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Timber Net Value and Physical Output Changes Following Wildfire in the Northern Rocky Mountains: estimates for specific fire situations

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IN BRIEF . . .

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Retrieval Terms: fire effects, economies-to-scale, fire size, timber management regime

Estimates of timber net value change due to wildfire are sensitive to characteristics of the fire site, fire severity, and the timber management regime. Reflecting this sensitivity in value change estimates requires detailed data collection and computations. For this reason, the variability of the timber resource must be considered in detail when fire management programs are analyzed. The extensive data collection and computation efforts necessary to incorporate this required detail are generally not possible under the constraints of escaped fire situation analysis and may not be possible under long-term fire management planning situations if analytical resources are limited.

An efficient alternative to estimating site-specific net value change is calculating changes in timber net value and timber output at a centralized location for a variety of nonsitespecific fire and management situations. The resulting estimates can then be consolidated and used in the form of reference tables representing the likely range of fire and management situations. This approach eliminates the inefficiency of duplicating site-specific calculations, and the detailed data are preferable to highly aggregative potential loss averages that are applied to broad heterogeneous areas. These highly aggregative estimates do not adequately reflect variability in the resource base and management regimes, which materially affect the net value changes.

Estimates of the timber net value change and timber output change resulting from wildfire were calculated for 9828 situation-specific fire and management conditions in the northern Rocky Mountains. After slight aggregation across the less sensitive situation parameters, reference tables with estimates of net value change and timber output change were prepared for 1764 roaded situations. They are defined by timber management emphasis, cover type, productivity class, stand size, mortality class, and fire size, with adjustments for access status.

INTRODUCTION

In the last decade, the fire management program of the Forest Service, U.S. Department of Agriculture, has come under closer scrutiny because of ever-rising program costs. The Forest Service has responded by conducting several studies analyzing the economic efficiency of its fire management program. Some components of the analytical models have been difficult to develop, particularly changes in the net value and output of timber caused by wildfire.

The timber net value change calculation can be complex because of the long timber production time and the substantial impact of the management context on the timing of management costs and harvests. The timber computation is critical, because the change in the timber resource accounts for a large share of the total net value change due to fire: nationwide, 60 percent on National Forest land and 75 percent on State protected lands (U.S. Dep. Agric., Forest Serv. 1980, 1982).

Numerous approaches have been proposed for estimating timber net value change (Flint 1924, Lindenmuth and others 1951, Mactavish 1966, Marty and Barney 1981, Van Wagner 1983). The computations vary substantially in how they reflect fire-caused changes in both the magnitude and timing of the management costs and harvests, and in how certain conceptual issues, such as the substitution of unburned for burned timber, are addressed. For example, a relatively simple formulation of the timber net value change calculation ignores price differentials between green and salvaged timber, and the possibility for retention and future harvest of partially destroyed immature timber stands (Schweitzer and others 1982). On the other hand, one of the more complete formulations includes harvest timing differentials in immature stands, salvage and green price differentials, and adjustments in the management costs required if the fire removes a natural seed source (Mactavish 1966).

Although these past studies include ample discussion of methodology, the estimates of timber net value change they contain are only illustrative and too few to demonstrate how the net value change behaves under a wide range of circumstances. Therefore, we calculated change in timber net value and in timber output due to wildfire for a broad range of specific fire and management situations.

This paper summarizes trends in estimates of timber net value changes and timber output changes due to wildfire for 1764 roaded situations in the northern Rocky Mountains. Actual values are listed in extensive reference tables and have four potential uses (Mills 1983): (1) analyses of long-term fire management program options, such as those in the National Fire Management Analysis and Planning Handbook (U.S. Dep. Agric., Forest Serv. 1982) or the Fire Economics Evaluation System (Mills and Bratten 1982); (2) establishment of fire dispatching priorities; (3) analysis of escaped fire situations where extensive calculations are often difficult to accomplish because of the real-time demands of the decision process (U.S. Dep. Agric., Forest Serv. 1981; Seaver and others 1983); and (4) analysis of long-term harvest schedules when fire-caused changes in timber yields are required.

METHODS

Calculating Net Value Change

Net value change is the difference between the present net value of resource outputs and management costs "without fire" and the present net value "with fire":

$$NVC = PNV_{w/o} - PNV_{w}$$

in which

NVC = net value change

PNV_{w/o} = present net value without fire PNV_w = present net value with fire

According to this definition, a fire that produces a net gain in present value has a negative NVC and one that produces a loss of value has a positive NVC.

Because the NVC is a present value calculation, any change in the magnitude or timing of the management costs, the harvests, or the stumpage prices affects the NVC. Analysis of the sensitivity of NVC to the completeness with which the fire-caused impacts on these quantities were represented in computations for 24 timber cases in the northern Rocky Mountains, showed that a fairly complete representation of the fire-caused change was necessary to avoid major errors in the estimate (Mills and Flowers 1983).

The computational model used in the present study contains three types of terms: (1) the existing rotation costs and harvest values, (2) the regenerated rotation costs and harvest values, and (3) one-time costs or revenues created by fire, such as salvage values. The generalized form of the computation was

1

PNV _{w/o} =	PNV of infinite series final harvests in regenerated stand	***	PNV of infinite series management costs in regenerated stand	÷
	PNV of harvests in existing stand	-	PNV of management costs in existing stand	
PNV _{w/} =	PNV of infinite series final harvests in regenerated stands following fire	_	PNV of infinite series management costs in regenerated stands following fire	÷
	PNV of timber sal- vaged following fire	-	PNV of management cost in existing stand	+
	PNV of residual timber remaining after fire		PNV of any single rotation difference in management costs following fire	

Not all terms are included in every fire case. For example, the one-time change in regenerated rotation management costs, (such as the removal of a scheduled site preparation because the fire essentially accomplished the site preparation because the fire essentially accomplished the site preparation, or the inclusion of a planting rather than a natural regeneration because the fire removed the seed source) only enter the computation if the stand size, stocking, fire size, and tree mortality are of certain levels. Similarly, the salvage transaction enters the computation only under certain conditions of stand size, volume per acre, and fire size. The first two terms make the with- and without-fire cash flows comparable despite dissimilar rotation lengths or unmatched sequencing of without- and with-fire rotations.

A major assumption imbedded in our net value change computation concerns the geographic area from which the fire-induced change in the resource output is measured. Two options exist: measuring the effect on only the fire site plus direct physical and biological effects offsite (Althaus and Mills 1982); or measuring the effects on the entire management area or market area in which the fire occurs (Van Wagner 1983). Our analysis measured the fire-induced changes on the fire site only because the fire site analysis most closely reflects the impact of fire on the basic productivity of the timber growing site, relatively unencumbered by management constraints.

Timber net value change was estimated at three discount rates: 4.0, 7.875, and 10.0 percent. The 4.0 percent rate was an approximation of the real return on investments in the private sector (Row and others 1981), and is being used by the Forest Service in land management planning; 7.875 percent was the 1983 discount rate for Federal water project evaluations (U.S. Dep. Agric., Soil Conservation Serv. 1982); and 10 percent was the rate recommended by the U.S. Office of Management and Budget (1972) as the real rate of return on investments in the private sector.

In addition to the timber net value change, we calculated the timber output change for the first 200 years following-fire. Timber output change is the difference between the scheduled timber yield without fire and with fire.

Scope of Analysis

The analysis was structured to evaluate situation-specific cases defined by a combination of values for the following parameters that characterize the fire site, the timber management context in which the fire occurs, and the fire severity: access, slope, management emphasis, cover type, productivity, stand size, fire size, and mortality. After removing parameter combinations not generally found in the northern Rocky Mountains, such as passive private management on high productivity sites, we estimated net value change for 9828 separate situations.

This situation-specific approach, rather than a site-specific analysis, was followed because of the required model complexity and its associated data demands. Errors that will result from extrapolation of these situation-specific estimates to particular sites is expected to be far less than the errors that would result from incomplete model specification or poor data input that would likely occur if the computations were for site-specific conditions with limited analysis resources.

Sources of Data

Four categories of data were required: timber management regimes, timber yields, silviculture treatment costs, and stumpage prices. Most of the data were derived from National Forest sources in the Forest Service's Northern Region (northern Idaho and Montana). The data were developed to follow as closely as possible the input used in land management planning, thereby increasing the applicability of the results to long-term planning on National Forest lands.

Four sets of timber management regimes were developed from selected land management plans in the Northern Region and on recommendation from the Regional silvicultural staff (Wulf 1982): one each for "moderate intensity public," "intense public," "passive private," and "intense private" timber management. The regimes differ in the form of stand establishment, the number of commercial and precommercial thinning entries, rotation age, and the acreage of the withoutfire harvest area. Sample data for fire situations in Douglasfir are in *table 1*.

The moderate intensity public regime reflects a generally nontimber resource objective but where limited commercial timber harvesting still occurs. Rotations are generally extended beyond the culmination of mean annual increment. There are no precommercial thinnings and only one commercial thinning, if one is commercially viable. In the intense public regime, commercial timber harvesting is the primary objective, but here too, the multiple-use management philosophy affects the regime. The rotation approximates or precedes the culmination of mean annual increment. There is a

Management emphasis, productivity class, and rotation	Precommercial thinnings ¹	Commercial thinnings ¹	Year of final harvest ²	Mean annual increment ²
				cu ft/acre/yr
Moderate public				
Low				
Existing	0	1	170	14
Regenerated	0	I	125	70
High				
Existing	0	1	140	30
Regenerated	0	1	118	95
Intense public				
Low				
Existing	1	I	145	15
Regenerated	1	1	114	67
High				
Existing	1	2	115	35
Regenerated	1	2	98	96
Passive private				
Low				
Existing	0	0	101	17
Regenerated	0	0	91	70
Moderate				
Existing	0	0	101	23
Regenerated	0	0	77	60
Intense private				
Low				
Existing	I	0	101	15
Regenerated	1	0	85	68
High				
Existing	1	1	101	38
Regenerated	1	I	63	102

Table 1-Selected Douglas-fir management regime and yield characteristics.

^tNumber of precommercial and commercial thinnings in existing rotation regimes. The actual number in each analysis case was a function of existing stand age at time of fire, i.e., stand age for the cover type and stand size class, and scheduled thinning age.

²Mean annual increment was calculated from the sum of the harvest volumes divided by rotation age. First rotation harvest age and mean annual increment are for sawtimber stands only.

precommercial thinning and one or two commercial thinnings, depending on commercial viability.

The passive private regime assumed a final harvest will be the only management activity after stand establishment. The rotation age approximated the financially optimum age and was estimated using the CHEAPO supplement (Medema and Hatch 1982) of the Prognosis timber growth model (Wykoff and others 1982). For the intensive private regime, the rotation age is also set to approximate the maximization of present net worth but in the presence of precommercial thinning and up to two commercial thinnings.

Timber yield estimates for the regenerated or second rotation were developed from a Prognosis projection of 212 sample stands from selected National Forests in the Northern Region, a subset of the sample stands that were used to develop yield estimates for land management planning. Projected yields for individual stands were aggregated into 96 yield sets by cover type, productivity class, and management emphasis. The existing or first rotation yields for existing seedling/sapling and poletimber stands were derived through a percentage reduction of the second rotation yields. This percentage reduction reflects the less intensive management of the existing seedling/sapling and poletimber stands. The first rotation yields for existing sawtimber stands were derived empirically from inventory data on existing sawtimber stands. This derivation implicitly assumes that current seedling/sapling and poletimber stands will, at maturity, more closely resemble the Prognosis projection than the existing sawtimber stands. Viable commercial thinnings were identified using the Northern Region's thinning default option in the Prognosis model.

The cost of silvicultural treatments, such as site preparation, planting, and precommercial thinning, were derived from equations developed from silvicultural service contracts let in the Northern Region from 1975 through 1978 (Mills and others 1985). The only variable retained in the equations was acres treated. The other variables were collapsed into the intercept by setting them equal to their mean sample values. This simplified equation form still permitted a reflection of the economies-of-scale found in larger treatment areas. Real



Figure 1—Generalized data were adjusted for individual cases according to decision rules.

increase in treatment cost was assumed to be 1 percent per year through 2030. Costs were held constant thereafter.

Green stumpage price estimates were drawn from regression equations developed from transaction data for 790 Northern Region timber sales on National Forest land (Merzenich 1982), from September 1977 through December 1982. Size of harvest area also influences the green stumpage price through a variable for the total volume of the sale, thus interjecting another scale economy influence. Real stumpage prices increased over time to the year 2030, as a function of lumber price and production cost projections (Adams and Haynes 1980). Real prices were assumed constant after 2030.

The decision to salvage and the subsequent price of the salvage sale were derived from equations based on salvage sale transaction data in the Northern Region (Loveless and Jackson 1983). The salvage sales database extended from 1970 through 1980. The decision to salvage was strongly affected by accessibility and the total fire size. The price of advertised salvage sales was set at 53 percent of the comparable green timber price. Unadvertised salvage sales were sold at the "green slip" price of \$1 per 1,000 board feet.

Management regimes, timber yields, treatment costs, and stumpage prices were adjusted using a number of internalized decision rules that considered characteristics of individual analysis cases (*fig. 1*). For example, the decision to retain a partially destroyed stand was based on a comparison of the postfire stocking with minimum stocking standards for manageable stands. This methodology permitted a fairly efficient analysis while still addressing appropriate adjustment for individual case differences. The individual transactions in the regime were developed using the regime, yield, cost, and price information, adjusted by the internalized decision rules. The net value change was then estimated using the SASSY financial return computer program (Goforth and Mills 1975).

EXAMPLES OF ANALYSIS CASES

The net result of combining the varied and numerous types of data used in this analysis can most easily be seen through several illustrative cases. Although not a statistical sample, these cases represent some of the important patterns of behavior in the timber NVC calculations. Four illustrative cases are presented in detail.

The first case represents a seedling/sapling stand that was retained after fire and then interplanted to raise stocking to an acceptable level *(table 2)*. The stand was retained because the minimum stocking standard was met. The number of trees per acre was low enough, however, to require an interplanting. Because of interplanting, the timing of future harvests was delayed by 14 years. When combined with the cost of interplanting, this extension of the rotation caused a net loss due to fire. Net timber output did not change due to fire in this situation. It is the change in timing of transactions along with cost differences, not the magnitude of the loss in yield, that causes a net value change when fire occurs.

The second case illustrates nonretention and no salvage after a high-mortality fire of moderate size in a poletimber stand *(table 3)*. This stand did not have sufficient stocking after the fire to be retained. Based on stand conditions for average diameter at breast height (d.b.h.) and dead volume per acre, no salvage harvest occurred. Establishment of the new postfire stand was delayed by 5 years. This same 5-year delay affected all subsequent with-fire transactions as well. This situation showed a net loss resulting from the foregone without-fire final harvest benefit that would have occurred 40 years hence, and because the loss was not offset by a with-fire salvage harvest.

The third example case also shows nonretention for a moderate size fire of high mortality in a poletimber stand, but volume and d.b.h. were sufficient to support a salvage harvest (table 4). The stand was not retained after fire due to failure of the postfire stand to meet the minimum stocking standards. The determination of whether to sell the salvage harvest as an advertised or unadvertised sale was affected by the average d.b.h. of the stand and the size of the fire. In this case, dead volume was sold as an unadvertised sale at \$1 per 1,000 board feet. The final price of the salvage was a weighted average of the live volume at a comparable green timber bid price and the dead volume at the unadvertised "green slip" price. The with-fire stand was salvaged at a weighted bid price (\$4 per 100 ft³ of timber), which was much lower than the full final harvest price (\$41 per 100 ft3) of the without-fire stand just 14 years in the future. The fire causes a reduction in the amount

Table 2—*Example of a Douglas-fir seedling/sapling stand that was retained after fire and interplanted* Description: < 40 percent slope, very low productivity, moderate intensity public management, 10-99 acres, 60+ percent mortality, roaded Decisions: retained, interplanted

Years since fire	Harvest	Price	Benefit	Cost	Repetition cycle	Description
	100 cu ft/acre	\$/100 cu ft	\$/ac		Years	
	-		With	out fire		
63	10	151	1,510		0	First commercial thin
148	73	183	13,359		0.	Final harvest
149				392	141	Site preparation
234	12	141	1,692		141	First commercial thin
289	78	186	14,508		141	Final harvest
			Wit	h fire		
1			······	251	0	Interplant
76	10	151	1,510		0	First commercial thin
161	73	183	13,359		0	Final harvest
162			·	392	141	Site preparation
247	12	141	1,692		141	First commercial thin
302	78	186	14,508		141	Final harvest

Physical output change: 0 (total for first 200 years in 100 cu ft/acre)

Net value change: 307 (1978 dollars/acre at 4 pct discount rate)

Table 3—*Example of a poletimber stand that was not retained after fire and was not salvaged* Description: <40 percent slope, low productivity, intense private management, 10-99 acres, 60+ percent mortality, roaded Decisions: not retained, not salvaged

éars since fire	Harvest	Price	Benefit	Cost	Repetition cycle	Description
	100 cu ft/acre	\$/100 cu ft	\$/ac	:re	Years	
			With	out fire		
40	49	105	5,194		0	Final harvest
42				1,24	85	Plant
55				129	85	Precommercia thin
125	57	134	7,638		85	Final harvest
			Wit	h fire		
7				88	85	Plant
20				50	85	Precommercial thin
90	57	134	7,638		85	Final harvest

Net value change: 964 (1978 dollars/acre at 4 pct discount rate)

of site preparation required with an associated cost reduction of \$70 per acre. This site preparation cost adjustment is a benefit due to fire. The net impact of these forces was a loss of value.

