency lands when compared to the next largest state, Nevada (47.8 million acres). The BLM manages over 67 percent of the total land area in Nevada and over 40 percent of the total land area in Utah. Colorado and Montana have the smallest amount with just over 8 million acres.¹ The BLM manages more than 20 percent of the total land area in Wyoming, Oregon, Alaska, and Idaho. The sheer size of the

¹ Small acreages of BLM lands (and the attending use levels) in Washington are covered by Oregon; in Oklahoma and Texas by New Mexico; in North and South Dakota by Montana, and in Nebraska by Wyoming.

agency's presence in many of the states, implies the importance of BLM policy issues to area residents.

Figure 1. BLM Acreage by State, and Percent of Total State Land Area

{LEFT BLANK}

B. BLM Recreation Visitor Days

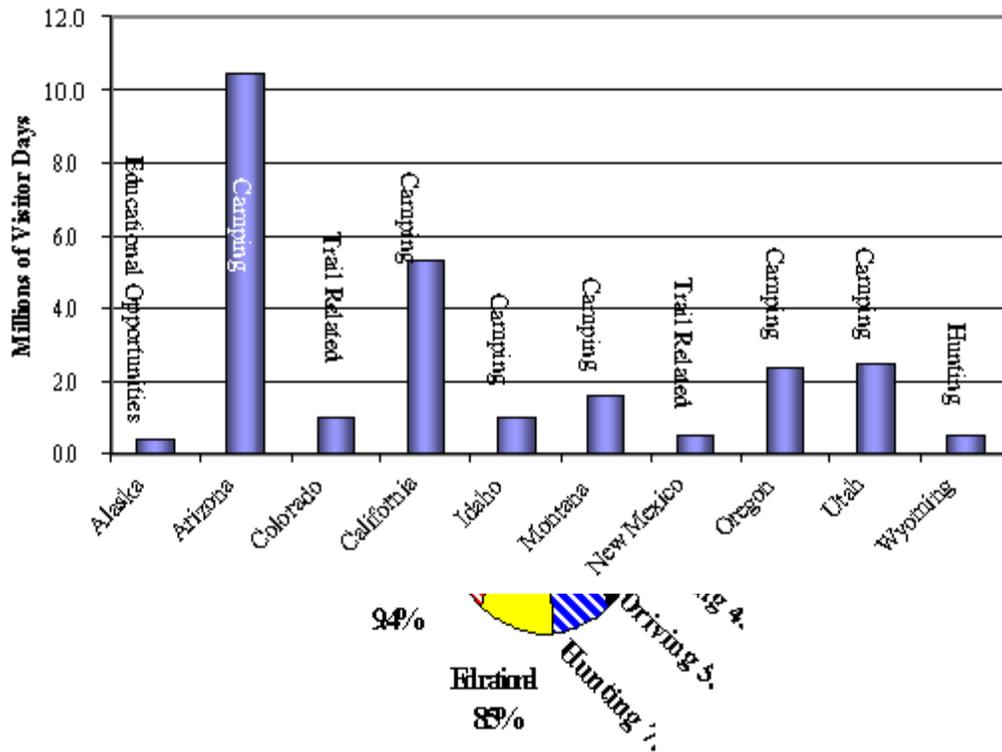
The agency's traditional role as a source of resources for agriculture and minerals is evolving towards a major provider of outdoor recreation opportunities in the Western United States. The BLM's RMIS categorizes recreation use into 44 different categories ranging from camping and nature study, to hunting and fishing. Eleven broad recreation categories, originating from RMIS report 21, are used to estimate economic impacts (see Table 1).

RMIS indicates that 63.5 million recreation visitor days occurred on BLM land in the western U.S. in FY00. Camping was the most common recreation activity accounting for nearly 42 percent of total visitor days (Figure 2). Trail related activities are the next largest category. Consumptive uses (fishing and hunting) totaled around 11 percent of visitor days. The mix of recreation activities on BLM land varied substantially between States. Alaska, Arizona, New Mexico and Wyoming all experienced predominant recreation activities other than camping, Figure 3.

