Station Note

No. 33 October 1978

University of Idaho
Forest, Wildlife and Range Experiment Station

The RARE II Process in Idaho: A Case Study of Changing Roadless Area Boundaries

Kjell A. Christophersen, and Charles W. McKetta

INTRODUCTION

There are 187 roadless areas containing 7.9 million acres in Idaho's national forests. These areas have been evaluated by the USDA Forest Service for possible wilderness designation in the Roadless Area Review and Evaluation process (RARE II) (USDA Forest Service 1978). An economic and local impact analysis was also conducted at the College of Forestry, Wildlife and Range Sciences, University of Idaho (McKetta et al. 1978), using the Forest Service data base. The latter study identified numerous areas which rated high in wilderness benefits and simultaneously contained substantial quantities of commercially valuable timber. These areas have the greatest potential for conflict in the wilderness decision process.

Under the USDA Forest Service alternatives (except H), entire roadless areas will be classified as either wilderness or non-wilderness, or placed in a further planning category upon completion of the evaluations. Presently, roadless area boundaries are based on contiguous unroaded acreages which must be a minimum of 5,000 acres per unit. This boundary criterion offers little room for conflict resolution. Each area is evaluated on an all-or-nothing basis although the distribution and value of resources contained within it may not be uniform.

Conflict resolution could be achieved by changing area boundaries such that a roadless area is defined on the basis of resource character. The draft environmental impact statement (EIS) for RARE II areas in Idaho recognized the possibility of area subdivision but did not examine alternative ways of redefining boundaries. The Bighorn-Weitas roadless area (1306), located in the Clearwater National Forest, will be used as an example in which segregating unlike resources could substantially reduce causes of resource allocation conflict.

THE APPROACH

An area could be subdivided to reduce potential conflict by numerous criteria such as: administrative subdivision, subdivision by site productivity, watershed boundary, contours, individual stands, wilderness character, or by existing land classifications. For simplicity, only the timber resource

The authors are assistant professors of Forest Products and Forest Resources, respectively, with the College of Forestry, Wildlife and Range Sciences. In addition, C.W. McKetta is Forest, Wildlife and Range Experiment Station Economist, University of Idaho, Moscow. This note is published as Contribution No. 33, University of Idaho Forest, Wildlife and Range Experiment Station, Moscow.

ISSN:0073-4594

University of Idaho

is considered as the basis for boundary redefinition in this paper, although a combination of resource criteria should be used in an operational boundary change proposal.

This case study subdivides areas based on existing commercial timber land classifications from the USDA Forest Service Manual, Section 2412.15: Standard, Special, Marginal and Unregulated.

1. Standard–commercial forest land on which crops of industrial wood can be grown and harvested under the usual provisions of the timber sale contract.
2. Special–areas needing timber resource treatment specially designed to achieve landscape or other key resource objectives.
3. Marginal–areas not qualifying as standard or special, primarily due to excessive development cost, low product cost, low product value or resource protection constraints.
4. Unregulated–acreage that will not be organized for timber production under sustained yield principles. *(Non-commercial, unproductive, and water acreages were also included in this category for analytical simplicity.)*

These timber land classifications are used **only** to identify the potential for roadless area redefinition to reduce the conflict with timber. This delineation is approximate, and used for illustrative purposes. An actual boundary change proposal might require additional detail in specific resource measurements and separation criteria. This case study subarea delineation represents but one example of how area boundaries can be changed. It should not be construed as our recommendation. Our purpose is to show that boundaries can indeed be redefined and conflicts reduced.

Four subareas containing primarily standard acreage, and two subareas with marginal and/or special timber management character were defined within the original Bighorn-Weitas area. The two marginal and/or special subareas contain the majority of the scenic and water influence zones and much of the high country.

The redefinition of area boundaries did not create a clean separation of land classifications. Emphasis was placed on achieving contiguity of all subareas with both high and low timber resource character. Hence, subareas contained some acreage in all of the land categories. Inclusion of predominantly standard acreage was the primary subarea criterion for areas with high timber resource character.