The fourth case represents a sawtimber stand with moderate mortality after a large fire *(table 5)*. In this situation, the net gain results from economics-of-scale and the truncation of an otherwise uneconomical without-fire regime. The postfire stand was not retained after the fire due to insufficient stocking, but stand conditions were adequate to support a postfire salvage harvest. The economies-of-scale associated with a large fire size led to increases in the salvage price and reductions in the stand establishment costs. The per acre costs of site preparation and planting were less with the large burned area (2088 acres) than they would be with the smaller management area (35 acres). The intense public regime in this case had a rotation age that extended beyond the financially optimum age with respect to timber values. The fire reduced the final harvest age to a point nearer the financial optimum. While fire may have had a detrimental effect on nontimber outputs, it had a positive financial impact on the timber output. Table 4-Example of a poletimber stand that was not retained after fire but was salvaged Description: < 40 percent slope, moderate productivity, passive private management, 10-99 acres, 60+ percent mortality, roaded

Years since fire	Harvest	Price	Benefit	Cost	Repetition cycle	Description
	100 cu ft/acre	\$/100 cu ft	\$/ac With	out fire	Years	
14	44	41	1,804		0	Final harvest
15				94	79	Site preparation
93	63	114	7,182		79	Final harvest
			Wit	h fire		
1	33	4	132		0	Salvage harvest
2				83	79	Site preparation
83	63	114	7,182		79	Final harvest
2			70		0	Site prepara- tion cost adjustment

Decisions: not retained, salvaged, site preparation cost adjusted

Physical output change: 11 (total for first 200 years in 100 cu ft/acre) Net value change: 794 (1978 dollars/acre at 4 pct discount rate)

Table 5-Example of a sawtimber stand that was salvaged after fire Description: <40 percent slope, high productivity, intense public management, 100+ acres, 30-59 percent mortality, roaded

Decisions: not retained, salvaged, site preparation and planting costs adjusted

Years since					Repetition							
fire	Harvest	Ргісе	Benefit	Cost	cycle	Description						
	100 cu ft/acre	\$/100 cu ft	\$/ac	re—	Years							
	Without fire											
14	40	45	1,800	0	0	Final harvest						
15				137	98	Site preparation						
17				211	98	Plant						
32				271	98	Precommercial thin						
57	3	79	237		98	First commercial thin						
77	12	129	1,548		98	Second commer- cial thin						
112	79	164	12,956		98	Final harvest						
			Wit	h fire								
1	39	32	1,248		0	Salvage harvest						
2				121	98	Site preparation						
3				184	98	Plant						
18				236	98	Precommercial thin						
43	3	66	198		98	First commercial thin						
63	12	129	1,548		98	Second commer- cial thin						
98	79	164	12,956		98	Final harvest						
2				90	0	Site preparation cost adjustment						
3				116	0	Planting cost adjustment						

Physical output change: -78 (total for first 200 years 100 cu ft/acre) Net value change: -376 (1978 dollars/acre at 4 pct discount rate)

RESULTS

Specific cases for which timber net value and output changes were calculated were described by the following parameter classes:

Classes
Moderate public
Intense public
Passive private
Intense private
Douglas-fir
Ponderosa pine
Western white pine
Fir-spruce
Hemlock
Larch
Lodgepole pine
High (120+ cu ft/acre/yr)
Moderate (85-119 cu ft/acre/yr)
Low (50-84 cu ft/acre/yr)
Very low (20-49 cu ft/acre/yr)
Seedling-sapling
Poletimber
Sawtimber
1-29 percent
30-59 percent
60+ percent
1-99 acres
100+ acres

Slope and access parameters were originally included in the computations. To reduce the volume of the results, the original 9828 estimates were aggregated by calculating the mean of the two original estimates for slope class. The resolution lost by this aggregation had little impact on the results. The access parameter was handled in a similar way. This aggregation led to estimates for 1764 "roaded" situations and adjustment factors that can be used to estimate the corresponding 1764 "unroaded" situations. The *appendix* lists estimates of timber net value change and timber output change due to fire for the aggregated set of 1764 fire situations under roaded conditions.¹ It also lists the adjustment factors.

The following is a discussion of the aggregated set of 1764 "roaded" situations. General trends within the full set of 9828 situations (Mills and Flowers 1984) and detailed results of a small set of the ponderosa pine and lodgepole pine situations (Mills and Flowers, In press) are discussed elsewhere.

Timber Net Value

Patterns exist in the net value change results but estimates vary significantly among the specific fire situations. The timber net value changes averaged \$190 per acre burned, but they ranged from a net loss of \$2132 per acre to a net benefit of \$-1545 per acre. The majority of the net value changes were net losses, i.e., positive net value changes. Net losses occurred in 82 percent of the situations discounted at 4 percent, and 18 percent of the situations showed net gains. Most situations having a net gain were large fires in sawtimber stands. These net benefits are due to economies-of-scale in stand establishment costs, salvage harvest revenues, and sometimes the truncation of uneconomically long rotations.

The various situation parameters had different impacts on net value change. Management emphasis, stand size, fire size, and mortality rate had major effects. The effect of cover type and productivity class on the estimates was not well defined. Ultimately, it is the combination of the effects or interactions among these parameters that explains the variability among cases.

Management emphasis affected net value change through the sequence and timing of transactions. The timing and sequence of transactions are defined by management emphasis but can be altered by fire. The moderate public management emphasis had the lowest average net value change, \$101 per acre burned. The average net change given intense public management was almost twice as large on average, \$196 per acre. The passive private and the intense private had average net changes of \$173 and \$318 per acre, respectively.

Timber net value changes varied by cover type; lodgepole pine displayed the least average net value change and hemlock the greatest (*fig. 2*). Cover type affected net value change



Figure 2—Timber net value changes varied by cover type due to differences in diameter at breast height, stand age, volume and stocking per acre, treatment costs, and stumpage values.

¹Estimates for the original 9828 situations are available on magnetic computer tape on request from: Patricia B. Shinkle, Pacific Southwest Forest and Range Experiment Station, 4955 Canyon Crest Drive, Riverside, California 92507.

because of differences in d.b.h., stand age, volume per acre, stocking per acre, costs, and stumpage values. Existing stand conditions varied by cover type and productivity class with slight adjustments for management emphasis. This existing stand information came from existing National Forest inventory data.

Site quality affected net value change. Higher quality sites had greater timber volumes at risk which led to greater losses when fires occurred. Overall, high quality sites showed greatest average net value change (\$264 per acre), followed by moderate sites (\$241), low sites (\$147), and very low sites (\$106).

Stand size also significantly affected net value change. Poletimber stands had the highest average net change at \$290 per acre burned. Seedling/sapling stands had an average net value change of \$148, and sawtimber stands had a similar change of \$133. Losses in the seedling/sapling stands were generally associated with interplanting costs and delay in harvests. Losses in poletimber stands occurred when the fire removed previously scheduled commercial thinnings or the fire led to nonretention with no salvage harvest. The foregone final harvest in the sawtimber stands was much nearer in the future than in the other two stand sizes, so the foregone present value of the without-fire regime was greater. Part of the loss in sawtimber stands was offset by salvage revenues.

The impact of mortality rate on net value change varied by stand size. Mortality rate had a major impact on the net value change in the seedling/sapling stands because the decision to retain a stand after fire and whether to interplant was determined by postfire stocking. This interplanting cost or delay in harvests caused a net loss when fire occurred. Poletimber stands showed an even greater sensitivity to mortality rate. Poletimber stands were usually retained in low mortality situations, but net losses may still have occurred due to elimination of a previously scheduled commercial thin. At higher mortality rates, the postfire poletimber stand was generally not retained and often the stand was not salvageable. Net losses increased with mortality rate in sawtimber stands too. At moderate and high mortality rates sawtimber stands were usually not retained due to insufficient stocking, but stand conditions were often sufficient for a salvage harvest. The potential for salvage existed at all mortality rates in sawtimber stands, but the proportion of green timber available decreased as the mortality rate increased. At lower mortality rates a salvage harvest may take place, as well as a final harvest of reduced volume.

The impact of the fire size on net value change differed by stand size:

	Average loss per acre when fire size was					
Stand size	1-99 acres	100+ acres				
	Dol	llars				
Seedling/sapling	148	148				
Poletimber	331	248				
Sawtimber	237	27				

Losses in the large fire situations were generally less than those in small fire situations due to the economies-of-scale in salvage prices and stand establishment costs.

Timber Volume

The change in the timber output was the net change in yields between the without-fire and the with-fire situations. The results for the change in yields in the first 200-year time period showed much of the same variability across the parameters as did the net value change. The timber output changes ranged from a gain of 49 cu ft/acre/year to a loss of 75 cu ft/acre/year during the first 200 years after the fire. The overall average across all the situations analyzed was 0.97 cu ft/acre/year.

The effect of the situation parameters on the timber output changes varied greatly, with mortality rate showing a strong impact, and cover type and management emphasis having less impact. Timber output changes were the same for all productivity classes except the highest site, and the same for all stand sizes except sawtimber. Fire size had no impact on the physical changes.

CONCLUSIONS

The estimates of net value changes and changes in timber output are sensitive to the fire situation and stand classification parameters in various ways. It is the interaction of these parameters that causes the great variability among the cases. Because of this variability situation-specific estimates should be used when describing net value changes, instead of estimates for highly aggregated situations. Use of the situationspecific estimates presented in the reference tables also eliminates the cost of the repetitive calculations needed to produce site-specific estimates.

APPENDIX

Net value change estimates are listed for three discount rates (4.0, 7.875, and 10 percent) (tables 1A-28A). Timber output changes are given (tables 1B-28B) for the same fire situations for which net value change was estimated. These output changes are measured in ft³/acre/year for four different time periods (0-24, 25-49, 50-99, 100-200 years) and a total for the first 200 years of the analysis. Positive values in the tables represent net losses due to fire. Negative values represent net benefits due to fire.

The net value change estimates are presented in 1978 dollars because that was the base year for National Forest planning at the time the study was started. Implicit GNP deflators can be used to convert the net value change estimates from 1978 dollars to estimates for other years from 1972 to 1984:

Year	Deflator
1972	100.0
1973	105.8
1974	115,1
1975	125.8
1976	132.3
1977	140.1
1978	150.4
1979	163.4
1980	178.6
1981	195.5
1982	207.2
1983	215.3
1984	223.4

Given a timber net value change of \$150 per acre burned in 1978 dollars, to determine the net value change in 1980 dollars, set up a ratio between the 1980 deflator of 178.6 and the 1978 deflator of 150.4. Multiply this ratio, 178.6/150.4 or 1.19, by the \$150 per acre burned in 1978 dollars for a timber net value change of \$178.5 dollars per acre burned in 1980 dollars.

To locate a particular fire situation in the tables, identify the management emphasis and cover type, then use the following index to locate the appropriate table:

Management emphasis										
Moderate public	Intense public	Passive private	Intense private							
	(table nu	mber)								
1	8	15	22							
2	9	16	23							
3	10	Í7	24							
4	11	18	25							
5	12	19	26							
6	13	20	27							
7	14	21	28							
	Moderate public 1 2 3 4 5 6 7	Management Moderate Intense public public (table nu 1 8 2 9 3 10 4 11 5 12 6 13 7 14	Management emphasisModerateIntensePassivepublicpublicprivate(table number)(table number)181529163101741118512196132071421							

The following example shows how to locate the net value change at the 4 percent discount rate for a fire situation described as follows:

Management emphasis—"moderate public" Cover type—ponderosa pine Productivity—low Stand size—poletimber Mortality—60 percent plus Fire size—100 acres or more Access—roaded

The index shows that the fire situation is in *table 2*. In *table 2A*, locate the appropriate productivity, stand size, and mortality class in the left hand column, and then the appropriate fire size and discount rate. The net value change is a loss of \$143 per acre burned.

To estimate the net value change for unroaded situations, use the factors given in *tables 29* and 30 to adjust the estimates for roaded situations. Unique sets of adjustment factors are used when the net value change of the roaded situation is negative *(iable 29)* and when it is positive *(table 30)*. The adjustment factors are stratified by management emphasis, stand size, mortality class, and fire size.

The roaded, ponderosa pine fire situation given as an example above had a positive net value change of \$143 per acre burned. To adjust this value to an unroaded estimate, turn to *table 30*. The adjustment factor for the moderate public management, poletimber stands with 60+ percent mortality, and fire size 100+ acres, at the 4 percent discount rate is 1.18. Multiply the roaded net value change times the adjustment factor—\$143 per acre × 1.18 = net value change of \$169 per acre burned in the unroaded situation.

		19	18 GOTTER	stacte of	IINCL		12. h (1.56.).								
High (120+):							Seedling/sauli	na:							
Seedling/sapling:	•	•		0	0	0	1-29		¢	0	0	0	0	0	
1-29	0	U U	0	Ň	ň	0	30-59	ō	D	0	0	0	0	0	
30-59	- 20			210	128	113	60+	Ď	40	-20	0	0	0	40	
60+	230	140	112	1.30	****		Potetimbers	-							
Poletimber:				105	65	17	1-29	0	36	0	0		0	36	
1-29	195	65	31	193	63	15	30-59	- 32	36	ò	ō	0	-32	36	
30-59	193	63	35	132		-110	50.55	-100	36	-24	~ 30	-29	-100	36	
60+	166	44	11	22	-04	-114	Court inhore	100	24		•••				
Sawtimber:						1000	SAWEIBBUES	-140	0	40	n	-7	-140	6	
1-29	-681	-841	-867	-1545	-1662	-1005	1-23	-140	š	40	ā	-7	-140	٥	
30-59	-324	-485	-515	~1317	~1431	-1438	30-59	-140	ň	26	ň	-7	-140	ō	
60+	10	-183	-222	~1004	~1120	-1100	6U+	-140	v			•		-	
Roderate (85-119):							Moderate (65-11)	1) T							
Seedling/sapling;							Securing/sapri	Lagi _			0	0	a	•	
1+29	0	0	0	0	D	0	1-29	0	2	ě	š	Ň	ň	ō	
30-59	0	0	0	0	0	ę	30-59	9	ů.				ň	ň	
60+	0	0	0	0	0.	0	60+	¢	0	U	v	v	v	•	
Poletimber							Poletimber:				-	•		14	
1-20	52	12	6	52	12	6	1-29	0	16	0		4	, e	12	
20-60	ÄRA	355	317	197	81	70	30-59	C	16	-10	-14	-7	ų.	16	
30-33	320	170	149	214	81	69	60+	0	16	-10	-14	+7	ų	15	
004							Sawtimber:								
Sawtimper:	,	-721	-258	-674	-806	-024	1-29	-80	0	38	0	0	-80	0	
1-27	196	-121	-74	-504	-686	-705	30-59	-80	6	38	0	0	-80	0	
30-59	162		-11	-117	-539	~562	60+	-80	Q	30	6	0	-80	¢	
60+	101		-31			•	LOW (50-84):								
Low (50-84):							Seedling/sanl	ina)							
Seedling/sapling:	•			٥	n	n	1-29	···;· a	0	D	0	0	0	0	
1-29	0		v	, in the second s	š	ň	30-59	ň	õ	ō	Ó	Ó	6	0	
30-59	0	0			160	112	501		ň	ō	0	0	0	o	
60+	219	160	153	419	100	135	Talaní-hari		•	-	•	-			
Poletimber:			-		- 1	в	Poletimuers		•	16	0	4	0	0	
1-29	129	21	8	129	21		1029	ă	ň	16	ŏ	i i	á	Ó	
36-59	129	21	9	129	21		30-59		š	-9	-12	-8	ñ	Ď	
60+	264	193	168	143	92	~ ~ ~	60+	•		-•				-	
Sawtimberi							SAWTINDEP!		•	30	-63	-11	-57	0	
1-29	-54	-23	-28	-231	-194	-195	1-29	-52		20	-02	. 73	-63	ň	
30-59	193	204	187	-135	-100	-105	30-59	-52	ů,	20	-62	-33	-62	ŏ	
60+	147	147	129	-206	-175	-177	60 +	-52	0	20	-62	-33	-31	•	
Mary Joy (70-49);							Very low (20-49):							
Caadling/sepling:							Seedling/sapl	ing:	-		-	•	•	6	
1-30	0	0	0	0	0	0	1-29	0	0	0	0	0	U	u u	
1-29	ō	ň	ō	0	0	0	30-59	D	0	0	0	0			
30-33	Ň	ă	ā	ā	Ó	0	60+	Q	0	9	0	0	0	v	
90+	v						Poletimber:							-	
Polecimperi	176	20	11	176	28	11	1-29	0	0	18	۵	- 4	8	0	
1-29	170	20	11	176	28	ū	30-59	0	0	18	0	- 4	0	0	
30-59	1/2	26	:::	193	26	58	60+	Ó	0	-8	-15	~9	0	0	
60+	162	70	26	161		20	Sautimbert	-							
Sawtimber:		10			-152	-154	1-29	-56	D	~2	-64	-40	-56	¢	
1-29	~55	10		-177	-152	- 96	30-59	-56	õ	-2	+64	-40	-56	0	
	28	100	94	-173	-93	-301	50-39	- 56	ň	-2	-64	-40	-56	0	
30-59							BUT			-					

Stand productivity	!	Fire a	ize: 1	-99 acre	5	1	fire s	ize: 1	00+ acre	s
{cu ft/acre/yr}, stand size, and	[Time pe	riod (yea	cs)			
mortality class (pct)	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft	/acze/vea	r ¹			
High (120+):										
Seedling/sapling	£						•	•		•
1-29	0	ç	0	0	Ů	Ň	ň	ŏ	ŏ	Ď
30~59	, v	40	-20	ő	ő	ŏ	40	-20	õ	õ
Bolatizber:		40	-20	•	•		•-			
1-29	0	36	0	0		0	36	0	G	- 4
30-59	-32	36	Ó	0	0	-32	36	0	0	
60+	-100	36	-24	~30	-29	-100	36	-24	-30	-29
Sawtimbers				•	-	1.00	•	40		-7
1-29	-140	0	40	, v		-140		40	ň	-7
30-59	-140	Ň	40	ň	-7	-140	ő	40	õ	-7
Hoderate /RS-1191-	-140	v		5	•					
Seeding/sapling										
1-29	. 0	0	0	0	0	0	0	0	<u>o</u>	0
30-59	0	0	D	0	0	0	ů.	0	U O	ů.
60+	0	0	0	0	0	U	U	Ų	•	U
Poletimber:			•		•	0	16	D	â	2
1-29		10	-10	-14	-7	ŏ	16	-10	-14	-7
50+59	ŏ	16	-10	-14	+7	ō	16	-10	-14	-7
Sawtimber:	•									
1-29	-80	0	38	o	0	-80	0	38	0	<u></u>
30-59	-80	0	38	0	°.	-80	0	38	ŭ	Ň
60+	-80	Q	30	U	Q	-80	v	36	v	v
Low (50-84):										
Seediing/sapiing	2 0	<u>^</u>	D	٥	0	0	0	0	٥	0
30-59	ă	č	ŏ	õ	õ	G	0	0	0	0
60+		ŏ	Č.	0	0	0	0	0	0	0
Poletimber:										
1-29	0	0	16	0	4	0	0	16	ů.	- 1
30-59	0	0	16		- 0	U 0	, u	-8	-12	-8
60+	0	C C	-8	-12	-0	v	v	-0		
Savtimber:		٥	20	-62	-33	-52	0	20	-62	-33
1-29	-52	ŏ	20	-62	-33	-52	Ó	20	-62	-33
50+	-52	ö	20	-62	-33	-52	0	20	-62	-33
Very low (20-49):	+-									
Seedling/sapling	p .	-				•				
1-29	0	ů	ŏ	0	0	0	0		0	0
30-59	ů,	0		ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	õ
DUT Rolatimber:	v	U	U	v	v	-	•	-	-	-
1-29	p	0	18	٥	4	0	0	18	0	•
30-59	ō	ŏ	18	0	4	0	0	19	0	4
60+	ċ	ō	-8	-15	~9	C	0	-8	-15	-9
Sawtimber:			_				•	-1	-64	- 40
1-29	-56	D	~2	-64	-40	-56	0		-04	-40
30-59	-56	0	-2	-64	-40	-56	Ň	-5	-64	-40
60+	~56	0	-2	-64	-40	-30	v	_		

60+	-194	-237	-239	-336	-375	-374
1 _{Negative} (-)	valuez = gains; po;	șitive va	luco - loga	ees)0 = 50 (net fire i	spact.