The percentage of total visitor days associated with camping varied from 67.2 percent in Arizona to 21.6 percent in Idaho. The most common activity in Alaska was Educational Opportunities (35.1 percent). The most common activity for Colorado and New Mexico was Trail-Related (31.2 percent and 27.0 percent respectively). The most common activity for Wyoming was hunting (19.8 percent).

Table 1. RMIS Report 21 Categories

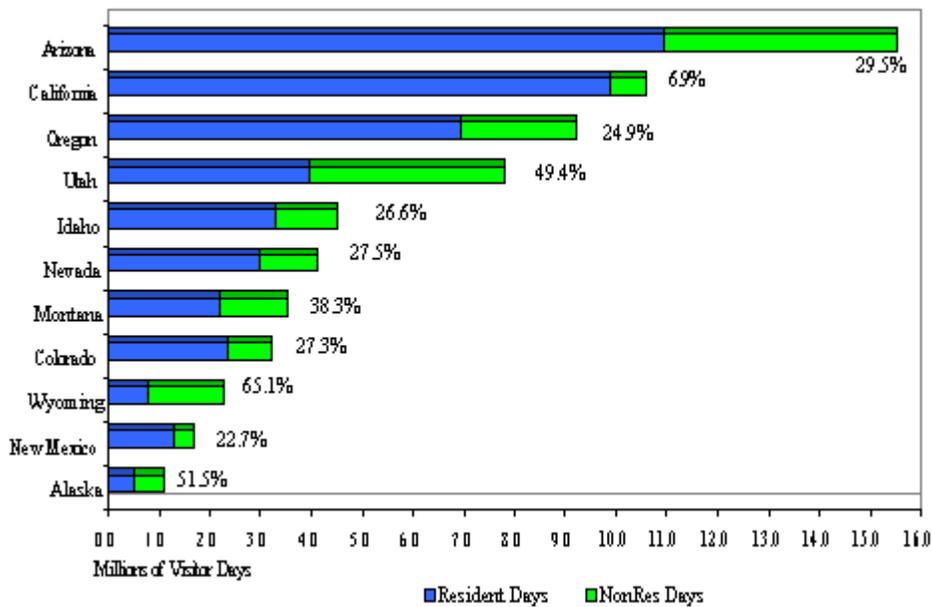
Recreation Categories		Activities Included	
Non-consumptive Activities			
1	Camping		
2	Driving for Pleasure		
3	Educational Opportunity Activities	Environmental Education	Nature Study
		Interpretive Exhibit Viewing	Viewing - Wild Horse
		Viewing - Cultural Sites	Viewing - Wildlife
4	Miscellaneous Land Activities	Archery	
		Gather Non-Commercial Products	
		Target Practicing	
5	Miscellaneous Water Activities	Boating - Motorized	Water Play
		Boating - Non-Motorized	Swimming
		Windsurfing	
6	Other	Photography	
7	Picnicking Activities		
8	Specialized Sporting Activities	Caving	
		Climbing (Rock, Ice etc)	
		Hang-Gliding	
9	Trail-Related Activities	ATV Riding	Four Wheel Driving
		Backpacking	Hiking/Walking/Running
		Bicycling - Mountain	Horseback Riding
		Bicycling - Road	Motorcycling
10	Winter Activities	Cross Country Skiing	Ski Touring
		Snowmobiling	Dog Mushing
		Downhill Skiing	Snow Play General
Consumptive Activities			
11	Fishing and Hunting Activities	Viewing – Other	Trapping
		Fishing	Small Game Hunting
		Big Game Hunting	Hunting -
		Hunting-Upland Bird	



Arizona reported the most recreation activity on BLM land of any western states, in FY00, with over 15.5 million visitor days (Figure 4). Alaska had the least recreation activity on BLM lands with slightly over 1 million visitor days. More populated states tended to have more visitor days on BLM land.