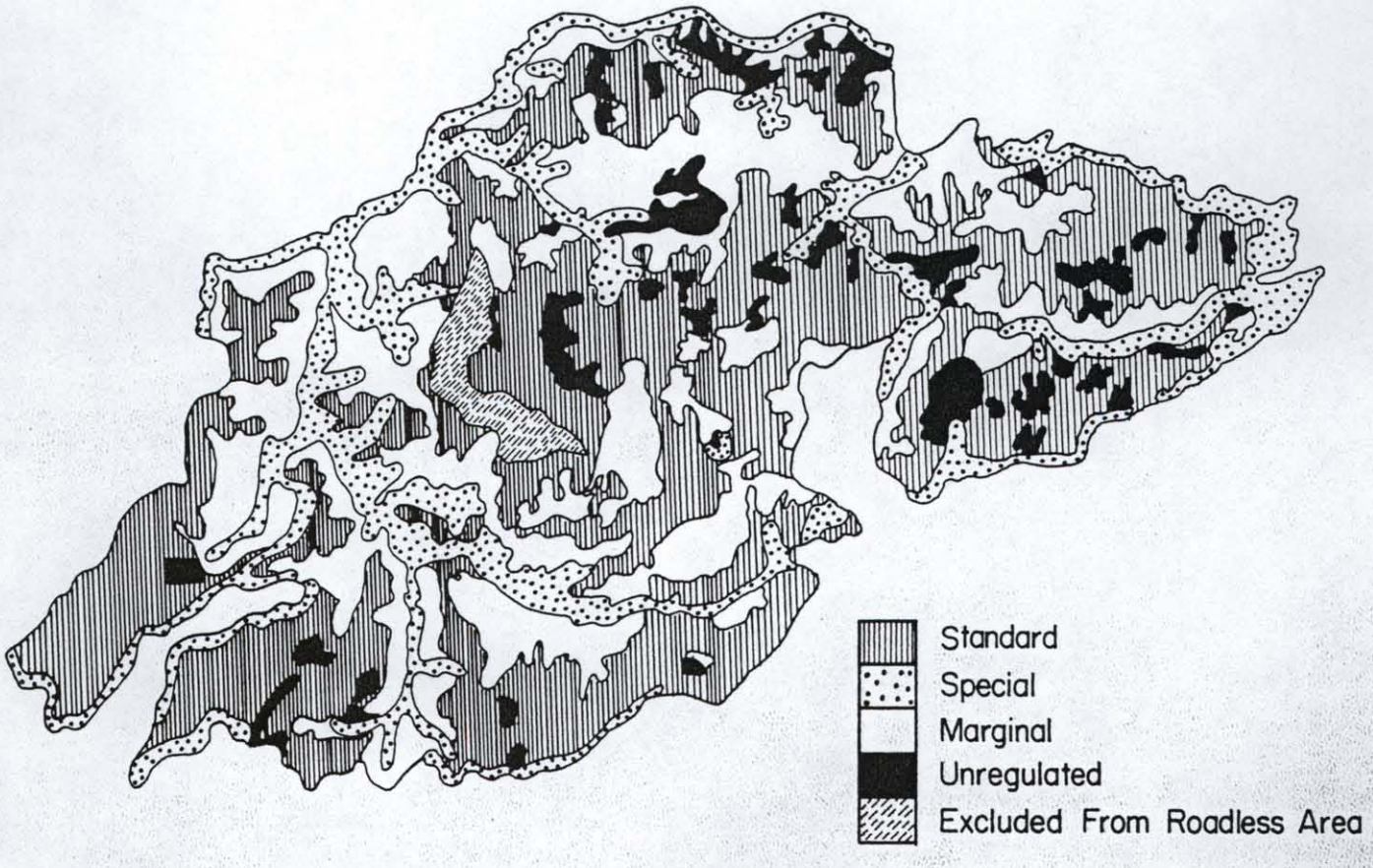

Fig. 1. Acreage by Land Class, Bighorn-Weitas Roadless Area

DESCRIPTION OF THE AREA

The Bighorn-Weitas area has 271,632 acres by planimeter. A planimetered acreage measurement was used in lieu of estimates from other sources to be consistent with the subarea acreages. Next to the Sulphur (4066) and Mallard Larkin (1300) roadless areas, the Bighorn-Weitas is the third largest National Forest roadless area inventoried by the USDA Forest Service in Idaho.

The acreage breakdown by land classification is given in Table 1. Standard acreage comprised 46 percent of the total area followed by marginal (29%) and special (19%). Figure 1 illustrates how these acres are geographically distributed within the area. Table 1 also gives the estimated sawtimber board foot growing stock volumes by land classification as reported in the Clearwater National Forest inventory. Standard lands contain in excess of 1.1 billion board feet followed by marginal (.72 billion), special (.31 billion), and unregulated (.017 billion).

Table 1. Acreage and growing stock volume by land classification, Bighorn-Weitas roadless area, Idaho.

Land class	*Total acres*[a]	*Percentage*	*Sawtimber board foot growing stock x 10^6*
Standard	123,613	46	1,131.1
Special	52,163	19	306.1
Marginal	79,936	29	715.6
Unregulated	15,920	6	16.7
Total	271,632	100	2,169.5

[a] Planimetered

ANALYSIS

The estimated annual sawtimber programmed harvest from the growing stock volume given in Table 1 is 36.4 MMBF (USDA Forest Service 1978). Using a labor coefficient of 16.17 per MBF (McKetta et al. 1978), this programmed annual harvest volume represents 588.6 jobs in Nez Perce, Lewis, Idaho and Clearwater counties. If the total area were designated wilderness, timber management would be precluded, and the programmed harvest calculation base eliminated. These jobs would then be lost within the multicounty area.