Table 2A--Fire-caused changes in net value of ponderosa pine stands under moderate public management, northern Rocky Mountains, by fire size and discount rate

4.0

Stand productivity (cu ft/acre/yr), stand size, and mortality class (pct)

| Fire size: 1-99 acres | Fire size: 100+ acres

Discount rate (pct)

7.875 10.0 | 4.0 7.875 10.0 1978 dollars/acre burned¹

stand size, and	i		Discoun	rate (pct)	
mortality class	í					
(pct)	4.0	7,875	10.0	4.0	7.875	10.0
		19	78 doll4	es/acre bu	rned ¹	
Righ (120+):						
Seedling/sapling:						
1-29	p	0	0	0	0	0
30-59	0	0	0	C C	Ç	0
60+	241	147	133	241	147	133
Poletimber:						
1+29	176	104	79	11	-\$5	-78
30-59	173	101	76	-128	-189	-209
60+	457	190	146	-385	-609	-632
Sawtimber:						
1-29	-3	-3	-3	-140	··135	~133
30-59	359	21	~64	-486	-786	-851
60+	527	150	69	-297	-622	-692
Hoderate (85-119);						
Seedling/sapling:						
1-29	0	0	٥	0	0	0
30-59	0	¢	0	0	0	0
60+	0	0	0	0	¢	C
Poletimber:						
1-29	49	21	13	49	21	13
30-59	49	21	13	49	21	13
50+	507	199	166	394	104	80
Sawtimber:						
1-29	-2	-2	-2	-79	-76	-75
30-59	437	176	113	-170	~397	-444
60+	465	181	113	-64	-313	-361
Low (50-84):						
Seedling/sapling:						
1-29	0	0	C C	0	Q	U U
30-59	0	e	0	0	0	
60+	247	192	184	247	192	184
Poletizber:						
1~29	163	46	23	163	46	23
30-59	161	45	22	161	45	22
60+	434	194	153	293	78	49
Savtimber:						
1-29	-1	-1	-1	-43	-42	-41
30-59	232	189	168	-122	-138	-14/
60+	293	142	117	-66	-183	-193
Very low (20-49):						
Seedling/sapling:						
1-29	0	O,	0	0	a	Ű
30~59	0	0	0			
60+	308	241	231	398	241	231
Poletimber:						
1-29	234	66	33	140	-24	-30
30-59	87	-72	-104	~458	-405	-166
60+	240	62	29	-177	-341	-300
Sawtimber:				130	463	-162
1-29	-222	-254	-257	~4.58	-452	-402
30-59	-141	~171	-176	-314	-338	~340

size and discount rat	1e	
Stand productivity	Fire size: 1-99 acres Fire size: 100+	acres
(cu ft/acre/yr),	I	

Table 1A--Pire-caused changes in net value of Douglas-fir stands under moderate public management, morthern Rocky Mountains, by fire

¹Negative (-) values * gains; positive values = losses; 0 = no net fire impact.

(pct)	024	25-49	50-99	100-200	0~200	0-24	25-49	50~99	100-200	0-200
					Cu ft	/acre/yea	r ¹			
fligh (120+):										
Seedling/sapli	ng:								-	
1-29	́ 0	0	٥	0	0	0	0	p	0	U U
30-59	0	0	Û	0	0	0	0	0	0	0
60+	Q	40	÷20	0	0	0	40	~20	0	Ų
Poletimber:			•						-	
1-29	-4	0	0	¢	0	-4	0	0	U	0
30-59	-36	0	0	Q.		-35	0			
60+	-128	0	115	-99	-37	-128	0	116	~99	-37
Sawtimber:							-			
1-29	-32	Ċ.	0	0	~4	-32	0	0	U U	
30-59	-156	168	~24	C	-4	+156	168	-24	0	
60+	~156	168	24	0	-4	-156	168	-24	0	-4
Roderate (85-119	1:									
Seedling/sapli	ng:									
1~29	° p	0	٥	0	0	0	0	0	0	
30-59	0	0	0	0	0	0	0	0	ů.	U U
60+	0	0	C	0	0	Q	0	0	0	v
Poletimber:										
1-29	16	0	6	0	2	16	0	0	0	2
30-59	16	0	0	0	2	16	0	C	-9	2
60+	16	o	110	-77	-7	16	Q	716	-77	-7
Sawtimber:									-	
1-29	-20	e	0	Û	~2	-20		0	0	-2
30-59	-104	124	-10	0	0	-104	124	-10	0	0
60+	-204	124	-10	0	0	⊷104	124	~10	a	Ų
Low (50-84):										
Seedling/sapli	.ng:						-			
1-29	. 0	0	0	, o	0	Q.	0	, p	Ű	Ň
30-59	0	0	0	0	0	0	Ū.	0	U.	
60+	0	0	Û	8	0	0	Ų	U	Ų	
Poletimber:										,
1-29	-24	32	0	0	1	-24	32	, v		-1
30-59	-40	32	0		-1	-40	32			-1
60+	-96	32	0	22	3	-90	32	0	22	3
Sawtimber:									•	
1-29	-12	0	0	Q	-1	-12	, v			-1
30-59	-60	C	22	12	. 4	-60		22	11	
60+	-60	0	45	34	21	~60	U	45	34	21
Very low (20-49)	1									
Seedling/sapli	lng:									
1-29	0	0	0	0	0	0	, v	, v	v.	2
30-59	0	0	0	0	0	Ū,	U U	, v		, N
60+	0	D	0	D	a	U U	0	U	U	
Polecimber:							24		•	,
1-29	-24	36	0	0		-24	30			
30-59	- 96	36	+26	-15	- Z1	-96	30	-26	*15	-21
60+	-96	36	-26	-15	-21	-96	30	-20	-12	-41
Sawtimber:							-			-24
1-29	-64	0	16	-64	-36	-64	0	16	-04	- 30
30-59	-64	0	16	-64	-36	-64	0	10	-64	- 30
60+	~64	0	16	-64	-36	~64	U	10	-64	-10
										_

 Table
 ID--Fire-caused changes in net timber output of Douglas-fir stands under moderate public management, northern Rocky Mountains, by fire mize and time period

 Stand productivity
 Pire size: 1-99 acres
 1
 Fire size: 100+ acres
 Time period (years)

10

 $^{1}Negative$ (-) values + gains; positive values = losses; 0 \times no net fire inpact.

Stand productivity	Fire F	ize: 1-9	9 acres	Pire 6	ize: 100	+ ACZEB					
stand size, and			Discount	rate (pct)						
(pet)	4.0	7.875	10.0	1 4.0	7.875	10.0					
	1978 dollars/acre burned ¹										
High (120+);											
Seedling/sapling:											
1-29	3	0	0	3	0	0					
30-59	269	100	86	269	200	86					
60+	269	100	86	269	100	86					
Poletimber:			20			74					
10-50	293	50	20	249	ć1	30					
50-59	454	83	13	360		-38					
Sautimbert	424			505	•						
1-29	58	1	-2	58	1	-2					
30-59	383	14	-100	49	-301	-404					
60+	568	193	75	456	73	~40					
Hoderate (85~)19): Seedling/sapling:											
1-29	0	0	0	0	0	0					
30-59	284	129	109	284	129	109					
50+	284	129	109	284	129	109					
Poletimber:		100			100	67					
1-29	243	100	22	2.13	100	66					
50.	690	149	65	401	63	0					
Cautimbers	46,9	240	49	492							
1-29	-2	-2	-2	-2	-2	-2					
30-59	-3	-3	-3	-3	-3	-3					
60+	305	142	82	191	41	-13					
Low (50-84):											
Seedling/sapling:											
1-29	0	0	0	0	0	0					
30-59	2	0	0	2	0	ç					
SU#	2	0	U	2		Ŷ					
1_20	633	212	141	6.21	223	141					
10-50	521	223	110	523	271	139					
50+	654	211	139	540	134	48					
Sawtimber:				2.10							
1-29	-250	-106	-106	-373	-225	-223					
30-59	109	-52	-74	2	-156	-176					
60+	357	77	42	250	-15	-43					
Very low [20-49]:											
Seedling/sapling:					•	•					
1-29	Ň	ů,	0	U	U C	ů.					
30-39		U O	, v	ů,	ž	Ň					
Polotimber-	v	v	v		v						
1-29	558	239	151	558	239	151					
30-59	556	237	149	556	237	149					
	2.17	145	58	502	101	15					
50+	241	***									
50+ Sawtimber:	241										
50+ Sawtimber: 1-29	-1	-1	-1	-1	-1	~1					
50+ Sawtimber: 1-29 30-59	-1 -2	-1 -2	-1 -2	-1 *2	-1 -2	~1 -2					

mortality class	1									
{pct}	0-24	25-49	50-99	100-200	0-200	0-24	25-49	50-99	100-200	0-200
						/acre/ves	,1			
8igh (120+):						,, ,	•			
Seedling/sapling	4									
1-29	0	0	o	10	5	C C	0	0	10	5
30-59	0	0	0	14	7	0	0	0	14	7
60+	Q	0	0	14	7	0	0	0	14	7
Poletimber:										
1-29	-32	44	0	10	6	-32	44	0	10	5
30-59	-56	44	0	14	5	-56	44	0	14	5
60+	-140	44	116	-85	-26	-140	44	116	~85	-26
Sawhimbert				-						
1	-36	0	20	20	٩.	-36	0	20	10	5
30-59	16	ŏ	28	14	16	16	ñ	28	14	16
604	16	ā	26	12	16	ĩš	ň	28	17	16
Hoderate (857)19):	10	5				**	•		**	10
Seedling/gapling										
1_29		0	0	•	0	0	•	•		0
30.60	ő	54	-18	Ň	ň	ő	**	- 79	ž	č
50-55	ň	é é	-26	-1	ñ	ž	54			ŏ
Bolatisher:		20	-20	-1	~	•	20	- 20	-1	•
Polecimberi	20	~	•		•	20			•	•
1-19	20	ž	, i	, N		20		, v		
30-39		v.	100	, v	- 0		v.			
604	-00	U	140	-65	-9	-60	v	125	-65	-,
Sawrinder:	~ .	~								
1~29	-24	, v	U.	Ŷ.	ڊ	-29	U.	9	U U	-3
30-59	-32	0	p	0	-4	-32	U U	0	0	-4
60+	6	0	-2	7	4	e	0	-2	7	4
Low (50-84):										
Seedling/sapling	11				-					
1-29	0	0	0	D	Ð	0	0	D	0	0
30-59	0	Û	0	0	0	Û	0	0	0	0
60+	0	0	0	Q	0	0	e	0	¢	0
Folctimber:										
1-29	72	0	0	0	9	72	0	0	0	9
30~59	40	Ð	0	31	20	40	0	0	31	20
60+	-80	0	Đ	59	20	-80	D D	0	59	20
Sawtimber:										
1~29	-84	0	-32	0	~18	-84	0	-32	D	-18
30-59	-84	9	30	65	30	-84	Ó	30	65	30
60+	-84	0	54	87	47	-84	0	54	87	47
Very low (20-49);										
Seedling/sapling	12									
1-29	0	0	D	0	0	C	0	۵	0	Ð
30-59	Ó	ō	ā	ō	ò	ō	ā	ň	ñ	ā
60+	ň	ō	ä	ň	ō	ň	ň	ň	ň	ŏ
Polotimberi		•	-	•	•	•	-	•	*	•
1	60	0	0	0	Ŕ	68	0	0	n	8
30-59	40	õ	ŏ	ň	š	40	ő	ě	ŏ	ĕ
601	-72	ň	č		í.	-22		š	21	š
Faughter and	12			31	v	-72	•	v	21	
3_20	-20	0		۵	-2	-20		~	•	-7
1-17	- 20	Ň		Ň	_1	-20			, i	-1
30-39	-20	ů.		Ň	-3	-28	0	- 22	0	-3
60+	-84	0	54	Ģ	z	-84	ų	52	0	2 - A

¹Negative (-) values = gains; positivè values = losnes; 0 = no net fire impact.

.

Table 48--Fire-Caused changes in net timber output of fir-spruce stands under moderate public management, northern Rocky Mountains, by fire size and time period Stand productivity | Fire size: 1-99 acres | Fire size: 100+ acres (ou ft/acres/yt), stand size, and | Time period (years) mortality cles

¹ Regative (-) values =	gains; positive values =	losnes; 0 = no not fire impact.

Table 4A--Fire-caused changes in net value of fir-spruce stands under moderate public management, northern Rocky Kountains, by fire size and discount rate

scand bize, and	i		2,2000,10			
(pet)	4.0	7.875	10.0	1 4.0	7,875	10.0
			70 dolla		urned ¹	
Pich (1204).		13	00 00110	TRACLE NO	ituea.	
Condiana(appling)						
1-20	0	0	0	0	0	Ċ.
1-29	ñ	ň	ŏ	ň	ñ	ő
50-59	326	110	62	238	36	-7
6UT	24.4			200		•
Poletimoer:	566	406	340	544	406	140
1-29	540	103	114	560	401	334
30-39	6 4 1	111	216	521	205	138
507		311	100	221	200	100
SAVEINDET:		- 2	3	- 2	-2	-2
1						
30-59		- 107	-100		-262	
50+	290	-101	-190	124	-203	-336
Hoderate (85-119):						
Seedling/sapling:						
1-29	2	ų	v.	0		, v
30-59	0		0	0		
60+	258	140	130	258	140	130
Poletimber:						
1-29	165	56	31	166	20	31
30-59	163	54	29	163	54	29
60+	589	137	85	479	42	-3
Sawtimber:						
1-29	-1	-1	-1	-1	~1	~1
30-59	-2	-2	÷2	-2	-2	-2
60+	407	76	10	259	-53	-113
Low (50~84):						
Seedling/sapling:						
1-29	0	0	0	D	D	0
30+59	0	0	0	0	0	0
60+	0	0	0	0	0	C
Poletimber:						
1-29	0	0	0	0	0	C
30-59	0	a	0	0	0	0
60+	130	154	142	32	72	58
Sautimbers						
1-29	-1	-1	1	-1	-1	-1
30-59	-3	-3	-3	-ā	-3	~3
50+	32	-70	-91	-156	-236	~245
Mery 104 (20-48)						
Feedling/capling:						
1_20	0		0	0	'n	0
37-59	ň	ň	ñ	ň	ě	ň
50-33	ň	ň	ň	ŏ	ā	ñ
Poletisher	•		•	•	•	5
1_30	0	0	0	0	0	n
10-60	Ň	ň	ň	ő	ň	
50-33	261	100	176	170	88	e i
	201	A 30	T 10	170		
Sawcimber:	-1	-1	-)	-1	*1	-1
1767	-1	-1	-1		_1	
50-59		-150	-167	-200	-111	-170
6 U T	11	-720	-101	-200		-333

Table 3A--Fire-caused changes in net value of western white pine stands under moderate public management, morthern Rocky Rountains, by fire size and discount rate Stand productivity | Fire mize: 1-99 mcrem | Fire mize: 100+ acrem (cu ft/acrefyr), ______

\$ 14. my 8

e,

49 ż

 $^{1}\mathrm{Mogative}$ (-) values = gains; positive values = losses; 0 = no set fire irpact.

Stand productivity	1	Fire a	ize: 1	-99 acre	8	1	Fire a	Fire size: 100+ acres				
stand size, and	1	Time period (years)										
mortality class	f					-						
(pct)	1 0-24	25-49	50-99	100-200	0~200	0-24	25-49	50-99	100-200	0-200		
				**************************************		4	1					
Righ (120+14					CG IL	/acre/yea	r					
Seedling/Gapling												
1-79	- a	a	0	0	D	0	0	0	D	0		
30-59	ő	õ	ō	ō	õ	õ	ő	ō	õ	0		
60+	-144	80	-32	-10	-21	-144	60	-32	-10	-21		
Poletimber:												
1-29	20	0	0	0	2	20	0	0	0	2		
30-59	-40	Ċ	0	0	~5	-40	0	0	0	~5		
60+	~160	0	108	10	12	-160	٥	108	10	12		
Sawtimbers												
1-29	-16	0	0	0	-2	-16	0	0	0	-2		
30-59	-44	0	Û	0	-5	-44	0	۵	D	-5		
60+	-140	172	20	-16	1	~140	172	20	-16	1		
Hoderate (85-119):												
Secoling/sapling	:											
1-29	0	0	0	¢	¢	0	C	0	0	٥		
30-59	0	0	0	0	0	C	D	0	0	¢		
60+	0	0	0	7	3	0	0	0	7	3		
Folctimber:												
1-29	-32	32	0	0	a	-32	32	0	Q	Q		
30~59	-64	32	0	0	-4	-64	32	0	0	-4		
60+	-132	32	128	-70	-16	-132	32	128	-70	-16		
Sawtimber:												
1-29	-12	0	0	0	-1	-12	0	0	Q	-1		
30-59	-28	0	0	D	-3	-28	0	0	0	-3		
60+	~88	132	-10	19	12	88	132	-10	19	12		
Low (50-84):												
Seedling/sapling	:					-						
1-29	Q	0	0	0	D	0	ç	Q.	D	0		
30-59	0	0	D	0	, o	0	0	0	0	0		
60+	0	0	C C	¢	0	o	C	0	0	v		
Poletimber:	-				-							
1-29	0	0	<u>e</u>	0	0	0	C.	q	0	U U		
30-59	0	0	.0	0	0	0	0	0	0			
60+	0	0	-24	-20	-10	e	¢	-24	-20	-1P		
Sawtimber:		-										
1-29	-12	v.	ų,	0	-1	-12		, v	, v	-1		
30-59	-36	0				- 30	v,					
50+	-110	u	48	-14	-9	-116	u	48	-14	- ,		
very 10w (20-45):												
PEGGTING Sabring	· .	~	•	•	0			•		n		
1-23	Ň	0		Ň	Ř	ž	š	ž	Ň			
30~39	š	ő	Š	š			ŏ	X	Ň	ň		
007	9		0	v	ų	v	•	U		•		
Polecimoer-	•	0					•		•	•		
1-29		ő	Ň	Ň	ň	ň	š	ă	š	ň		
20-23	ň	ŏ	č	17	å	ě	ň	5	17	ě		
Cur Cautimbory	•		0	11	•		•	v	17	•		
1-30	-17	•	C.	0	-1	-12	0	0	0	-1		
30-59	-16		ň	ň	-4	-16	ă	ň	ň	-3		
60.	-116	ň	68	-15	~15	-116	ň	68	-35	-15		
		•		22			•					