Both residents and nonresidents enjoyed recreation opportunities on BLM land. Seventy-one percent of visitor days on western BLM lands came from residents of the state, with 29 percent from nonresidents. More populated states such as California tend to have a higher proportion of total visitor days associated with residents (93.1 percent), while less populated states such as Wyoming tended to have a higher proportion of total visitor days associate with nonresidents (65.1 percent). Some states, such as Utah and Alaska, were fairly evenly divided between resident and nonresident use.

Figure 4. Resident Visitor Days, Non-Resident Visitor Days, and Percent Non-resident, FY2000.



C. Procedures for Estimating Direct Expenditures

Visitor days were broken down by state for the 11 major categories found on RMIS Report #21². Due to differences in visitor expenditure amounts visitor days for fishing were separated from visitor days for hunting for the analysis. RMIS Report #19³ provided a breakdown between fishing and hunting visitor days. Report #19 is not available on a statewide basis requiring aggregation of the visitor days by state.

It is necessary to separate BLM visitor days by state residents from visitor days by nonresidents, in order to estimate economic impact. An alternative estimating procedure was developed because RMIS does not provide this information. The procedure used for this analysis was to divide resident and nonresident visitor days, based on individual state information from the U.S. Fish and Wildlife Service's 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The proportion of resident and nonresident visitor days for Away From Home Wildlife Viewing in the state was used as a proxy for separating resident and nonresident visitor days, for non-consumptive use (everything but hunting and fishing). The proportion of resident and nonresident visitor days for hunting and for fishing in the state were used to allocate BLM hunting and fishing visitor days between residents and nonresidents for consumptive use (hunting and fishing).

Once visitor days were separated into residents and nonresidents, then visitor expenditures for the two categories were estimated. Two sources were used in the analysis in order to maintain consistency between states. Each was used in both the approach for estimating visitor expenditures, and in distinguishing between resident and nonresident expenditures. National expenditure information from a draft U.S. Forest Service Report (Alward et al, 1998) is used in the analysis for non-consumptive use (everything but hunting and fishing). Individual state expenditure data from the U.S. Fish and Wildlife Service's 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was used in the analysis for consumptive use (hunting and fishing). Table 2 presents the non-consumptive visitor day expenditures used in the analysis. Non-consumptive expenditures were based on on-site and travel spending with adjustments for multiple site visitations. All expenditures were adjusted to 2000 price levels to account for inflation.

² RMIS report #21 provides visitor day and visitor information by State and districts for the 11 major categories. RMIS report #19 provides the same information but for more detailed recreational categories.

³ Ibid.

Table 2. Non-consumptive Visitor Days by Category, Agency, and Residence

BLM Category	USFS Category	Visitor Day Expenditures	
		Nonresident	Resident
Camping	Developed Site	\$26.56	\$14.89
Driving for Pleasure	Mechanized Travel	\$48.61	\$25.03
Educational Opportunity	Other Activity	\$38.39	\$21.97
Miscellaneous Land	Other Activity	\$38.39	\$21.97
Miscellaneous Water	Other Activity	\$38.39	\$21.97
Other	Other Activity	\$38.39	\$21.97
Picnicking	Developed Site	\$26.56	\$14.89
Specialized Sporting	Other Activity	\$38.39	\$21.97
Trail-Related	Trail Use	\$37.93	\$10.25
Winter Activities	Winter	\$43.16	\$24.97

Table 3 presents the consumptive (hunting and fishing) visitor day expenditures used in the analysis. Consumptive expenditures were based on trip-related expenditures and were adjusted to 2000 price levels to account for inflation. The average for the western states excluding Alaska and Nevada was used to value nonresident hunting days in Nevada (\$130.04), because the reported nonresident hunting expenditure for Nevada was extremely low (\$14.09).

The estimates of direct visitor expenditures are intentionally conservative. BLM visitor days are expressed as 12 hours of a given activity. However, the expenditure data from both the U.S. Forest Service and the U.S. Fish and Wildlife Service are expressed as activity days. Any part of a day spent in a given activity is counted as one activity day. If someone hunted for 6 hours one day and 6 hours another day, it would represent 2 activity days for hunting. The above would only represent one 12-hour BLM visitor day. We are not aware of a reliable database to convert visitor days to activity days. As a result, the direct visitor expenditure amounts in this study should be regarded as conservative estimates.