Measured in timber values forgone, wilderness designation of the entire Bighorn-Weitas would amount to $2.98 million annually. This value is obtained by multiplying programmed annual harvest by $82.00/MBF, the estimated average sawtimber stumpage price (net of development costs) used by the USDA Forest Service for the Bighorn-Weitas area.

The Bighorn-Weitas subarea boundaries were redefined to reduce the conflict with timber by delineating areas containing contiguous blocks of acreages in the different land classifications. Subareas containing largely standard acreage might be considered for non-wilderness status, while subareas containing predominantly special and marginal acreages may be more appropriately considered wilderness. Again, the criteria for delineation must be more complete in actual application.

We redefined the Bighorn-Weitas area as six subareas, (1306-1 through 1306-6), all exceeding the 5,000 acre minimum size (Fig. 2). Subareas 1, 2, 4 and 6 contain predominantly standard acreages and would have a higher timber resource per acre tradeoff than subareas 3 and 5 which contain substantial acreages in the special and marginal categories.

Table 2 gives the acreage breakdown, the corresponding apportioned growing stock, the programmed harvest by subareas, estimated jobs and resource values. The subareas were then ranked by fewest jobs and resource value impacts. Because of the subdivision criteria, subareas 3 and 5 clearly have less impact on a per acre basis than the other subareas.

Table 3 shows the cumulative changes in jobs and resource values as all subareas are incrementally considered for wilderness designation by the ranking given in Table 2. Subarea 3 was ranked first, with lowest impact per acre, resulting in an employment impact of 94.1 jobs and $480,000 annually in resource value. If both subareas 3 and 5 should become wilderness, 159.9 jobs and $810,000 annually in resource value would be affected (Table 3). If all subareas were designated wilderness the total impact would amount to 588.6 jobs and $2.98 million annually (Table 3).

SUMMARY

This study briefly documents the idea that present roadless area boundaries need not be cast in stone. Much can be done to reduce or resolve the economic roots of allocation conflict bound to emerge from the wilderness designation process. We have presented just one of the numerous ways of subdividing areas to accomplish this objective. We used criteria based on administratively defined land classifications. Results clearly indicate that individual subarea evaluation, facilitated by redefining area boundaries according to resource distribution, could substantially reduce the employment and resource value conflict.

Table 2. Acreage, growing stock and impacts by subareas, Bighorn-Weitas Roadless Area.

Subareas 1306-	*Land class*	*Acres*	*Growing stock (apportioned)*[a]	*Programmed harvest sawtimber potential*[a]	*x 16.17 (Total jobs sawtimber only)*	*Jobs per acre*	*Resource value/acre $*	*Rank (lowest per acre value is 1)*
1	Stand	10,779	98.6	2.55				
	Special	2,054	12.1	.10				
	Marginal	449	4.0	.03				
	Unregulated	118	.1	0				
	Total	13,400	114.8	2.68	43.3	.0032	16.00	6
2	Stand	10,002	91.5	2.37				
	Special	2,574	15.1	.12				
	Marginal	637	5.7	.04				
	Unregulated	919	1.0	0				
	Total	14,132	113.3	2.53	40.9	.0029	15.00	5
3	Stand	12,298	112.5	2.91				
	Special	20,050	117.7	.97				
	Marginal	33,832	302.9	1.94				
	Unregulated	220	.2	0				
	Total	66,400	533.3	5.82	94.1	.0014	7.00	1
4	Stand	57,612	527.2	13.65				
	Special	9,758	57.3	.47				
	Marginal	17,063	152.8	.98				
	Unregulated	3,854	4.0	0				
	Total	88,287	741.3	15.10	244.2	.0028	14.00	4
5	Stand	10,745	98.3	2.55				
	Special	5,549	32.6	.27				
	Marginal	21,841	195.5	1.25				
	Unregulated	5,608	5.9	0				
	Total	43,743	332.3	4.07	65.8	.0015	8.00	2
6	Stand	22,177	202.9	5.26				
	Special	12,178	71.5	.59				
	Marginal	6,114	54.7	.35				
	Unregulated	5,201	5.5	0				
	Total	45,670	334.6	6.20	100.3	.0022	11.00	3
Grand Total		271,632	2,169.5	36.40	588.6			

[a] The growing stock and programmed harvests are apportioned between land categories.