Table 38--fire-caused changes in met timber output of western white pine stands under moderate public management, morthern Rocky Mountains, by fire size and time period

Stand productivity	Fire s	ize: 1-9:	9 acres	Fire s	ize: 100	+ acres
(cu ft/acre/yr),			ti connt	rate (not	1	
morphility class			DIBCOONE	race (por	<i>,</i>	
(pot)	4.0	7,875	10.0	1 4.0	7.875	10.0
					1	
P(ab (120+))		19	/8 dolla:	syacte ou	rneo	
Gaadling/rapling:						
1=29	0	0	0	0	0	0
30-59	258	156	137	258	156	137
60+	255	154	134	255	154	134
Poletimber:						
1-29	260	186	155	260	186	155
30-59	258	183	152	258	103	-142
60+	282	/4	34	6	-115	-143
Sawtinber:		- 1	-1	-101	-99	-96
1-29	270	30		-295	-607	₩67Î
30-59	570	30	*24	-120	-461	-530
Nodersta (85-119) -	555	1.55				
Seedling/napling:						
1-29	0	D	0	0	0	D
30-59	ō	0	Ö	0	0	0
60+	289	169	158	289	169	158
Poletimber:						
1-29	157	53	29	157	53	29
30-59	156	52	28	156	52	28
60+	557	153	101	384	2	-40
Snwtimber:				-1	-1	-1
1~29		-1	51	145	-113	15
30-59	351	82	121	370	-113	-105
6UT	524	224	191	2.10		
Condition/mapling:						
1-29	0	0	D	0	0	0
10-59	ő	ő	ō	0	0	0
601	õ	õ	ō	0	0	0
Poletimber:						
1-29	0	0	0	0	0	0
30-59	0	e	0	0	0	0
60+	263	188	171	128	75	68
Sawtimber:	_	-		-	~	- 7
1-29	-2	-2	-2		-754	- 267
30-59	75	-109	-124	120	-234	-207
60+	322	104	74	139	- 74	-00
Very 100 (20-49)1						
1-29	n	a	a	a	0	0
10-59	ň	ŏ	ő	ŏ	õ	ō
60+	ŏ	ŏ	õ	0	Ŭ.	0
Poletimber:	-	-	-			
1-29	0	0	0	٥	¢	C
30-59	0	0	0	0	0	0
60+	300	220	202	136	83	77
Sawtimber:			_		-	-
1-29	-2	-2	-2	-2	-2	
36-59						- / 4 4
	-0	~143	-133	-130	-200	-294

Stand productivity	!	Fire a	size: 1	fire size: 100+ acres						
stand size, and	i				Time pe	riod (yea	rs)			
(pet)	0-24	25-49	50-99	100-200	0~200	0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yea	<u>ر</u> ا			
High (120+):										
Seedling/sapling	I			-						
1-29	.0	0	0	0	.0					- 10
30-59	-84	45	-24	ų.	-10	-316	10	- 54	š	-10
60+	-110	48	₩ £ 9	u	-14	-110	40		•	
Poletimberi	. 24				-1	-74	0	n	6	-3
20-59		ň	ŏ	ň	-6	-40	ō	ō	ō	-6
50-33	-168	ŏ	108	õ	ä	-188	õ	108	õ	3
Sawrimbers				•	•					
1-29	-28	0	0	0	-3	-28	0	0	0	-3
30-59	-140	172	Ó	-16	-4	-140	172	0	-16	-4
60+	~140	172	0	-16	-4	-140	172	0	-16	-4
Hoderate (85-119):										
Seedling/sapling	t							-	-	-
1-29	0	0	0	D	0	0	0	0	0	
30-59	0	0	Ç.	0	0	q	ů.	ő	, v	9
60+	0	0	0	0	0	U	U	ų	v	v
Poletimber:				-		-40	33	•	0	-1
1-29	-40	32	Ň	, N		- 52	32	ň	ň	-2
30-59	-122	32				-132	35	134	- a š	-29
60+	-132	32	114	-03	~25	1.51		,	•••	
1-30	-16	٥	0	0	-2	-16	0	۵	0	2
30-59	-88	132	-24	ā	ō	-8B	132	-24	Ó	D
50+	-88	132	-24	õ	õ	-88	132	-24	0	0
Low (50-84):										
Seedling/sapling										
1-29	Ó 0	0	0	0	C	0	0	0	0	0
30-59	0	0	0	0	D	0	0	0	0	0
60+	0	0	0	0	0	0	0	0	0	0
Poletimber:									•	
1-29	0	0	0	0	0	Ň		0	Ň	, v
30~59	°,	0	u u		- 2	2	ň	ň	_6	-3
60+		Ų	U	-0		•	•		-0	_
Saweimpers	-74	٥	0	n	-3	24	p	0	0	-3
20-50		ň	73	ň		-116	õ	72	Ď.	ŝ
50-39	-116	ă	22	ŏ	ž	~116	ō	72	ō	3
Very low (20+49)		•		-	-					
Seedling/sapling										
1-29	, o	0	0	0	0	0	0	0	0	0
30-59	0	0	0	٥	0	0	Q	0	0	0
60+	0	0	0	0	0	0	0	C	0	0
Poletimber:										
1-29	0	0	0	o	0	0	0	0	0	0
30-59	0	0	0	0	Q	0	ů	0	.0	0
60+	0	C	0	17	8	Q	Q	¢	17	в
Sawtinber:				•		- 24			۵	- 2
1-29	-24	ò	0	- 45	-20	-116	~	60		
30-59	-116	0	68	-02	-30	-116	0	60	00	-15
60+	~116	0	68	-35	-12	-110	0	68	-23	-13

Table 6AFire-causunder moderate publicate and discount restances a	sed change ic managem ate	s in n ent, n	et va orthe	lue of En Rock	lar y H	ch sta Iounta	inds ins, bj	y £'£	e
Stand productivity	Fire	size;	1-99	ACTOS	Т	Fire	size:	100+	act
stand size, and			D	iscount	τà	te (p	Ct)		

Table 5BFire-caused moderate public managem	changes in net timb ent, northern Rocky	er curpur of Hountains, D	larch stand Y fire size	and time	period
Stand productivity]	Fire size: 1-99	acres	1 810	e size: 10	0+ acres

<pre> lpegative (~) values = gains; positive values = losses; 0 = no</pre>
--

) Hegative (-) values = gains; positive values = lesses; 0 = no net fire impact.

Stand productivity	Fire :	size: 1-91	acres	I Fire C	12e: 100-	+ acres
stand size, and			Discount	zate (pct	:)	
mortality class						
(pct)	4.0	7,875	10.0	4.0	7.875	10.0
					1	
niah (1204).		19	/S 00119	caracte ut	111101	
Snedling/sepling:						
1-29	0	Û	0	C	0	0
30-59	350	214	173	350	214	173
60+	346	208	168	346	208	168
Poletimber:				,		
1-29	-6	-6	-6	-6		-11
30-59	~12	-12	-11	-12	-12	-100
60+	-48	-289	-304	-100	~390	
Sawtimber:	140			-30	+65	-77
1-13	504	25.7	222	-57	-264	-378
30-39	003	500	437	270	-102	-234
Nodewate (85m)19):	30.5	305	451			
Conding/senting:						
1-29	0	٥	0	0	0	0
30~59	Ó	ó	Ó	C	Û	0
60+	369	162	128	369	162	128
Poletimber:						
1-29	341	235	192	341	235	192
30-59	336	230	188	336	230	188
60+	497	4	-70	363	-118	-186
Sawtimber:			~~	102	41	60
1-29	102		20	102	244	170
30-59	261	100	129	201	128	305
.50+	803	211	202	100	100	
Low (30-04):						
1_20	0	D	0	0	٥	0
30-59	ī	ă	ŏ	3	Ó	0
50+	ž	Ď	Ď	3	0	0
Poletimber:	-	-				
1-29	0	0	D	C	0	0
30-59	7	0	0	7	0	0
60+	375	144	116	316	96	73
Sawtimber:						
1-29	104	80	70	104	120	100
30-59	406	235	183	192	1/2	302
60+	958	430	365	240	100	302
very low (20-sy):						
Seeding/ waping:	0	ń	0	0	0	0
30.59	ň	ň	õ	ō	Ó	D
60+	2	ň	ŏ	2	0	0
Poletimber:						
1-29	0	0	0	0	0	0
30-59	ç	0	0	¢	0	0
60+	1	-3	-3	1	-3	-3
Sawtimber:				-		-
1-29	-2	-2	-2	-2	-2	-2
30-59	-5	-5	-5	-5	-5	
60+	443	117	33	418	93	τņ

(cu ft/acre/yi), Stand size, and mortality class (pct)										
(pct)	İ				Time per	riod (yea	rs)			
	0-24	25-49	50-99	100-200	0-200	0-24	25-49	50-99	100-200	0-200
					Co ft/	acre/vea	r ¹			
High (120+):							-			
Seedling/saplin):		•		•	0	n	0	0	n
1-29			160	-79	-17	-48	-92	36Ő	-79	-17
30-59	-100	- 92	160		-20	-100	- 92	160	-69	-20
Bolesisbor.	-100	- 72	100	- 0,9	-10	2				
7-70	-64	0	0	Ď	-8	-64	0	0	0	-8
30-59	-120	ŏ	ŏ	ō	-15	-120	0	0	0	-15
60+	-280	ō	108	10	-3	-260	0	108	10	3
Savtisber:										
1-29	-28	٥	0	0	-3	-28	D	0	0	-3
30-59	12	0	0	0	1	12	, o	0	0	1
60+	12	0	20	10	11	12	0	20	10	11
Moderate (85-119)										
Seedling/sapling	91				-				•	
1-29	0	0	0	0					, v	
30-59	0			0				116		-17
60+	-140	65	126	-79	-17	-140	00	170	-13	-11
Polecimber:					•	-4	6	•	•	n
1-29	-4	9	v.		-7	-60	ň	Ň	Ň	
30-59	-00	š		2	-(-220	ň	114	ň	- í
50+	-220	v	110	v	*		•		•	•
1-79	-28	0	a	0	-3	-28	p	۵	0	+-3
30-59	-68	ŏ	Ď	ē	~8	-68	ō	ō	Ó	-8
55+		ě.	š	-12	-5	4	Ō	8	-12	-5
OW (50-84)1	•	-	-		-					
Seedling/saplin	9 :									
1-29	· 0	C	0	٥	D	0	D	0	0	Ó
30-59	Û	0	0	12	6	0	0	0	12	6
60+	0	C	0	12	б	0	0	D	12	6
Poletimber:										
1-29	0	D	0	.0	0	0	D D	0	0	
30-59	0	0		27	13	ь С	0	-0	27	13
60+	0	C	78	26	32	v	v	70	20	32
Sawtimber			-	•	,	-8	•	•		-1
1-29	~0	ž			11	ž	ň	24	านั	- 12
30-59		u n		12	11		ŏ	24	14	13
00+ (20=49);	•	v		.,			•			
Pendling/Banlin										
1=29	· 0	0	a	0	D	0	0	Û	0	0
30-59	ō	ō	ō	Ó	Ó	0	0	0	0	¢
60+	Ó	C	0	13	6	0	0	0	13	6
Poletimber:										
1-29	0	0	0	0	0	0	0	0	0	0
30-59	0	0	0	0	0	_ <u>0</u>	0	0	0	0
60+	~56	0	0	-22	-18	-56	0	0	-22	-18
Sawtimber:					-					-
1-29	-24	6	0	0	-3	-24	0	0	0	-3
	60	0	0	0	-7	b U		ø	U U	-7
30-59		-							**	-

Table 5A--Fire-caused changes in net value of hemlock stands under moderate public management, northern Rocky Mountains, by fire stra and discount rate

lnegative (-) values = gains; positive values = losses; 0 = no net fire impact.

Cu f‡/acte/year¹ 0 149 0 160 0 -91 0 36 0 160 0 12 0 36 0 12 132 -8 -44 -152 -8 -44 -152 0 132 0 -75 -1 -5 -25 0 ~12 -82 -251 -742 0 -12 -24 -24 4 4 -12 -12 -152 6 0 -78 -39 -39 -39 ~12 -12 -152 6 Kadrežie (85-119): Seedling/sapling: 1-29 30-59 60+ Pol-2mhor: 1-29 30-59 60+ Switimber: 1-29 30-59 60+ Switimber: 1-29 30-59 60+ Seedling/sapling: 1-29 30-59 60+ 5awtimber: 1-29 30-59 50-59 30-50 30-50 0 128 0 128 0 9-0 28 3 27 0 94 0 94 0 0 4 4 4 24 24 24 24 -16 20 20 -2 2 2 -16 20 20 -28 -48 -112 -28 -48 -112 0 144 0 -38 0 144 20 20 -1 -3 5 20 20 -12 -60 -60 -12 0 0 33 -1 0 19 -12 -60 -60 84 84 -12 0 84 84 Seedling/sa 1-29 30-59 60+ Poletimber: 1-29 30-59 60+ Sawtimber: 1-29 30-59 60+

-112 -112 -112

-64 -64 -64

20 20

84 84

140 140 -25 -25 -25

¹Negative (-) values = gains; positive values = losses; 0 = no net fire ispact.

11 11

27 27

49 49

-112 -112 -112

~64 -64 -64

20 20 140 140 -25 -25 -25

84 94

Table 3A--Fire-caused changes in net value of Douglas-fir stands under intense public management, morthern Rocky Rountains, by fire aize and discount rate Table 8B-Fire-caused changes in net timber output of Douglas-fir stands Under intense public management, northern Rocky Nountains, by fire size and time period Stand productivity| {cu ft/acre/yr}, stand mize, and | mortality class | (pct) | Pire size: 1-99 acres Fire size: 1-99 acres | Fire size: 100+ acres Discount rate (pct)

0 176

-47 -220 -620

7.875 10.0 | 4.0 7.875 10.0

-125 269

1978 dollars/acre burned¹

0 146

117 242

4.0

0 402

265 1328

0 176

156 390

Stand productivity (cu ic/acre/yr), stand size, and motality class (pct)

High (120+): Seedling/aspling: 1-29 30-59 60+

¹Negative (-) values = gains; positive values = losses; 0 = no net fire impact.

¹Negative (-) values = gains; positive values = losses; 0 = no net fire impact.

Stand productivity	Fire I	aize: 1-9	9 ACTES	Fire s	ize: 100	+ acre
stand size, and			Discount	rate (pct)	
(pct)	4.0	7.875	10.0	4.0	7,875	10.0
					- 1	
		19	78 dolla:	sa/acre bu	thed.	
High (120+):						
1.70	0	.0	0	0	B	0
30-59	ŏ	ő	ō	ō	ō	0
60+	231	121	110	251	124	111
Poletimber:						
1-29	71	30	19	90	39	25
30-59	71	30	19	90	39	25
60+	719	234	157	619	140	69
Sawtimber:	~	-7	-7	-1	-2	- 3
1-29	-2		_1			-1
20-22	404	269	192	261	137	65
Hoderate (85-119)-				191		
Seedling/sapling						
1-29	0	0	0	0	0	0
30-59	0	0	0	0	0	0
60+	168	113	107	168	113	107
Poletimber:						
1~29	34	15	10	34	15	10
30-59	34	15	10	34	15	10
60+	34/	1/9	149	258	96	10
Savtimber:	. 1	- 1	_>	-1	-1	-1
2-29	-2	-5		-2		-2
20-12	111	191	135	212	78	27
Low (50-94) -	334	***				
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	0	0	o	0	0
60+	141	111	106	141	111	106
Poletimber:				-		
1-29	0	0	0	a	0	, v
30-59						14
607	149	37	10	149	31	10
55WC120001	16	10	7	16	10	7
30-59		16	32	26	16	12
60+	171	103	73	143	76	47
Very low (20-49);						
Seedling/mapling:						
1~29	Ð	0	0	0	0	0
30-59	0	0	0	0	0	0
60+	0	0	0	0	0	¢
Poletimber:			•	<u>^</u>		•
1-29	135	70	11	175	20	11
50-59	132	20	51	135	-26	- 11
Cautiobers	137	20		137	20	
1-29	3	1	1	Э	1	1
30-59	102	24	-5	30	-46	-73
604	162	8ó	50	142	60	31

4.