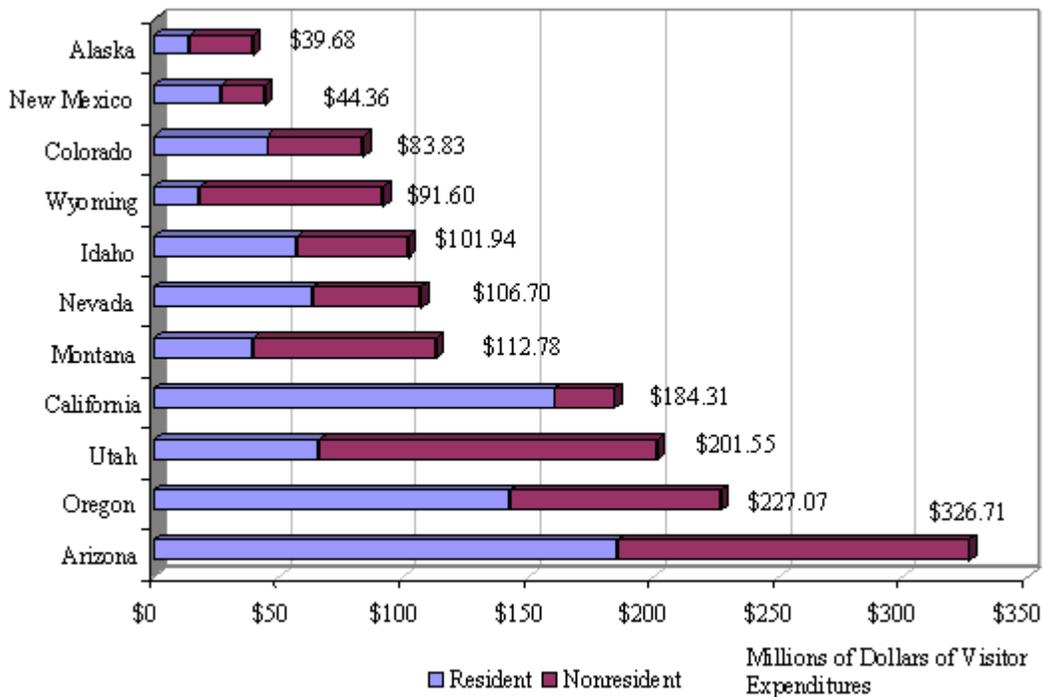
Table 3. Consumptive Recreation Expenditures by State and Residence

State	Nonresident	Resident	Nonresident	Resident
	Fishing	Fishing	Hunting	Hunting
Alaska	\$159.61	\$40.40	\$634.11	\$54.32
Arizona	\$76.60	\$36.67	\$215.77	\$34.97
California	\$71.05	\$41.34	\$71.42	\$39.45
Colorado	\$56.79	\$30.86	\$85.67	
Idaho		\$20.86	\$44.50	\$21.11
Montana	\$167.49	\$24.49	\$211.23	\$25.24
Nevada	\$77.24	\$35.82	\$14.09	\$35.29
New Mexico	\$80.94	\$30.42	\$284.45	\$37.36
Oregon	\$142.85	\$29.49	\$127.05	\$30.67
Utah	\$61.47	\$21.76	\$53.17	\$22.10
Wyoming	\$72.95	\$28.21	\$130.30	\$29.69

D. Visitor Expenditures

Recreation on BLM land is an important source of economic activity in the Western United States. The results of this study indicate that visitors recreating on BLM land in the western states spent over \$1.5 billion in FY00. Fifty-four percent of visitor expenditures came from residents while 46 percent came from non-residents recreating in the state. Arizona has the largest total visitor expenditures of over \$326 million with 56.8 percent as residents and 43.2 percent as nonresidents expenditures (Figure 5). Alaska had the smallest visitor expenditure amount with less than \$40 million. Alaskan resident expenditures represented 35.6 percent overall with nonresidents at 64.4 percent.