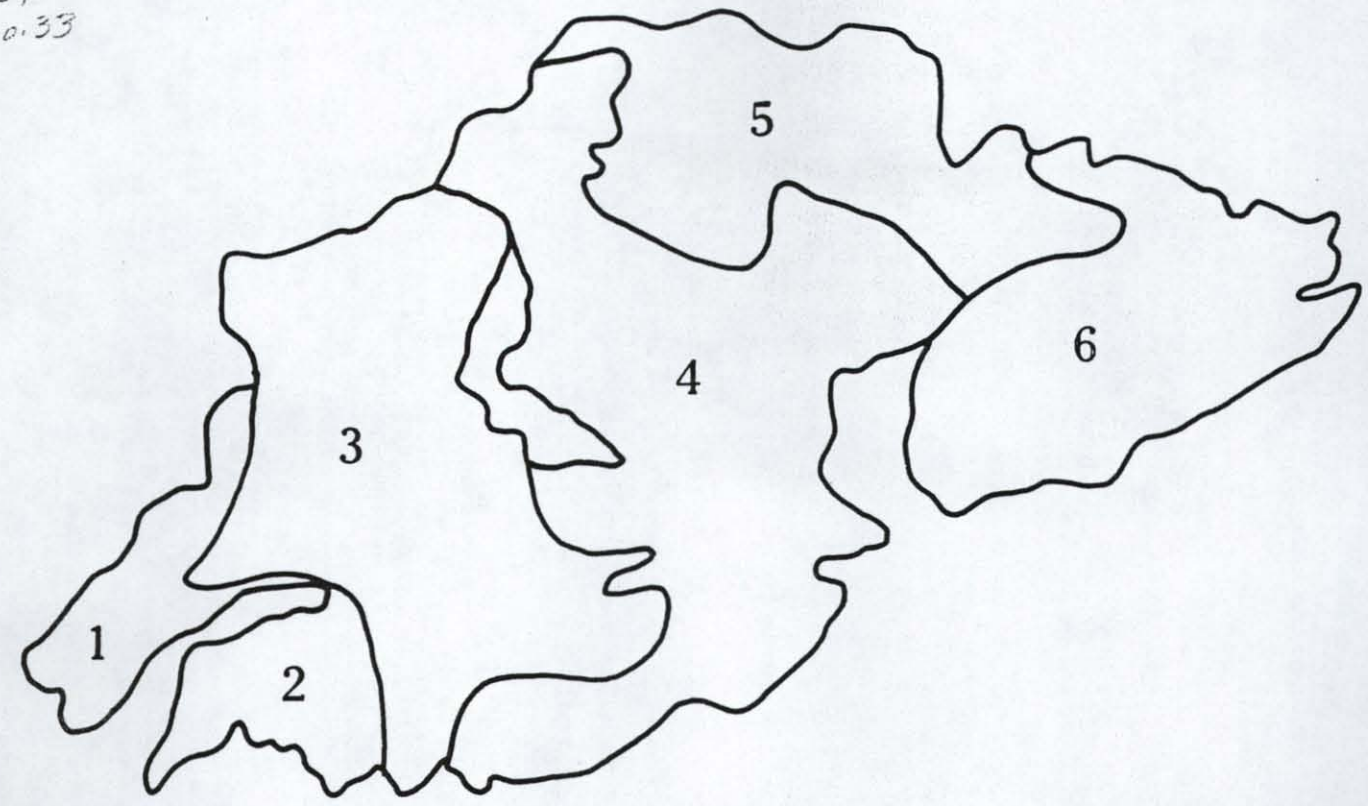

Fig. 2. Redefinition of Bighorn-Weitas Roadless Area Boundaries

Table 3. Cumulative changes in employment and resource values as Bighorn-Weitas subareas are incrementally designated wilderness.

Rank (lowest per acre cost is 1)	*Subareas (1306-)*	*Opportunity cost estimates*	
		Employment (No. jobs)	*Annual programmed harvest value (MM $)*
1	3	94.1	.48
2	5	159.9	.81
3	6	260.2	1.32
4	4	504.4	2.56
5	2	545.3	2.77
6	1	588.6	2.98

LITERATURE CITED

McKetta, C.W., C.R. Hatch, E.L. Medema and K.A. Christophersen. 1978. The RARE II process in Idaho: A procedure for evaluating resource tradeoffs. Forest, Wildl. and Range Exp. Sta., Misc. Publ. No. 5. Univ. of Idaho, Moscow. 61 pp.

USDA Forest Service 1978. Idaho Supplement to Roadless Area Review and Evaluation RARE II. Draft Environmental Impact Statement USDA-FS-WO FY 78-04. Washington, D.C., 77 pp. and appendices.