λ

(pet)	0-24	25-49	50-99	100-200	0-200	0-24	25-49	50-99	100-200	0-200	
		Cu it/acco/yeat ¹									
High (120+):											
Seedling/sapling	1:										
1-29	-4	0	0	0	¢.	G	0	0	. 0	0	
30-59	-8	0	Û	0	-1	e	0	p	0	0	
60+	-12	0	52	19	21	0	C	a	95	48	
Poletimber:											
1-29	16	0	0	0	2	28	٥	0	0	3	
30-59	16	0	0	0	2	28	0	ρ	0	3	
50+	-60	ō	88	-4	12	-60	0	98	-4	12	
Sawtimber:											
1-29	-24	C	٥	0	-3	-24	0	¢	٥	-3	
30-59	~40	ā	0	0	~5	-40	0	¢	0	-5	
60+	14	ñ	-8	-16	-4	44	ă	-B	-16	-4	
Roderate (85-1191)		•	-		-		-	-			
Seedling/mapling											
1-20	· .		0	0	n	0	•	٥	0	à	
30-50	ň	ň	ň	ň	ň	ň	ň	ň	ŏ	ň	
601	ŏ	ň	104	- 58	- Ĩ	ň	ň	104	-5Ř	-š	
Polokishors				20	-	•	•			•	
1-20	16		0	0	,	14	•	۵	a	,	
20.00	10		č	ň	÷.	14	ň	ž	ň	5	
30-39	10	Ň	4 1	-14		10		- EX	-10	- 2	
Court in bases	10			-13		10	v		.,	٠	
Sawtimber:		•		~	- 2	20			•	-7	
1-29	-20	š		š		-10	ž	ž	č		
30-39	-32	1.74				-34	116	-14	_10	-30	
50+	- 32	120	-2-	-13	-10	- 32	120	-24	-13	-10	
TOM [20-04]1											
Seeding/sapling	PF _			•	~	•	-	~	•		
1-29	Ů,	v									
30-59	v	ų		, v	ų.	v.	v.		ž	ž	
60+	¢	D	Ų	U	0	0	0	U	•		
Poletimber:	-	_	-	-				-			
1-29	0				, v	0	U U				
30-59	0		, Š	0	.0	0	0	0			
60+	0	98	a	0	11	a	88	6	0	11	
Sawtinbert											
1-29	-12	0	g	p	-1	-12	0		0	-1	
30-59	-20	0	0	0	-2	-20	D.	9	U U	-2	
60+	6	0	·0	D	1	Û	0	0	0	1	
Very low (20-49):											
Seedling/sapling	11								-	-	
1-29	0	0	Ģ	0	0	0	0	c	0	0	
30~59	0	C	0	0	0	0	0	0	0	0	
60+	0	0	6	0	Q	G	0	0	0	0	
Poletimber:											
1-29	0	0	C	Û	0	0	0	ø	0	0	
30-59	û	60	0	0	7	0	60	ø	0	7	
60+	.0	50	0	0	7	C C	60	٥	0	7	
Sawtimber:											
1-29	-9	0	0	0	~1	-8	0	0	Û	-1	
30-59	8	0	0	Ð	1	8	0	¢	0	1	
60+	8	0	Û	0	1	8	0	0	0	1	

Pire size: 100+ acres

Fire size: 100+ acres

0 ~91

0 -75 -1 -5 -25

0 ~78

0 -9

3 27

0 -38

0 33

49 49 27 27

0 0

-3 -39 -39

0 28

-2 2 2

-1 -3 5

-1 0 19

11 11

Time period (years)

0-24 25-49 50-99 100-200 0-200 ! 0-24 25-49 50-99 100-200 0-200

Time period (years)

Table 7A--Fire-caused changes in net value of lodgepole pine stands under moderate public management, northern Rocky Kountains, by fire size and discount rate Table 78--fire-caused changes in net timber output of lodgepole pine stands under moderate public management, northern Rocky Rountains, by fire size and time period Stand productivity ?ire size: 1-99 acres ? (cu ft/acrefyr), stand size, and ?ire period (ye sociality class

		19	76 dollar	s/acre bu	rned	
High (120+):				-,		
Seedling/sapling:						
1-29	136	102	87	136	102	87
30-59	136	102	87	136	102	87
60+	635	241	164	539	158	88
Poletimber:						
1-29	-5	-5	-5	-5	-5	-5
30-59	-11	~11	-10	-11	-11	~10
50+	967	85	-30	646	-21	-130
Sawtimber:						
1-29	29	16	12	29	16	12
30-59	74	41	30	74	41	30
60+	\$30	246	122	357	90	-27
Hoderate (85-119):						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	٥	٥	٥	0	0
60+	335	136	119	335	136	119
Folctimber:						
1-29	139	47	25	139	47	25
30-59	679	-08	-195	418	-337	-437
60+	1133	272	141	1032	184	58
Sawtimber:						
1-29	15	8	6	15	8	6
30-59	38	21	15	38	21	15
60+	496	284	193	360	163	79
Low (50-84):						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	0	0	0	0	0
60+	185	131	127	185	131	127
Poletimber:						
1-29	-1	~1	-1	~1	-1	-1
30-59	201	55	34	226	2	-18
60+	399	172	133	305	92	60
Sawtimber:						
1-29	-1	-1	-1	-1	-1	-1
30-59	-3	-3	-3	-3	-3	-3
60+	394	47	~33	223	-108	-179
Very low (20-49):						
Seedling/sapling:						
1-29	Û	0	0	0	0	0
30-59	0	٥	٥	0	0	0
60+	0	c	0	6	0	0
Poletimber:						
1-29	-1	-1	~1	-1	-1	-1
30-59	÷-2	-2	-2	-2	-2	-2
60+	363	128	105	258	42	29
Sawtimber:						
1-29	~1	-1	-1	-1	-1	-1
30-59	-3	-3	-3	-3	-3	-3
30 37		100			- 273	- 7 7 0

Stand productivity	1	Fire :	ize: 1-	99 acce	G	1	Fire a	ize: 1	00+ acre	6
stand size, and					Time per	riod (yea	rs)			
mortality class			60.00	100.000	0.000	1 0 24	26-48	60-00	100-200	0 200
(pee)	0-24	23-43	30-33	100-200	0-200	1 0-24		50-55	100-200	0-200
							.)			
High /120+1+					Co FE,	/acre/yes	r			
Seedling/sapling:										
1-29	24	0	٥	e	3	24	0	0	D	3
30-59	24	0	0	0	3	24	0	D	0	3
60+	-156	28	166	-64	-17	-156	28	166	-84	-17
Poletimber:				•			•	•	•	
1-29	-44	, v	v v	v v		- 44	Ň		š	
20-29	-106		149	-84	-11	-196	-24	148	-94	
Shutimber	-130		140	-04	-33	-130				
1-29	-12	Û	0	D	-1	-12	D	0	0	~1
30-59	-32	ō	ō	ō	~ā	-32	0	0	0	-4
60+	12	ò	Ó	-84	-41	12	0	D	-B4	-41
Roderate (85-119);										
Scedling/sapling:										
1-29	0	Q	0	0	0	0	0	0	0	0
30-59	0	0	0	0	-0	0	0	0	0	
60+	4	-	v	23	30	4	~~	v	29	20
Poletimber:	. 20	24	6	0	ń	-28	24	0	•	
10-50	-128	20	104	-1	12	-120	20	104	-1	13
50-55	-110	24	102	5	14	+120	24	102	5	15
Sawtimbers				-					-	
1-29	-8	0	0	٥	-1	-8	0	Q	0	-1
30-59	-20	0	0	0	-2	-20	0	6	C	-2
60+	24	0	D	4	5	24	0	0	4	5
Lou (50-84):										
Seedling/sapling:	۰.						•	•	•	
1-29	0	Ň	Ň	Ň	Ň		Ň	, N	, in the second s	Ň
30-59	v.	ů	š	ŭ	Ň	, v	ŏ	ŏ	0	ň
Polotimber.	U		u			·	•	•	•	•
1-29	-16	0	¢.	a	-2	-16	0	0	0	-2
30-59	-76	ō	122	õ	22	-76	Ó	122	ā	21
60+	-76	Ó	110	-19	8	-76	0	110	-19	8
Sawtimber:										
1-29	-12	0	Đ	0	-1	-12	0	0	0	3
30-59	+36	Û	0	q	-4	-36	0		.0	-4
60+	-116	140	-12	~19	-9	~115	140	-12	-19	-9
Very 10w (20-49):										
A		•		0	0	•	•	•		
Seedling/sapling:	•				ň	2	ă	2		ň
Seedling/sapling: 1-29 30-59	0	0	õ	Ô						
Seedling/sapling: 1-29 30-59 53+	000	0	Č.	0	č	š	ŏ	š	õ	ŏ
Seedling/sapling: 1-29 30-59 504 Poletimber:	0 0 0	0	ů,	0 0	č	ŝ	õ	š	č	ŏ
Seedling/sapling: 1-29 30-59 504 Poletimber: 1-29	0 0 0 -16	0 0 0	0 0	0 0	6 -2	0 -16	ŏ c	Š O	č D	0 2
Seedling/sapling: 1-29 30-59 634 Poletimber: 1-29 30-59	0 0 0 -16 ~36	0000	0 0 0	0 3 0 0	0 -2 -4	0 -16 -36	ů c	ů O D	0	0 2 4
Seedling/sapling: 1-29 30-59 534 Poletimber: 1-29 30-59 504	0 0 0 -16 ~36 -72	0 0 0 0	0 0 0 122	0 0 -31	-2 -4 6	-16 -36 -72	0 0 0	0 0 122	0 0 -31	0 2 -4 6
Seedling/sapling: 1-29 30-59 634 Foletimber: 1-29 30-59 60+ Sawtipber:	0 0 0 -16 ~36 -72	0	0 0 122	0 0 -31	-2 -4 6	-16 -36 -72	0	0 0 122	0 -31	-2 -4 6
Seedling/sapling: 1-23 30-59 604 Poletimber: 1-29 30-59 604 Sawtimber: 1-22	0 0 -16 -36 -72 -12	0 0 0 0 0	0 0 122 0	0 0 -31 0	0 -2 -4 6 -1	9 -16 -36 -72 -12	0 0 0	0 0 122 0	0 -31	0 2 -4 6 -1

¹Negative (-) values = gains; positive values = losses; $0 = n_0$ net fire impact.

Table 10AFire-caused changes in net value of under intense public management, morthern Rocky size and discount rate	western white Hountains, by	pine fire	stands

4.0

Fire size: 1-99 acres | Fire size: 100+ acres Discount rate (pct)

7,875 10.0 | 4.0 7,875 10.0

87 87 88

-5 -10 -130

12 30

1978 dollars/acre burned

Stand productivity (cu ft/acre/yr), stand size, and mortality class (pct)

l Mostive (-)	values - gains;	positive values = loss	ses; 0 = no net fire impac	t.

Stand productivity	Fire	41ze: 1-99	acres	Fire	size: 100	+ acres
stand size, and		1	Discount	zate (po	t)	
(pct)	4.0	7.975	10.0	4.0	7,875	10.0
				·	1	
0445 (176.).		193	78 dolla	rs/acre b	ugned*	
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0					1 1 1
50+	401	162	131	401	102	191
3-29	11)	131	83	219	23	-22
30-59	330	130	82	166	-28	-73
60+	597	110	34	-26	-479	-539
Savtimber:						
1-29	-209	~550	-674	-1074	-1370	-14/2
30-59	145	193	-320	-630	-960	-1233
Hoderate (85-119): Seedling/sabling:	405	100		,		2.2
1-29	0	0	0	0	0	0
30-59	0	0	0	Ç	Q	0
60+	289	130	116	289	130	110
Poletimber:			120	403	136	
1-29	/41	3//	330	40.0	130	101
30-39	580	210	163	493	130	90
Sawtimber:	307					
1-29	271	~4	~10]	-387	-622	-700
30-59	491	220	121	-244	-477	-557
60+	620	319	215	-49	~311	-336
Low (50-84):						
\$00011ng/ Bap11ng:	0	0	0	0	0	0
30-59	217	135	128	217	135	128
60+	217	135	128	217	135	128
Poletimber:						
1-29	27	13	5	27	13	2
30-59	77	13	161	2/1	101	80
Sauticheri	220	190	101	243	101	
1-29	188	106	72	~93	-151	-173
30-59	273	198	164	-38	-91	-114
60+	255	166	132	-83	-142	-164
Very low (20-49):						
Seedling/sapling:						•
20-50	-1	ě	ň		ŏ	ň
60+	253	160	152	253	160	152
Poletimber:						
1-29	105	17	6	105	17	6
30-59	104	17	- 6	104	17	_6
60+	243	69	50	243	69	50
54VE1808[1 }=70	37	4	-73	-130	-157	-180
30-59	36	72	55	164	-120	-134
60+	27	39	26	-213	-192	-201

Table 9A--Fire-caused changes in net value of ponderosa pine stands under intenze public management, morthern Rocky Mountains, by fire size and discount rate

¹Negative (-) values = gains; positive values = losses; 0 = no net fire impact.

			1	-	-		Pire r	1.201 1		
fcu ft/acre/vr).	4	Fife	iize: 1	-39 acre	15		File (1201 1	aut acte	5
stand size, and	1				Time pe	ecied (yea	(a)			
(pct)	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50~99	100-200	0-200
••••••••••••••••••••••••••••••••••••••										
					Cu fi	t/acre/ye#	nr ¹			
Righ (120+):										
Seediing/sapiing	j: ^	n	6	0	a	0	۵	a	0	0
30-59	ň	ō	ō	ā	ē	ō	0	0	0	ō
60+	12	36	160	-91	Ó	12	36	160	-91	Ó.
Poletimber:										
1-29	-20	40	0	C	2	~20	40	9	6	2
30-59	-32	40	123		-10	-120	28	202	-78	_19
Sout inhers	-120	20	132	-75	-10	-120	**	***	~ 70	-10
1-29	-140	132	-152	٥	-39	-140	132	-152	0	-39
30-59	-140	132	-152	ō	-39	~140	132	-152	0	-39
60+	-140	132	6	-78	-39	-140	132	6	-78	-39
Moderate (85~119):	;									
Seedling/sapling	3:			_				-		
1-29	0	0	0	0	0	0	ů.	, v	0	0
30~59	ç	0	170	- 0	20		u 4	178	-9	20
	0	٩	120	-,	20	v		120	-,	20
tu29	0		106	0	27	D	4	106	a	27
30-59	ň		106	č	27	õ	4	105	õ	27
60+	ō	4	106	0	27	0	4	106	0	27
Savtimber:										
1-29	-72	96	14	0	0	-96	96	-14	0	-3
30-59	-72	96	-14	Ū,	0	-95	30	-14	0	-3
60 1	-96	95	-14	U	-3	-96	96	-14	U	-3
Condina/capling										
3-39	÷٠	n	0	D	0	0	D	a	D	0
30-59	ŏ	õ	ō	6	3	ŏ	ō	ō	6	ž
60+	ō	Ó	Ó	6	Ĵ.	0	0	0	6	3
Poletimber:										
1-29	D	0	10	0	2	0	0	10	0	2
30-59	0	Q	10	0	2	0	v.	10	0	2
50+	0	U	-2	1	U	a a	U	-1	1	0
1-29	52	0	26	0	n	+ 52	0	26	Û	a
30-59	-52	ŏ	26	ŏ	õ	-52	ō	26	ā	ō
60+	- 52	ō	26	0	Ō	-52	0	26	ċ	ō
Very low (20-45):										
Seedling/sapling	11								-	
1-29	0	Ď	D	0	Ū.	D D	, D	, D	D	0
30-59	0	0	0	0	0	0	0		0	0
Polatisbar.	0	U	v		v	v		v	v	•
1-29	0	0	10	0	2	0	0	10	0	2
30-59	ŏ	ō	ĩŏ	ō	2	ŏ	ō	ĩo	õ	2
60+	ō	Ċ	-2	2	٥	0	Û.	-2	2	0
Sawtimbers	-									
1-29	-56	0	14	6	0	-56	0	14	6	0
30-59	-56	Q	14	5	0	-56	0	14	è.	ů,
64+	-56	ũ	14	6	9	-56	v	14	•	U

Table 98--Fire-caused changes in net timber output of ponderona pine stands under intense public management, northern Rocky Mountains, by fire mize and time period

¹ Negative (-) values = gains; positive values = hence; 0 = no net fire izpact.

¹Negative (-) values = gains; positive values = losses; 0 = no net fire impact.

stand size, and	Discount rate (pct)									
nortality class (pct)	4.0	7.875	10.0	1 4.0	7.875	10.0				
		19	/8 0011	ers/acte ou	Luca					
High *(120+):										
Seedling/ sapirage	630	238	195	630	238	195				
1.29	622	730	187	622	230	197				
30-39	751	154	63	650	72	-15				
007	731									
Polecimber:	 B	-8	-0	-8	-8	-8				
27-50	-15	-15	-14	-15	-15	-14				
50-39	867	-120	-282	721	-249	-406				
Churcher (
Sawcincers	129	174	122	~200	-186	-180				
1-19	607	672	659	46	51	52				
30-39	1028	925	888	357	236	216				
GUY Madaabbo (85-116);	10,0									
Readling/spoling:										
Scenting/ sepirary.	772	203	135	772	203	135				
20.60	765	196	128	765	196	128				
30-33	1176	186	77	1056	125	20				
Bu7	1110		• •							
POIELIMUEL.	223	104	68	223	194	68				
10000	212	99	63	217	93	63				
30-39	1465	101	-134	1326	-27	-256				
aut.										
54VLIMDEL:	83	61	80	-183	-169	-162				
1-29	220	272	269	44	59	62				
20-23	972	A 3A	812	836	762	741				
100 (50-04) 1										
Conditor/expline:										
Jeeuring/ supring/	0	0	0	0	0	0				
30-59	2	õ	Ó	2	Q	0				
60.	195	101	96	293	101	96				
Delatiobers										
1-20	-1	-1	-1	-1	-1	-1				
30.65	3	-3	-3	3	-3	-3				
604	375	71	30	305	13	-24				
Sautimber:										
1-29	19	9	6	19	9	6				
30-59	409	176	85	296	74	-11				
604	522	276	184	449	215	129				
Very 104 (20-49):										
Seedling/sapling:										
1+29	0	0	0	0	6	0				
30-59	0	0	0	0	0	0				
60+	197	114	110	197	114	110				
Poletimber:						-				
1-29	-1	-1	-1	-1	-1	-1				
30-59	-3	-2	-2	-3	-2	-2				
60+	247	0	-24	171	-61	-78				
Sawtimber:										
1-29	-2	-2	-2	-2	÷2	-2				
30-59	-5	-5	~5	-5	-5	-5				
	-									

Stand productivity	1	Fire a	ize: 1	-99 Acre		1	Fire .	lixe: 1	UD+ Acre	
(cu ft/acre/yt), stand size, and					Time pe	riod (yes	15)			
mortality class (pct)	0-24	25-49	50~99	100-200	0-200	0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yea	1 I			
High (120+):										
Seedling/Gapling		- 60		6	-9	-40	-60	0	6	-9
1-29	-116	-60	ň	ă	÷19	-116	-60	Ó	6	-19
30-39	-200	-24	174	-78	-24	-200	-24	174	78	-24
50+	-200	-44								
Poletimoer:		0	n	0	-8	~68	0	0	0	-B
1-29	-118	ň	ň	õ	-16	-128	0	0	0	-16
30-39	-100	316	12	-84	-37	-300	316	12	-84	-37
604	-300			••						
Sawcimpel:	•	0	D	0	0	0	D	0	0	¢
1~23	ň	ŏ	ā	ū	Ū.	0	0	0	0	0
30~39	ň	ō	170	-84	C C	0	0	170	-84	0
100 (05-1)01	. °	•								
Coodling/sapling										
1-29	у.	36	-22	D	0	В	36	-22	0	0
30-59	~80	36	-22	Ð	-11	-80	36	-22	<u>o</u>	-11
604	-144	40	186	0	33	-144	40	186	Q	
Soletimber:										
1=29	-20	0	0	0	-2	-20	0	0	0	-2
30-59	-72	D	0	0	-9	-72	0	.0	Ů,	1.5
60+	-224	336	-12	D	11	-224	336	-12	U	11
Sautimbert							_			
1-29	0	D	0	0	0	D	0	, p	0	, v
30-59	0	0	0	Q	0	0	0	0	ů.	v.
60+	0	0	0	D	0	0	0	0		÷
LOW (50-84) 1										
Seedling/saplin	g;								•	•
1-29	- C	D	0	0	0	0	0		Ň	Ň
30-59	0	0	0	0	C	0				Š
60+	0	0	120	-59	0	U	ţ,	120	- 25	•
Poletimber:				-					0	-2
1-29	-20	0	0	0	-2	-20	ÿ	2	ě	
3059	-40	0		0	-5	- 40	×	102	Ň	13
60+	+96	0	102	0	13	-30	v	142	•	
Savtimber:					-		•	•	0	-7
1-29	-20	0	6	0	-2	-20	š		Ň	
30-59	8	0	0	5			ž	Ň		1
60+	8	C	0	U	1	¢			*	
Very low (20-49):										
Seedling/saplir	ig:					0			0	6
1-29	0	0			, v	Ň	ň	័	õ	ċ
30-59	0	U U		ų į	ň	ň	ő	Ď	. 6	
60+	0				5	•		-	-	
Poletimber:					- 2	-20	0	0	0	-3
1-29	-20	ů		, i		-10	ň	ñ	ċ	
30-59	-49	, v	102		38	- 92	ŏ	102	49	38
50+	-92	C	102	49	30	-32	•			•
Sawtipber:		-			-1	.74	0	0	0	-;
1-29	-24	0				-60	ň	ò	Ď	
30-59	-60	0				-00	ŏ	č	49	2
60+	8	0		, 49	25			•		