Figure 5. Total State Visitor Expenditures by Residents and Nonresidents



E. Summary of Economic Impacts of Recreation Activities on BLM Lands in the Western United States.

Economic impacts were estimated using non-resident activity for each state since it is the non-residents that bring new dollars into the State economies. Models for each state were developed using IMPLAN (Minnesota IMPLAN Group; 1999) to ensure structural consistency across states. Detailed results of each of the 11 western states are provided in Appendix 4. The base year for the models was 1997 and the impacts were adjusted to reflect year 2000 price levels.

Non-resident recreation expenditures in the entire study area totaled over \$699 million in year 2000. This expenditure generated over \$295 million in labor income and 15,546 jobs among the western States. Most jobs and income are generated from non-consumptive activities, (Figures 6 and 7): 12,160 jobs and \$229 million in labor income. Jobs and income created by hunting and fishing activities comprised 22 percent of total jobs and 23 percent of labor income.

Arizona's proximity to Southern California is one explanatory factor for the large number of users and therefore, the large economic impacts. Utah, Montana, Oregon and Wyoming are the largest with over \$32 million in labor income generated and over 1,600 jobs each (See Figure 8; see also Appendix 4 for more detail).

Figure 6. Employment Generated by Recreation on BLM Land in the Western United States

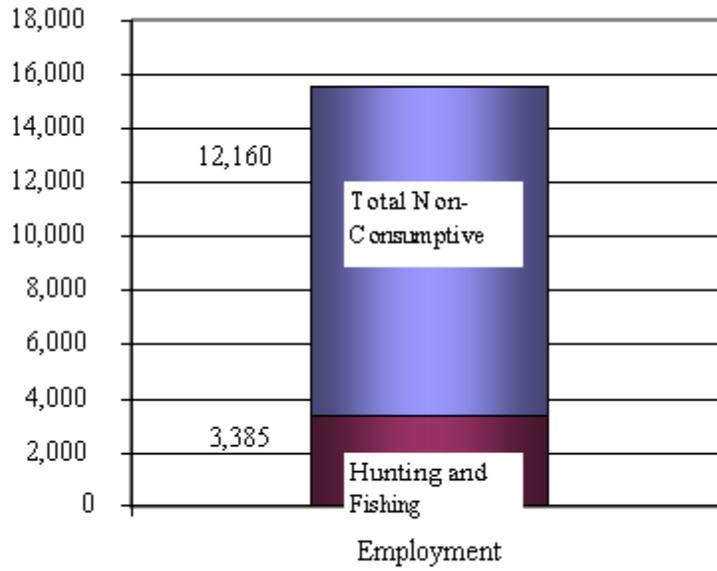


Figure 7. Labor Income Generated by Recreation on BLM Land in the

Western United States

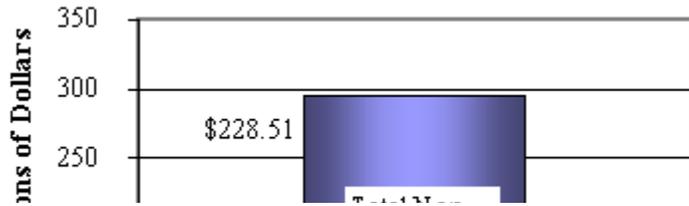
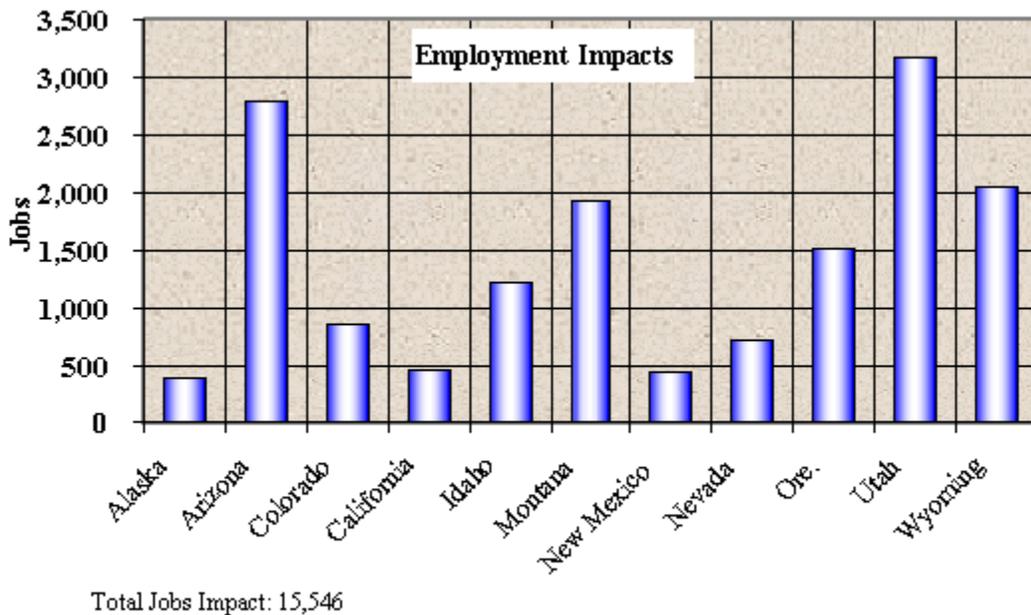
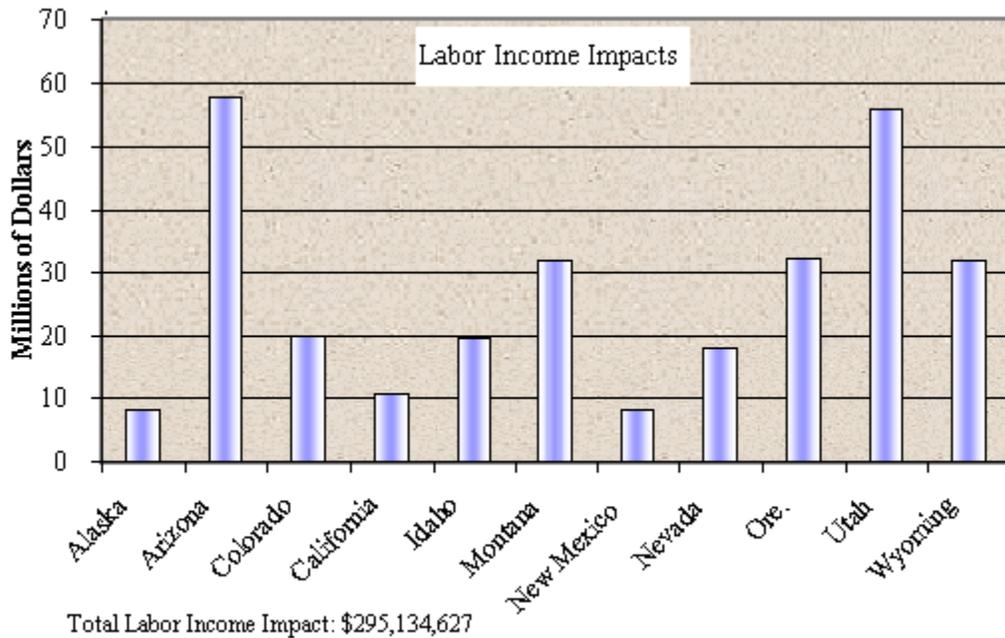