Table 12AFire-cause under intense public m size and discount rate	d changes in net value of snagement, northern Rocky	hemlock stands Mountains, by fire
Stand productivity	Fire size: 1-99 acres	Pire size: 100+ acres

Table 128 Fire-caused changes in net timber output	of by	hemlock stands under fire size and time period
Incense public managements notemette wood]		

		731	e dorrer	D/ WOLL 04		
(igh (120+):						
Secdling/sapling:			100	163	112	102
1-29	463	132	102	467	112	102
30-59	467	132	102	407	132	201
60+	460	125	95	400	143	
Poletimber:						20
1~29	161	62	38	101		30
30-59	179	60	36	1/3	120	20
60+	1235	222	84	1141	139	
Sawtimber:						
1-29	204	116	99	-197	-264	-270
30-59	498	303	262	164	-12	
60+	709	477	431	576	355	310
ioderate (85-119);						
Seedling/sapling;					_	
1-29	0	0	0	0		0
30-59	429	126	98	429	126	56
60+	426	126	98	426	125	98
Poletimber					~-	
1-29	296	87	44	296	87	44
30-59	293	84	42	2 9 3	84	42
60+	1189	214	83	1094	130	
Sautipher:						
1-29	2	3	4	-225	-209	-203
30-59	20	30	31	-200	-176	+165
50+	87	101	114	-19	7	26
100 (50-84) 1						
Seedling/seling:						
1.20	6	0	0	D	٥	
30-59	õ	ō	õ	0	0	
604	252	137	114	252	137	114
Poletimbers						
1_30	265	164	127	265	164	127
20-50	263	161	124	263	161	12-
50-23	616	156	95	502	56	
CUT Cartanhari						
	272	97	34	\$7	-64	-119
20-50	259	130	67	97	-19	-2:
30-33	292	127	77	194	43	
120-48\-			• •			
very iow (20-43);						
266011144 24b1144	n	D	0	0	0	
20-50	õ	ŏ	õ	Ó	0	
30-37	160	163	133	368	163	13
	200	- 45				
Polecimoert	459	195	123	458	195	12
1-29	455	192	120	455	192	12
30-39	749	127	34	624	19	-6
+60	193					
Sawtimber:	-1	-1	-1	-1	-1	-
1747	-1		-2	-2	-2	-
10-59		-2	18	211	6	- 4
6.0+	310	29	20	4+4	•	

t,	¹ Negative (-)	values = gains;	positive values =	Joasen1	0 = no net fin	e ispact.

Stand productivity	1	Fire a	ize: 1	-99 acre	8	1	Fire 2	1120: 1	00+ acre	\$
(cu ft/acre/yr), stand size, and	<u> </u>				Time pe	riod lyes	rs)			
mortality class (pet)	0-24	25-49	50-99	100-200	0-200	-1 0-24	25-49	50-99	100-200	0-20
					Co ft	/acte/vel	<u>_</u> 1			
114ab (1206) /					Cu 10	,	•			
Feedling/sapling	1									
1-29	12	20	-16	0	0	12	20	-16		, v
30-59	12	20	~16	10	5	12	20	-16	10	-8
60+	-92	20	-16	10	-8	-92	20	-10	10	•
Poletimber:				•	-1	-12	0	0	a	-1
1-29	-12	0		8	-1	-10	ň	12	ē	2
30~59	- 40	-22	159	-68	-12	-140	-12	158	-68	-14
69+	-140	-12	1.00	-00						
Sawcimber:	0	ń	0	0	0	0	0	0	0	0
20-59	ŏ	12	16	11	- 11	0	12	16	11	11
50+	ō	12	172	-68	10	0	12	172	~68	10
Hoderate (85-119);										
Seedling/sapling	1								•	
1-29	0	0	0	0	0	0	0	, v		
30-59	Ċ	0	0	55	28	0	v.	š	32	20
60+	0	0	0	58	29	ų	v	v	24	
Poletimber:					1		60	0	0	3
1-29	~32	50	, v	0	ŝ	-56	60	ŏ	ō	Ó
30-59	- 20	40	120	-6	19	-140	60	130	-6	19
60+	-140	69	130	-						
SAWCIMORE:		n	0	0	٥	0	0	0	0	0
1-25	ŏ	ŏ	ō	ő	ō	0	0	0	0	0
50-35	ŏ	ō	6	-6	-1	0	0	6	~6	-1
Low [50-84] :										
Seedling/sapling	17								•	
1-29	` 0	0	0	0	0	0		0	, N	Š
30-59	0	0	0	0	. 0			- 40	, v	-10
60+	-104	80	-40		-10	-104	eu	-40		
Poletinber:				~		17	a	0	D	2
1-29	12	0		š	-1	-29	ň	č	õ	-3
30-59	- 28		170	- 39		-176	ă	170	-38	1
60+	-1/6	•	170	-30	-					
Sawtinber:	-84	30	-12	6	1	-84	96	-12	6	1
30-59	-84	96	-12	ō	-1	-84	96	-12	D	-1
60+	~84	96	Ö	33	18	-84	96	Û	33	18
Very low (20-49);										
Seedling/saplin	9:									
1-29	0	0	0	0	0	, v		Ň	ň	
30-59	0	_0_	0	0	Ň		76	-18	ŏ	č
60+	0	76	-10	v	•	•			-	
Poletimber:		~	~	^	р	4	D	Ď	0	
1-29	- 40	0	Ň	č	-5	-40	õ	ŏ	ō	
30-59	-200	ŏ	170	ă	17	-200	õ	170	Ð	1
50+	-200	Ŷ	110	-	- 1					
1-10	-70	0	0	۵	-2	~20	0	0	0	-:
10-59	-2R	ō	ŏ	ō	-3	-28	0	0	Ģ	-
20-02		ăe –	ā	Ď	i	-B4	96	0	0	

Table 11A--Pire-caused changes in net value of fir-spruce stands under intense public management, morthern Rocky Mountains, by fire size and discount rate Stand productivity (cu ft/acre/yr), stand mize, and mortality class (pct)

Fire Size: 1-99 acres | Fire Size: 100+ acres Discount rate (pct) 4.0 7.875 10.0 | 4.0 7.875 10.0

1978 dollars/acre burned¹

15

		19	78 dollar	e/acre ou	rneo	
igh (120+);						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30~59	0	Û	Q	0	0	0
60+	274	119	102	274	119	102
Poletimber:					_	
1-29	20	5	2	20	5	2
30~59	973	305	160	795	142	
60+	875	327	205	717	237	120
Sawtimber:						
1-29	147	110	107	14/	118	107
30-59	174	135	120	174	135	120
50+	335	391	342	195	261	512
oderate (85-119):						
Seedling/sapling:			_	-		
1-29	0	0	0	0	0	0
30-59	Q.	¢.	0	0		0
60+	204	117	108	204	117	108
Poletimber:			-			-
1-29	42	13	7	42	13	7
30+-59	39	10	4	39	10	. 4
60+	754	264	176	642	162	79
Sawtimber:						
1-29	56	50	47	56	50	47
30~59	55	49	46	55	49	46
60+	367	297	235	235	176	119
ow (50-84):						
Seedling/sapling:						
1-29	~263	~253	-248	-263	+253	-248
30-59	-263	-253	-248	-263	-253	-249
50 1	-110	-141	-141	~110	-141	-141
Poletimber:						
1-29	0	0	0	Q	-0	0
30-59	446	279	220	353	195	141
60+	335	190	142	254	122	80
Sawtimber:						_
1-29	16	10	7	16	10	.7
30-59	26	16	12	26	16	12
60+	108	131	114	1	41	31
ery low (20-49):						
Seedling/sapling:						
1-29	-49	-47	-46	-49	-47	-46
30~59	- 49	-47	-46	-49	-47	-46
60+	110	79	74	116	79	74
Poletimber:						
1-29	247	65	31	247	65	31
30-59	245	66	31	245	56	31
60+	248	65	30	248	65	30
Sawtimber:						
1-29	12	7	5	12	7	5
30-59	81	36	12	8	-34	~56
		60	65	121	71	46

(pct)	1 0~24	25-49	50-99	100~200	0-200	0-24	25-49	50~99	100-200	0-200
					Cu ft	/aci¢/Ara	r ¹			
High (128+):										
Seedling/sapl	ing:									
1-29	- 0	0	0	Q	0	0	0	0	0	0
30~59	0	0	¢	Û	Q	0	0	0	, p	0
60+	0	D	0	-10	-5	0	0	Q	-10	-5
Poletizber:								-	_	
1-29	-24	8	0	0	2	-24	8	0	0	+2
30-59	-104	276	-176	0	-22	-104	276	-176	0	-22
60+	-104	260	-190	-10	-33	-104	260	-190	-10	-33
Sawtimber:								•		~
1-29	20	0	C	o	2	20	0	0	U O	2
30-59	4	0	0	0	0	4			10	
60+	36	-24	~166	-10	-45	0	-24	-190	-10	-47
Hoderate [85-1]	9):									
Seedling/sapl	ing:			-				•		~
1-29	0	0	0	0	0	0	0	0	ů	2
30-59	U U	0	0	ų.	5	Ň	v v	Ň	- 4	-2
60+	D	0	u	-4	-2	U		•	-4	-4
Poletimber:					•	•		•	•	•
1-29	0	10	0	0			10	ž	ă	-å
30-59	-44	10		, v		- 44	10		- 4	10
60+	-96	12	30	-4	10	-90	12	30		10
Sawtimber:		-			~	4	•	0	n	٥
1-29		U.		, in the second s	-1	-12	Ň	ň	ă	-1
30-39	~12	ÿ	. 10	- 1		-12	-4	-12	- 4	-4
60+	36	-4	-12		~4			-1*		
LOW (50-84):	4									
securing/sapr	711G1 V	•	0	0	0	a.	a	0	0	0
20-60	Ň	ň	ň	ň	õ	ň	ň	õ	ō	ō
50-39	ň	ň	ň	ň	ŏ	ň	ň	ō	Ď	ă
Poletisher.	5		•		•	•	•	-	-	-
1_20	0	0	0	0	0	0	0	0	D	0
10_60	ň	120	-12	ň	12	ŏ	120	-12	ò	12
604	ň	120	-12	ň	12	å	120	-12	Ó	12
Cautishers				•						
1_20	-12	0	a	0	-1	~12	0	0	0	-1
10-59	-20	ñ	ň	ŏ	2	-20	Ó	Ó	Ó	-z
604	Ř	õ	ě	-5	-2	6	ō	0	-5	-2
Very 109 (20-49	ar Č	-	•	•						
Seedling/sapl	inar									
1-29	0	0	0	0	0	0	0	0	D	0
30-59	Ó	ō	Ó	Ó	0	0	C C	0	0	0
60+	ō	Ö	Ö	Ó	0	0	0	0	0	0
Poletimber:						•				
1-29	0	76	0	0	5	0	76	0	Ð	9
30-59	0	76	0	0	9	0	76	· 0	0	9
60+	0	76	0	0	9	0	76	0	٥	9
Sawtimber:										
1-29	-4	Ũ	0	D	0	-4	0	Û	ຽ	0
30-59	8	0	0	D	1	8	0	¢.	0	1
60+	8	D	0	0	1	e	0	0	0	1

¹Negative (-) values = gains; positive values = losses; 0 = no net fire impact.

size and discount fate	:						
Stand productivity {cu ft/acre/yr},	Fire é	ize: 1-9	9 acres	Fire	size: 100	+ acres	Stand productivity (cu ft/acre/yr), [.
stand size, and			Discount	t rate (pc	E)		scand uize, and portality class
(pot)	4.0	7,875	10.0	1 4.0	7.875	10.0	(pct)
		19	78 dolla	arm/acre b	urned ¹		
High (120+);							High (120+):
Seedling/sapling:				-			Secoling/sapling:
1-29	0	0	0	0	0	0	1-29
30-59	0	0	u 	274	110	102	50-59
60+	274	119	102	214	119	102	Polotimber
Poletimber:				20	5	,	1-29
1-29	072	306	160	745	142	1 -	30-59 -
30~59	975	103	205	777	217	120	50+ -
00+	015	321	205				Sawtimber:
Saveinder	147	110	107	147	118	107	1-29
20-60	174	135	120	174	135	120	30-59
20-39	335	391	142	195	261	215	60+
Hodorate (85-119):			242				Hoderate [85-119]:
Seedling/sapling:							Seedling/sapling:
1-29	0	0	Ö	0	0	0	1-29
30-59	Ó	0	0	0	0	0	30-59
60+	204	117	108	204	117	108	60+
Poletimber:							Poletimber:
1-29	42	13	7	42	13	7	1-29
30-59	39	10	4	39	10	4	30-59
60+	754	264	176	642	162	79	60+
Sawtimber:							Sawtimber:
1-29	56	50	47	20	50	1/	1-29
30~59	55	49	46	55		40	30-39
60+	367	297	235	235	110	119	100 (60-94)
Low (50-84):							Conding (applies.
Seedling/sapling:	242		248	-261	-252	-248	1-29
1-29	~263	~253	-298	-263	-253	- 240	30-59
30-59	-203	-253	-240	-203	-141	-141	60+
50 1	-110	-741	-141				Poletimber:
Polecimber:		•	0	0	-0	â	1-29
10-10	446	270	220	353	195	141	30-59
50-39 604	335	190	1 2	254	122	ao	60+
Sautimbers	200						Sawtimber:
1-20	16	10	7	16	10	7	1-29
30-59	26	16	12	26	16	12	30-59
60+	108	131	114	1	41	31	60+
Very 1ow (20-49):							Very low (20-49):
Scedling/sapling:							Seedling/sapling:
1-29	-49	-47	-46	-49	-47	-46	1-29
30-59	-49	-47	-46	-49	-47	-46	30-59
60+	110	79	74	116	79	74	60+
Poletimber:							Poletimber:
1-29	247	65	a'r	247	65	31	1-29
30-59	245	66	31	245	56	31	30-59
60+	248	65	30	248	65	30	60+
Sawtimber:	-	_			-		SAWLINDOC:
1-29	12	7	5	12	7	2	1~29

Table 148--Fire-caused changes in net timber output of lodgspole pine stands under intense public management, northern Rocky Mountains, by fire size and time period

Fire size: 1-99 acres | Fire size: 100+ acres

Time period (years)

¹Regative (-) values = gains; positive values = losses; 0 = no net fire impact,

Table 13AFire-cause under intense public r size and discount rate	ed changes sanagement s	in net , northe	value of rn Rocky	larch sta Kountaina	inds 1, by fire	
Stand productivity (cu ft/scre/yr),	Fire	size: 1-9	9 acres	i Fire a	ize: 100+	acre6
stand size, and			Discount	race (pc)	.,	
(pet)	4.0	7.875	10.0	1 4.0	7.875	10.0
		19	78 dolla	rs/acre bu	rned ¹	
High {120+}:						
Secdling/capling:	433	227	200	471	237	209
30-55	412	229	203	412	229	201
604	408	225	198	408	225	198
Poletimber:	100					
1-29	-7	~6	-6	-3	-6	-6
30~59	-9	-9	-9	~9	~9	-9
60+	642	54	-55	631	-134	~232
Sawtimber:					-73	-77
1-29	40	22	10	-760	-355	-426
501	\$78	404	304	-76	-211	-292
Hoderate (85-1191)	510	463	50.			
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	0	0	0		0
50+	347	160	143	347	160	143
Poletimber:			- 2	121		22
1-19	120	43	55	179	15	22
50-55	1064	278	151	899	133	16
Sawtimber:						
1-29	21	12	в	21	12	8
30-59	394	322	262	91	43	-4
60+	391	311	251	250	189	138
Low (50-84):						
Seedling/sapling:	0		<u>n</u>	0	n	0
1-29	ň	0	õ	ñ	ő	ň
60+	ŏ	ŭ	ō	õ	õ	ō
Poletimber:						
1-29	-1	-1	~1	-1	-1	-1
30-59	-2	-2	-2	-2	-2	-2
60+	513	200	156	373	61	40
Sawtimber:	- 2	-7	- 2	-2	- 2	-2
20-50	420	10	-67	275	-131	-205
50-59	671	229	139	504	83	- 3
Very low (20-49):						
Seedling/sepling:						
1-29	0	۵	p	<u>o</u>	0	Q
30-59	0 0	0	0	0	0	ů.
+0 <i>a</i>	-1	v	v	-1	v	
1-20 1-20	-1	-1	-1	-1	-1	-1
30-59	-1	-î	-î	-î	-ī	-î
60+	309	153	127	237	29	14
Sawtimber:			-			
1-29	-2	-2	-2	-2	-2	-2
30-59	346	-72	-138	200	~212	-275
60+	544	146	BO	363	-8	-01

¹Regative (-) values = gains; positive values = losses; 0 = no net fire impact.

Table 14A--Fire-caused changes in net value of lodgepole pine stands under intense public management, northern Rocky Mountains, by fire size and discount rate

(pee)	1 0.44	45 45	30 55							
					Cu ft	/acre/vea	r1			
Rich (120+);						, ,				
Seedling/sapl	1007									
1-29		D	0	D	0	0	0	0	Q	0
30-59	-108	ō	ō	ō	-13	~108	0	0	0	~13
60.	-144	à	õ	ò	-18	-144	Ó	0	0	+18
Polotisher		-	-	-						
1-19	-56	8	a	0	-3	-56	0	0	3	-7
30.50	-80	ñ	ñ	ñ	-10	-80	õ	D	0	-10
50-39	-196	~7Å	148	-84	-33	-196	-24	148	-84	-33
Rauticher.				- •						
3-70	-20	0	0	0	-2	-20	0	0	0	-2
30-60	12	ō	-17Å	ñ	** 4 1	12	ā	-170	e	-41
50-55	15	ň	-1,0	-94	-43	52	ň		-84	-41
Wedness (DE 11	A1 - 14						•	-	• •	
Seedling/sepl	ing:			-		•				
1-29	0	Q.	0	0	0	U	0	, v	U U	0
30-59	¢	0	Ç	Q		0	0	v.	- 0	- 0
,60+	4	-4	0	59	30	4	~4	0	59	30
Poletimber:										
1-29	-36	24	0	0	-1	-35	24	9	U	-1
30-59	-48	24	0	0	-3	-48	24	0	0	-3
60+	-120	20	104	0	13	-120	20	104	¢	13
Savtimber:										
1-29	-12	0	0	C	-1	-12	0	0	0	-1
30-59	24	-4	2	0	3	24	-4	2	0	3
60+	24	-4	2	0	Э	24	-4	2	0	3
Lov (50-84):										
Seedling/sapl	ing:									
1-29	° 0	0	Û	0	0	۵	0	0	0	0
30-59	0	0	0	0	a	0	Û.	0	0	0
60+	0	0	0	0	0	0	0	0	0	0
Poletimbers										
1-29	-24	0	0	0	~3	~24	0	0	0	-3
30-59	-32	C	0	0	-4	-32	0	0	0	-4
60+	-76	0	122	0	21	-76	0	122	0	21
Sawtimbers										
1-29	-24	0	۵	0	-3	-24	0	0	0	-3
30-59	-116	140	0	0	3	-116	140	0	0	3
60+	-116	140	0	0	3	-116	140	0	0	э
Very low (20-49	1:			÷						
Seedling/gap1	inge									
1-29		0	0	0	0	¢	0	0	0	0
30.59	ō	ā	ō	ō	0	D	0	0	0	0
60+	ŏ	ñ	ŏ	ō	ō	Ō	ō	Ó	ō	Ū.
Poletimber		-	-	-						
1.00	-20	0	0	0	+2	-20	0	٥	0	-2
10-59	-28	ő	ő	ŏ	-3	-28	á	õ	Ó	~3
50-33	-10	ĕ	122	-31	6	-72	ñ	122	-33	6
Cout inher.		Ŷ	***		-	••	-			•
1-30	-24		0	¢.	-3	-24	¢.	n	ø	-3
1-29	-116	š	£0			-116	ň	68	ň	2
30-39	-110	, in the second s		20	17	-116		68	20	- 12
60+	-110	0	60	29	* /	-110	ų	60	23	

Table 13B--Fire-caused changes in net timber output of larch stands under intense public management, northern Rocky Mountains, by fire size and time period
 Internet public management, nuthern worky nounceshe, by tite bize and time period

 Stand productivity
 Fire size: 1-99 acres

 [cu ft/acres/yi],
 Ite size: 1-99 acres

 motality cises
 Ite period (years)

 motality cises
 Ite size: 100+ acres

 [pct]
 Ite size: 100+ acres

30-59	131	141	141	-34	-18	-15	
50+	313	269	264	93	57	56	
l _{Negative (-)} situation not anal	values = gains; pos yzed.	itive val	ues = losse	aj0 ≃ no n	et fire i	spact; —	-

Inequive (-) values = gains, positive values = losses; θ = no net fire inpact; -- = situation not analyzed.

Stand productivity (cu ft/acre/yr),	Fire a	ire: 1-9	acres	1 Fire 4	ixe: 100-	+ acres
stand size, and			Discount	rate (pot	.)	
(pct)	4.0	7.875	10.0	1 4.0	7.875	10.0
		19	78 dolla	rs/acre bu	tueqj	
High (120+):				-		
Seedling/sapling:						
1-29						
30~59						
Dut Deletimber:						
1-30						
30-59						
60+						
Sawtimber:						
1-29						
30-59	••••					
60+						
Seedling/sapling:						
1-29	0	0	0	0	g	, p
30-59	0		Ň		Ň	, v
60+	v	U	U		÷	
Poletimoer;	n	n		n	n	0
30-59	543	322	259	413	196	135
60+	468	229	163	417	184	120
Savtimber:						
1-29	192	185	182	-304	-289	-281
30-59	445	429	421	-150	-140	~135
60+	684	644	525	46	33	33
Low (50-84):						
Seediing/sapiing:	•			•	0	
1-29	ŏ	ň	ŏ	ň	ň	ň
50-33	350	111	78	350	114	78
Poletimber:	220					
1-29	0	0	0	0	0	0
30-59	0	0	0	0	o	0
60+	647	157	72	647	157	72
Sawtimber:						
1-29	25	38	39	-115	-98	-34
30-59	110	252	138	-55	-30	-35
6U+	285	237	204	•0		
Caedling/repling:						
1-74	6	0	0	0	0	0
30-59	Ó	Ó	0	Û	0	0
60+	0	0	6	0	0	0
Poletimber:	_					
1-29	0	0	0	0	0	0
30-59		100	0		100	50
60+	839	133	88	835	199	80
Newcimper:	38	41	12	-82	-75	-71
30-59	131	141	241	-34	-18	-15
	111	269	254	93	57	56

Stand productivity	Pire size: 1-99 acres Fire size: 100+ acres											
stand size, and	Time period (years)											
(pct)	0-24	25-49	50-99	100-200	0-200	0-24	25-49	50-99	100-200	0-200		
					Cu Fb		-1					
High (120+);						4010/ 340	•					
Seedling/sapling:												
1-29												
60+		~-										
Poletimber:												
1-29												
30-59												
60+							.	~~				
1-79		_~			~-							
30-55												
60+												
Hoderate (85-119):												
Seedling/mapling:	-		-		-				-			
1-29	ç	6	0	0	0	0	a	0	0	0		
20-23		Ň	Ň	, N	Ň	Ň	×	ž	Ň	š		
Poletimbers	•	u.	v	v		•	v	v	•			
1-29	0	0	0	0	0	0	0	0	e	D		
30-59	Č.	128	-92	46	16	ō	128	-92	46	16		
60+	0	128	-92	46	16	0	128	-92	46	16		
Sawtinber:	-		-	-	-	_						
1-29	0	0	0		0	0	0	0	0	0		
50-59	Ň	ň	Ň	0	0	Ň	ň	Ň	ň	ň		
LOW (50+843+			v	v		v		v	v	v		
Seedling/sapling:		•										
1-29	0	0	0	0	0	0	0	0	0	0		
30-59	0	0	0	Û	0	e	0	0	¢.	D		
60+	٥	0	¢	0	0	0	C	0	0	0		
Poletimber:	•		•	•	n	۰.	0	0	0	•		
30-59	ň		ň	Ň	ő	ň-	ő	ň	ň	ň		
60+	Ď	180	-126	ă	- <u>9</u>	ŏ	180	-128	ŏ	-, ě		
Sawtimber:												
1-29	0	٥	0	0	9	0	0	p	.0	0		
30-59	0	0	0	0	0	0	0	-0	0	0		
60+	0	6	9	0	0	D	0	C.	0	a		
Seedling/sepling												
1-29	D	0	0	0	a	D	a	D	Đ	0		
30-59	ō	ō	ō	ō	ō	ō	ō	ō	ō	ō		
60+	0	0	Q	0	0	D	0	0	D	D		
Poletimber:	-	-				_			_			
1-29	0	0	0	<u>0</u>	0	ę.	0			0		
30-59	ů.	104	-172	5	-10	Ň	104	-132	Ň			
Sautimbar:	ų	*04	-134	v	-10		104	-132	•	-10		
1-29	0	0	0	0	0	¢.	0	0	0	0		
30-59	Ū	ő	ō	Ō	ō	Ó	ō	ō	Ġ	ő		
		•	•	•		~	•	`n	•	•		

Table	16AFire-caused changes in net value of penderosa pine st	anda
under	passive private management, northern Rocky Nountains, by fi	re
P176 9	The stacoant face	

pct)	1 4.0	7.675	10.0	1 4.0	7.075	10.0
		19	78 doll4	ars/acre bu	urnedl	
Bigh (120+):						
Seedling/mapling:						
1-29					~-	
30-59						
50+						
Polecimoer:		~				
20-59						
504					~-	
Sautimbers						
1-29						
30-59						
60+			~~			
inderate (85-119):						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	o	0	0	0	, o
60+	-22	0	0	-22	0	0
Poletimber:		-				
1-29	4	2	.1	1	2	1
30-59	6	6			1	
60+	351	322	259	581	209	209
Savtimberi			Ì.	- 390	-266	-166
1-29	222	202	200	-170	-120	_126
30-39	274	362	355	-135	-61	-56
	2/ 9	302	222	-1/0	-44	-54
Conditor/espliper						
Veralitida patarida.	0	۵	0	0	0	0
30-59	ň	ă	Ď	ŏ	ō	ā
60+	345	120	89	345	120	85
Poletimberi						
1-29	-2	-2	-1	-2	-2	-1
30-59	-3	-3	-3	-3	-3	-3
60+	1066	341	184	1056	331	174
Sawtimber:						
1-29	-6	6	9	-143	-126	-122
30-59	191	196	194	-43	~30	-27
60+	476	301	292	207	39	35
/ery low (20-49):						
Seedling/sapling:		•		27	•	
1-29	27	2		27	š	9
10-59	175	176	0.6	425	176	64
	445	120	00	423	A 20	00
Poletimuer:	51	-1	-2		-89	-87
30-50	1141	161	-45	867	-104	-305
60+	1457	459	245	1061	78	-124
Sawtimbers				**		
1-29	271	36	30	120	-110	-113
30-59	383	142	134	262	26	20
	167	210	209	168	3 2 3	115

¹ Negative (-)) values = gains;	positive	values =	lonsen	0 = no pet	fire ispact;	#
aituation not and	alyzed.						

Stand productivity		Pire e	lize: 1-	-99 acre		1	fire d	ize: 1	00+ acre	6
(cu ft/acce/yr), stand size, and					Time pe	riod (yea	rs)			
nortality class ([pct]	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yea	r ¹			
High (120+):										
Seedling/sapling:										
1-29										
30-59		~~						- E		
60+										
Poletiaberi										
20-59										**
50-35										
Sautimbert										
1-29							~~			
30-59					***					
60+										•••
Roderate (85-119):										
Seedling/sapling:										
1-29	0	0	0	0	0	0	0	0	o	0
30-59	0	0	0	0	0	0	<u>o</u>	0	0	0
60+	0	0	0	~18	-9	0	0	Q	-10	-9
Poletimber:									•	
1-29	0	D	0	0		0	Ň		Ň	
30-59	100	0	-16	-10	-5	1 20	Ň	-36	-18	
5U+	120	v	-10	-10	-4	120		-50	-10	
Sawcimber:	•	•		٥	0	0	0	۵.	0	D
20-50	ě	ň	ň	ň	ň	ă	ñ	ň	ñ	õ
50-33	ň	Ď	-16	~18	-18	ō	ŏ	~36	-28	-18
LON (50-94) -	•	•								
Seedling/sapling:										
1-29	0	0	0	0	0	0	0	0	0	0
30-59	Ó	0	0	0	e	0	0	0	0	٥
60+	0	Û	0	21	10	0	0	0	21	30
Poletimber:										
1-29	-24	Ģ	0	0	-3	-24	0	0	0	-3
30~59	-40	0	0	0	- 5	-40	0	D	0	- 22
50+	-96	180	D	21	21	~96	180	Q	21	21
Sawtimber:	-				•		~	•	•	•
1-29			, u		, v	U A	š	Ň	Ň	Ň
30-59		×.	1 100			, and a second se	Ň	1 20	21	47
50+	v	U U	1 20	21	44	v		140	**	
Fordling/sepling										
1-29		D	٥	39	19	0	٥	0	39	19
30-59	ō	ō	ā	39	19	ō	Ó	Ó	39	19
60+	õ	D	ō	39	19	Ċ	ò	0	39	19
Poletisber:	-	-								
1-29	-24	0	0	39	16	-24	0	0	39	16
30-59	-96	184	0	39	30	-96	184	0	39	30
60+	-96	184	۵	39	30	-96	184	Ó	39	30
Sawtimber:						_				
1-29	0	0	132	39	52	0	0	132	39	52
30-59	0	0	132	39	52	0	0	132	39	52
60+	0	٥	132	39	52	C	0	132	39	52

Table 15A--Fire-Caused changes in net value of Douglas-fir stands under passive private management, northern Nocky Mountains, by fire size and discount rate Stand productivity (cu ft/acre/yr), stand mize, and portality Class

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Fire mize: 1-99 acres | Fire 6120: 100+ acres

Table 158--Fire-caused changes in net timber output of Douglas-fir stands under passive private management, northern Rocky Mountains, by fire size and time period

¹ Negative situation not	(-) values = analyzed.	gains; pos	itive valu	ea = 10860	a; 0 = no ni	et fire i	apactı =

30-59 60+	0	0	0	0	0 0	0	0	0	
¹ Negative (-) val situation not analyze	ues = gair d.	us, posit	ive valu	en = 105	ses;0≖n	no met fir	e impact;	- •	

Table 18A-"Fire-caur under passive private size and discount rat	ed change manageme e	s in net nt, north	value of ern Roci	fir-spru y Mountai	ce stands as, by fir	e
Stand productivity [cu ft/acre/yr],	Fire	size: 1-9	9 acres	Pire	size: 100+	acres
stand size, and	1		Discount	: rate (pc)	=)	
(pct)	4.0	7.875	10.0	1 4.0	7.875	10.0
		19	78 dolla	ts/acre b	urned	
Bigh (120+):						
Seedling/sapling:						
1-29						
50-59						
Poletimber:						
1-29						
30-59						
60+						
Sawtimber:						
1-29						~-
50+						
Hoderate (85~119):						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	4 4 1	122	82	441	122	82
50+	441	122	82	441	172	82
Polecimber:	- 3	-7	-7	-3	-2	-2
30-59	ĩ	-5	-4	ĩ	-5	-4
60+	1070	258	103	1020	215	64
Sawtimber:						
1-29	13	14	14	~152	-141	-136
30-59	53	25	32	-104	-122	-111
Low [50-84] :	214	250	200	140	191	200
Secdling/gapling:						
1-29	-3	-3	-2	-3	+3	-2
30-59	22	-3	-2	25	D	٥
60+	25	0	0	25	C	e
Poletimber:	-	- 1	- 2		-	
10-59	58	-5		59	-2	-1
60+	1334	455	241	1305	428	214
Sawtimber:						
1-29	80	77	75	12	12	12
30-59	395	123	112	336	67	56
60+ Marti 16: (30-40) -	545	263	248	521	240	225
foodling/rapling						
1-29	Ċ.	Ó	0	Ď	0	¢.
30-59	ō	ō	ō	õ	ō	ō
6 D+	D	0	۵	D	0	D
Foletimber:				-		-
1-29	-3	-3	-3	-3	-3	-3
50-39	1265	470	250	1246	452	233
Savtimber:		- 10	200	***0	-32	200
1-29	46	44	44	-11	-10	-10
30-59	66	64	63	12	13	13
60+	318	304	298	300	267	282

Stand productivity	[Fire z	ize: 1-	99 acre	6	1	Fire c	ize: 1	00+ acr?	6
stand size, and					Time pe	riod (yea	rs)		·	
(pat)	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yea	rl			
High (120+):										
Seedling/sapling	•									
1-29			~ ~							We At
30-59										
60+										
Poletimber:										
1-29										
30-59			~~							**
60+	***	~~	** **	Bar - 44						
Sawtimber:										
1-29										
30-59			B					***	~~~~	
60+	****					~-		***		
Noderate (85-119): Seedling/sapling	:									
1-29	0	Û	0	0	0	0	0	0	0	Û
30~59	0	0	C	45	22	0	0	0	45	22
60+	0	D	0	45	22	C	0	0	45	22
Poletimber:										
1-29	-28	Ó	0	0	-3	~28	0	0	0	-3
30-59	-44	0	C	6	-2	-44	0	0	6	-2
60+	-116	236	-78	45	18	-116	236	-78	45	18
Sawtinber:										
1-29	0	0	0	0	o	0	٥	0	0	Û
30-59	0	0	-78	45	Э	0	Q	-78	45	3
60 +	0	٥	~78	45	з	٥	0	-78	45	3
Low (50-84):										
Seedling/sapling	:									
1-29	-36	0	0	0	-4	-36	¢	0	0	-4
30-59	-36	0	۵	24	7	0	0	0	24	12
60+	Û	0	0	24	12	Q	0	0	24	12
Poletimber:										
1-29	-24	0	e	0	-3	-24	0	0	C	-3
30~59	40	0	a	68	29	40	0	ç	68	29
60+	52	0	C	136	75	52	0	0	136	75
Sawtimber:										
1-29	Q	0	0	Ċ	0	0	0	0	¢	0
30-59	0	0	180	47	68	0	0	180	47	68
60+	٥	0	180	47	68	0	0	180	47	68
Very low (20-49):										
Seedling/sapling										
1-29	0	0	0	o	0	0	0	0	0	0
30-59	0	Q	0	0	0	0	0	0	0	0
604	0	0	0	0	0	0	0	0	C	0
Poletimber:					-		-		-	
1-29	-44	0	0	0	~5	-44	0	0	D	≁5
30~59	~72	0	0	0	-9	-72	0	Q.	0	-9
60+	60	0	0	0	2	60	0	0	D	7
Sawtimber:										
1-29	¢.	0	0	0	0	ġ.	0	0	0	0
30-59	0	0	0	0	D	0	Û	0	0	0
60+	0	0	0	0	0	9	0	C	Q	0

of fir-spruce stands	Table	18BPire	-caused chi	inges in no	et ti≃be	r output d	f fir-a	pruce s	stands un	nder
locky Hountains, by fire	passive	private	management.	northern	Rocky M	lountains,	by fire	size s	and time	period