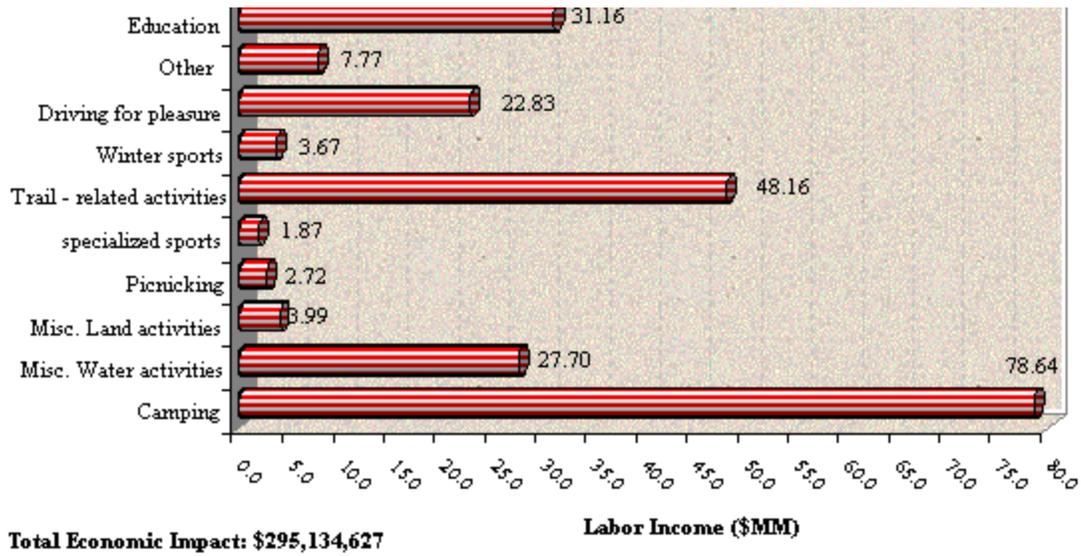
Figure 8. Economic Impacts of Recreation on BLM Lands in the West, by State



Note: See Figures 4.2 through 4.11 on pages 92 through 128, Appendix 4 for detailed recreation activity specific graphs of employment and income impacts for each state.

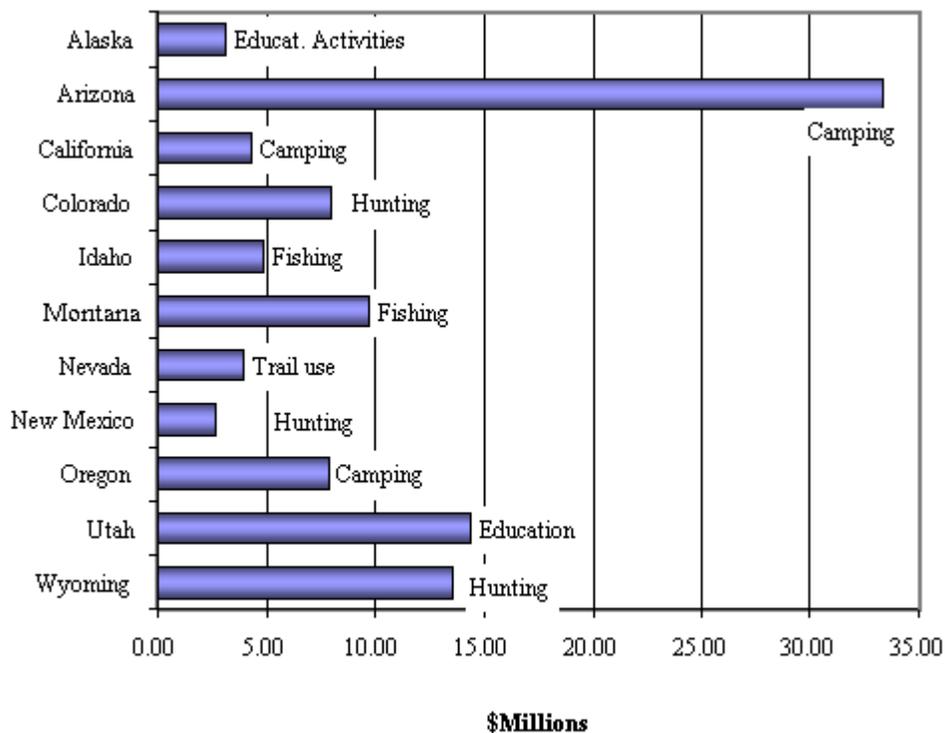
The main activity generating economic impacts on BLM land comes from camping. It accounts for over \$78 million in labor income across the western U.S. and over 4,000 jobs (Figure 9). Trail-related activities accounted for over \$48 million in labor income and almost 2,600 jobs. Consumptive uses, fishing and hunting together generate almost as much as camping, with \$66 million in labor income and 3,385 jobs. Educational activities were the fourth largest, with over \$31 million in labor income and 1,700 jobs. Other activities on BLM lands that had large impacts included driving for pleasure and miscellaneous water activities.

Figure 9. Total Labor Income and Jobs Generated by Recreation on BLM Lands in the Western United States, By Activity.



Economic impacts of recreation on BLM lands in the West varies considerably from State to State, both in overall income and job impacts as well as the nature of the impacts themselves. Camping was the most common recreational activity on BLM lands, but it was the predominant use for seven of the ten States by number of visitor hours (Figure 3), and the predominant income generation activity for Arizona, Oregon and California as shown in Figure 10. Consumptive uses were the predominant income generating activity in five states (Wyoming, New Mexico, Montana, Colorado, and Idaho.)

Figure 10. Labor Income Impacts of Predominant Activities by State



F. Comparability Issues Between RMIS and other Recreation Data

There are significant comparability problems between RMIS data and recreation use data from other federal, state and university sources

- differed in the way data is collected,
- how activities are defined,
- when use occurred, and

- the units of measures.

It is not possible to identify discrepancies between RMIS data and other sources for the above reasons.

Expenditure data is scant and not collected expressly for BLM recreation users. There is no way of telling if the USFWS data is an accurate depiction of BLM recreation users. The problems with attempting to evaluate the RMIS data and available expenditure data are as follows:

1. Use units are not strictly comparable between RMIS and other public lands/recreation agencies units of measure; e.g. participation, visitor day, trips.
2. The recreation activities are not defined in a strictly comparable fashion between RMIS and other public lands/recreation agencies.
3. The types of lands managed by public agencies are not strictly comparable with BLM lands; e.g. high mountain, river valley, heavily forested, or coastal.
4. RMIS may count one person recreating at a given activity in a given place repeatedly. Other data sources such as USFWS or state agencies may not.
5. Protocols for collecting the raw data for RMIS have not been formalized. Recreation specialists work hard to gather data as best they can, using whatever methods work best for them. These approaches may differ widely across specialists and states.
6. RMIS does not currently provide expenditure information per place for a given activity. These expenditures must be inferred by extrapolating values from studies about lands and activities similar to, but not exactly like, BLM lands.
7. Existing expenditure data is either available from USFWS's state-by-state sampling, performed every five years, or from narrowly focused activity and place specific studies, sometimes dating back 20 years.

G. Recommendations

The suggestions provided below are meant to address problems noted above and extend to BLM recreation use policy. These recommendations are provided as a way to improve the accuracy and interagency comparability of future analyses of recreational impacts.

1. Units of use measures and activity definitions should be standardized across public agencies, especially BLM, USFS, NPS and USFWS, as well as some coordination with state units e.g. tourism and/or state fish and wildlife departments. Activities may then be comparable for similar terrain/places across agency lands.
2. Measuring use as a function of repeat users, seasonal or annual users should be standardized across public agencies, especially BLM, USFS, NPS and USFWS, as well as some coordination with state units.
3. Protocols should be developed for RMIS activity use data collection. Some thought should be given to expenditure data collection. Intercept surveys, that rotate across BLM districts, could provide the basis for benchmark information

RMIS, and possibly expenditure, data collection techniques. They may at least provide a periodic benchmark for use and expenditures. The USFS is currently developing a recreation use monitoring process that will track recreation in all national forests over a period of five years. Rotating on-site interviews will take place on one fourth of all forests each year. A fifth year will be used to write up results. BLM could use this effort as a model for similar recreation use monitoring on BLM lands. BLM could also cooperate with USFS monitoring to begin standardizing units of measure across agencies, as suggested in (1) and (3) above.

4. Economic impacts should be assessed on a periodic basis to develop trend information. Improvements in use data and/or expenditure data, as suggested in this section, will provide more accurate estimates of the economic effects of recreation on BLM lands.
5. BLM policy development and budget allocation efforts over time and across regions will benefit from accurate, defensible and documented sources of recreation data as well as economic impacts estimated from that data.

APPENDICES