Low Shi	Fire 5	ize: 1-9	9 acres	Pire u	size: 100	+ acres
stand size, and			Discount	rate (pot	;)	
(pct)	4.0	7,875	10.0	1 4.0	7,875	10.0
			78 dalla	n/acre bi	urned ¹	
ligh (120+):		**				
Seedling/sapling:						
1-29			~~	-		
604						
Poletimber:						
1-29						
30-59						
60+						
Sawtimber:						
1-29						
30~59					**	
50+						
Seedling/senling:						
1-29	٥	0	a	0	0	۵.
30-59	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ
60+	437	188	128	437	188	128
Poletimber:						
1-29	52	36	28	62	36	26
30~59	129	76	57	129	76	57
60+	1062	584	428	1040	562	407
Sawtimber:						
1-29	42	40	40	~210	-200	-192
30-59	108	104	102	-12/	-120	-116
0U+	572	402	389	203	341	329
Feedling(senling)						
1-29	n	n	n	n	Ô	0
30-59	ő	č	ě	ŏ	õ	õ
60+	16	i	ō	18	i	ē
Poletimber:						
1-29	-23	-17	-15	-68	-61	-58
30-59	-4	5	7	-43	-34	-30
60+	205	155	150	205	155	150
Sawtimber:						
1-29		10	12	-160	-150	-145
50-39	507	672	610 610	610	467	455
(AFV 104 (20-49))	307	223	210	550	407	400
Seedling/sapling:						
1-29	0	0	C	0	٥	0
30-59	ō	D	ō	ó	Ō	õ
60+	17	1	0	17	1	0
Poletimber:			_			
1-29	-15	-11	-B	-47	-41	-38
30~59	13	17	19	1	-10	-8
6Ut	256	205	133	256	205	193
1.70	23	76	78	-107	-99	-95
1-47	124	124	124	-107	12	- 33
10-59						

(pet)	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yez	ur ¹			
High {120+}:										
Seedling/sapling:										
1~29						~~~				
30-59			***							
60+										
Poletimber:										
1-29										
30-59								***		
60+							÷			
Sawtimber:										
1-29								****		
30~59										
60+				~-						
<pre>Moderate (05-119): Seedling/sapling:</pre>										
1-29	0	0	0	0	0	0	0	٥	0	0
30-59	0	¢	0	0	0	0	0	0	0	٥
60+	0	204	-102	18	9	0	204	-102	16	9
Poletimber:							-			
1-29	-24	0	p	0	-3	-24	0		0	-3
30-59	~44	0	0	.0		-44	a		0	-5
50+	44	C	36	18	23	44	D	36	18	23
Sawtimber:					-				-	
1-25		0	0	0	0	0	0		0	0
30-59	Š.	0			10	0	0			.0
	U	U	30	10	10	ų		20	10	10
Low [30-64]:										
Secoling/sapring:		•			~		•	•	~	
20-50	ž	Š.	Ň	Ň	ă	ň	ŏ	ň	Ň	
50-55	ň	š	40	- 23		ň	ž	40		- 1
Boletisher.			40		··••	v		••		-7
>_30	h	6	^	~	٥	0	0		0	Ċ.
10-59	ň	ŏ	ě	ň	ŏ	ň	ő	ň	ň	ň
50-33	60	ň	40	- 23	š	0.3	ň	aŏ	-23	6
Sautisher	••	~	••	-0		••	•			
1-29	a	a	0	0	0	0	0	ā	0	Ó
30-59	õ	ā	õ	õ	ō	á	ō	ō	ň	ō
60+	ŏ	ě	40	-23	-ī	õ	ā	40	-23	÷ĩ
Very low (20-49);		-								
Seedling/sapling:										
1-29	0	0	0	0	0	0	0	0	C	٥
30-59	Ó	ō	Ċ	Ó	Ċ.	0	0	¢.	Ū.	Ó
60+	0	0	38	~8	5	C	0	38	-8	5
Poletimber:										
1-29	0	Q	0	0	0	0	0	0	0	0
30~59	0	0	0	0	e	0	0	0	0	0
60+	56	0	38	-8	12	56	0	38	-8	12
Sawtimber:										
1-29	0	٥	0	0	0	0	0	0	C	0
30-59	0	0	0	0	0	0	C	۵	0	0
60+	0	۵	3B	-8	5	0	0	38	-8	5

 $1_{\rm Begative}$ (-) values = gain; positive values = leases; 0 = no net fire impact; — = situation not analyzed.

Table 17A--Fire-caused changes in net value of vestern white pine stands under passive private management, morthern Rocky Hountains, by fire size and discount rate

Table 17D--Fire-caused changes in net timber output of western white pine stands under passive private management, morthern Rocky Mountains, by fire size and time period Fire Size: 1-99 acres | Fire Size: 100+ acres Time period (years)

1 Negative	(-) values	= gaine;	positive	values -	106565;	0 = 14	o net fire	impact;	
situation not	analyzed.	-							

 1 Regative (-) values = going; positive values = lesses; 0 = no net fire impact; -- = mitmation not analyzed.

Stand productivity	Fire 6	ize: 1-9:	9 ACLES	Fire	812e: 100+	acres
stand size, and			Discount	rate (p	st)	
(pct)	4.0	7.875	10.0	4,0	7,875	10.0
					.1	
		19	78 dolla	rs/acre	ourned.	
Seedling/appling:						
aceuting/ sapting:						
30-59					**	
60+						
Folctimber:						
1-29						
30-59						
60+						
Sawtimber:				~-		
20-59		~~				
50-33						
Hoderate (85-)19);						
Seedling/sapling:						
1-29	0	0	0	0	Q	0
30-59	Q	a	0	0	0	0
60+	437	207	147	437	207	147
Poletimber:					20	
1-29	6/	19	29		39	10
30-59	- 92	.24	40	701		297
60+	740	437	329	101	444	107
Sawtimberi	40	47	46	-192	-183	-179
30-59	258	260	256		120	120
60+	400	357	349	366	324	316
LOW (50-84) :		•••				
Seedling/sapling:						
1-29	0	0	0	0	0	0
30~59	0	0	ç	0	<u> </u>	0
60+	18	1	0	18	1	D
Poletimber:				17		- 60
1-29	-17	-13	-11	-67	-01	- 35
30-59	164	116	111	164	116	111
eUt Caubimbers	704	110		104		***
1-79	30	32	34	-154	-144	-139
30-59	332	327	323	237	235	233
60+	603	539	526	571	508	495
Very low (20-49):						
Seedling/sapling;						
1-29	0	0	¢	0	0	ů,
30-59	.0	, o	0	0	U I	0
60+	18	1	¢.	18	1	0
Foletimbers	-17	-12	-11	. 10	-46	
1-29	-11	-13	-11	_ 10	-36	-34
50-33	164	121	117	171	122	117
Sautimbers		***				
3-24	37	39	40	-96	-101	-99
30-59	375	366	360	314	294	268
604	667	604	590	643	579	565

Table 20A--Fire-caused changes in net value of larch stands under passive private management, northern Rocky Hountains, by fire size and discount rate

Stand productivity		Fire 🕳	ize: 1-	99 acces	3	1	Pire e	ize: 1	00+ acre	٥
(cu ft/acre/yr),	[tod (yea	26)			· · ·
mortality class						14				
{pct}	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft/	acre/yea	2 ¹			
Bigh (120+):										
Secoling/Bapiing										
30-59										
60+										
Poletimber:										
1-29									~-	
30-59			~~~							
60+ Cauto da base -										
Sawtimber:					-					
30-59										
60+										
Hoderate {85-119}: Seedling/sapling						_				_
1-29	0	0	0	, o	, D	0	Ň	Ň	ŭ	Ň
30-59	0		-102	Ň	, N	ů.	20.4	-102	Ň	ň
but Polotimbor.	v	100	-104	v	v			101	•	•
1-29	-78	0	0	0	-3	-28	0	0	0	-3
30-59	-36	ō	ō	ō	-4	-35	0	0	0	-4
60+	44	Ó	D	0	5	44	0	0	¢	5
Sawtimber:						_				•
1-29	0	0	ç	P	0	0	<u> </u>	0	U A	
30-59	0	0	0	ů,	Ň	ů.	ň	ň	ň	
60+	ų	U	U U	U	v	v	•	v	v	
Candling/manlind										
1-29	. 0	0	0	0	0	ø	0	Q	0	0
30-59	õ	ő	Ó	Ď	Ó	Ó	0	0	¢	0
60+	D	0	40	-23	-1	σ	0	40	-23	-1
Poletimber:					•		~		0	~
1-29	0	0	0	0	0	0	D C	U C	0	Ň
30-59	Q Q	ă	40		6	0 60	ň	40	-23	- 6
SUT Sautimbers	60	0	40	··· 2.3	v	0V		40	~~	
1-29	D	0	0	0	0	0	o	0	0°	0
30-59	ŏ	ō	ō	ō	ō	ā	0	0.	0	0
60+	ō	ò	40	-23	-1	ø	0	40	-23	-1
Very low (20-49):										
Seedling/sapling	11 _						•	~	•	
1-29	0	0	Ň	Ň	, e	Ň	Ň	Ň	ŭ	ň
30~59	, N		78	-8	ě	ă	ň	าลั	-8	š
SUT Soletisher:	0	0	20	-0	,	v	-			-
1-29	Q.	0	ø	0	٥	0	0	0	0	0
30-59	ő	ő	Ó	0	Ō	Ö	0	, Ó	0	0
50+	56	ō	38	-B	12	56	0	38	-8	12
Sawtimber:	-	-	-	-	-					
1-29	0	0	°,	•	0	<u>0</u>	, e	, D	, ,	Š
30-59	0	õ	20		2	Š	U A	10	-P	5
6.67	0	0	36		2			20	-0	

91ab (120+)/						
Seedling/sepling:						
1~29						
30-59			****			
60+						
Poletimber:						
1-29			**			
30-59						
60+						
Sautimber:						
1-29						
30-59						
60+						
oderate (85-119):						
Seedling/gabling:						
1-29	0	0	٥	0	ů.	0
30-59	Ó	Ó	0	0	0	0
60+	716	526	369	716	526	369
Boletimber-						
1-79	203	-40	~169	1	-243	-360
20-50	396	139	14	215	-36	-158
604	1554	1240	1093	1505	1192	1046
Fachimbers						
1_10	105	162	101	-33	-31	-29
30-50	111	321	315	219	212	209
30-39	1084	1031	1021	205B	1006	986
007 007	1004	1011				
DV (50-84):						
Secoling/ apping:		0	0	C	6	0
1-29		š	Ň	ň	ñ	ã
30-59	112	š	š	113	ž	ā
60+	113		•	1	•	-
Poletimber:	63	63	60	79	78	27
1-29	22	31	30	÷.	74	
30-59	90	225	35		363	349
50+	223	100	224	241	301	240
Sawtimber:				60	40	40
1-29	67	64	82			126
30-59	470	121	443			
60+	802	601	045	\$20		
/ery low (20-49):						
Seedling/sapling:		^	•		۵	
1-29	U U	U.	ý.	ž		
30~59		0	U.		ş	
60+	120	و	0	190		•
Poletimber:					11	24
1-29	40	39	38	38	31	29
30-59	54	72	71	63		
60+	369	138	130	367	137	126
Sawtimber:						
1-29	108	104	101	102	99	96
30-59	268	267	263	263	263	25
60+	1086	630	808	1005	829	80.

cu ft/acre/yr)		LITE S	1726: 1-3	y acre	6		1110 1	SITE: T	. aoic	9
Leun arset and i					Time per	ind (yes	rs)			
prtality class prt}	0-24	25-49	50-99 1	00-200	0-200	0-24	25-49	50-99	100-200	0-20
					Cu ft/	ACLE/VE	r1			
tigh (120+):										
Seedling/sapling:									77	
30-59									<u> </u>	
60+										
Foletimber:										
1-29										
30-59										
60+										
Sawcincer:										
30-59										
60+										
oderate (85-119):										
Seedling/sapling:						-				
1-29	<u>o</u>	0	U U	0	, v	, v		Š.	, N	
30-59	10	270	-160	45	5	-140	120	m160	46	Ě
60+	-140	320	-160	40		-140	320		40	-
1-79	0	ń	0	0	0	0	0	0	0	¢
10-59	ň	ŏ	õ	ō	ō	ō	Ó	0	٥	a
60+	ŏ	õ	ō	ō	Ó	0	0	0	0	0
Sautimber:									-	
1-29	0	0	0	0	0	0	, o	0	õ	
30-59	0	0	0	0	0	0	Ň		ő	- 2
60+	Q	Q	U		v			v	v	•
Low (50-84)1										
Secoring/sapring:	•	0	6	Ď	0	0	Ð	0	0	
30-59	ŏ	ň	ō	ō	ō	ó	0	0	C.	
60+	ō	ö	0	64	42	0	0	0	84	42
Poletimber:										
1-29	0	0	0	0	0	0	0	0	0	
30-59	0	0	0	.0	.0	0	0	1 20	- 11	
60+	0	Q	128	21	42	v	v	120	21	•
Sawciaber:		-	n	n	0	0	0	0	0	
1-23	Ň	Ň	ě	ő	ត័	ŏ	ő	ŏ	ō	ć
60+	ò	ā	128	21	42	0	0	128	21	- 43
Very low (20-49):	-	-								
Seedling/sapling:			•		•	٥	0	n	0	
1-29		0	0	ŏ	, D	ň	ŏ	ā	ŏ	i
50-59	ň	ŏ	ŏ	104	52	õ	ŏ	Č	104	5
Foletimbers	•	•	-							
1-29	0	0	0	0	e	0	0	0	0	
30-59	0	ó	0	0	0	0	0	0	-0	
60+	Đ	0	132	39	52	0	Ó	132	39	5
Sawtimber:	-							•	•	
1-29	0	0	0	0	0	0	0	0	0	
30-59	0	ő	132	- 16	52	0	ő	132	39	5

Table 19A--Pire-caused changes in net value of hemlock stands under passive private management, northern Rocky Mountains, by fire site and discount rate Fire size: 1-99 acres | Fire size: 100+ acres Stand productivity {cu ft/acre/yr], stand size, and mortality class (pct)

4.0

Discount rate (pct)

7.875 10.0 4.0 7.875 10.0

		19	78 dolla	s/acre bu	urned ¹							Cu ft	/acre/yea	12 ¹	
Kigh (120+):							High (120+):								
Seedling/sapling;							Seedling/saplis	ng:							
1-29	0	0	0	0	0	σ	1-29	0	0	0	0	0	0	0	0
30-59	0	0	0	0	0	0	30-59	9	0	0	0	D	0	0	0
60+	516	355	267	- 516	355	267	60+	12	-12	124	-61	0	12	-12	124
Poletimber:							Poletimber:								
1-29	430	320	243	-219	-297	-357	¥~29	16	0	٥	0	2	-192	D	0
10-59	527	442	368	-71	-128	-188	30-59	16	Ð	Ó	0	2	16	0	0
60+	1583	1404	1302	465	337	261	60+	16	ō	ō	c	2	16	0	0
Sautimbart							Sovtimber:								
1-20	209	104	102	-421	-397		1-29	0	0	0	Đ	0	Ó	Ó	0
30-50	611	619	617	-164	-123	-112	30-59	õ	õ	ň	õ	ŏ	ō	õ	ō
30-39	044	010	-960	-104	-123	-112	60+	ň	ň	ň	ñ	ā	ñ	ā	ň
	244	004	000	0.5	4.5		Roderate (85-119)		•		•		-	•	•
Honerace (65-119):							Seedling/mapli								
Securing/ saping:	n		•			~	1-29			•	0	•	0	•	n.
1-29	U N	2		U A	ů.	v.	20-59	ő	0	Ň	ŏ	ň	ň	ň	ň
10-59	210		1.01	210			50-39		1.00		,	ě	ň	140	- 91
6U+	320	101	121	350	191	121	7007		100	-04	-	•		100	-04
Poletimber:					-		Poletimbers		•		•	•	•	•	
s-29	0	3	2	6	3	2	1-19		U U		ž	, N	Ň	, N	
30-59	10	5	3	10	. 5	3	20-29		U U	a	, v			, N	0
6S+	787	491	369	731	444	326	60+	144	U	0	ų	15	144	v	ų
jawtimbert							Sawtimber:					-		-	
1-29	51	50	49	-223	-209	~203	1-29	D	0	0	0	0	0	0	0
30-59	302	291	286	-67	-79	-74	30-59	0	D	0	U U	0	U	0	0
60+	445	406	395	17	4	5	60+	0	G	0	0	0	C	0	Q
.uv (50-84):							Low (50-84):								
seedling/sapling;							Seedling/saplir	1g:							
1-29	0	Q	0	0	0	D	1~29	0	e	0	0	0	C	Q	0
30-59	455	156	105	455	156	105	30-59	e	0	e	Q	0	٥	0	0
60+	465	157	105	465	157	105	60+	0	o	0	19	9	0	0	0
Poletimber:							Poletimber:								
1-29	-2	-2	÷-2	-103	-99	-97	1-29	-28	D	0	C C	-3	-28	0	0
30-59	-4	4	-3	-185	-179	-175	30-59	- 4B	0	0	D	-6	48	0	0
6ú+	1303	553	347	830	104	-91	60+	84	p	++78	76	29	64	0	-78
Contimbert							Sawtimber:								
-29	29	41	42	-129	-110	-106	1-29	0	D	0	0-	0	0	Q	0
0-59	203	208	207	- 41	-25	-22	30-59	0	0	0	0	0	0	0	G
	433	269	254	163	15	Ē	60+	Ó.	à	38	19	19	Ċ.	ġ.	38
10v (20-49):						•	Very low (20-49);								
ercling/sapling:							Seedling/saplig								
- 10							1-29								
10-59				~-			30-59							***	
4 Da							60+					***			
a attabart							Poletimber:								
1.00							1-29								
1.1.1							30-59								
30454							60+				-				
50+							Cautisbory				-				
Sawtimber:							1-70					***			
1-29					•		20-60								
10-29	**				,		60-								
6 U+							0.04								
¹ Negative (-) values	gains; po	oitive val	lues = loss	ca;0 = no:	not fire j	zpact, — =	¹ Hegative (-) v situation not analy	alues = ga wed.	ins, pos	itive val	lues = lo	6868) O =	no pet fi	re impac	t, — =

Stand productivity		Fire r	size: 1	-99 ACIC	6	1	Fire a	12e: 10	00+ acre	E
stand size, and					Time per	iod (yea	T6)			
mortality class (pct)	0-24	25-49	50-99	100-200	0-200	0-24	25-49	50-99	100~200	0-200
			****		Cu ft,	/acre/yea	(r ¹			
High (120+):										
1-29		•	•	0	n	0	0	0	0	•
30-59	ő	ő	ă	ŏ	Ď	ŏ	ň	ă	ŏ	ŏ
60+	12	~12	124	-61	Ó	12	-12	124	~61	ŏ
Poletimber:										
¥~29	16	0	0	0	2	-192	0	0	0	-24
30-59	16	Q.	0	0	2	16	0	0	ů,	2
Sautiabers	10	U	U	•	4	10	U	Ų	ų	4
1-29	0	0	0	D	0	0	0	0	0	0
30-59	õ	õ	č	õ	ò	ō	ō	ō	õ	õ
60+	ò	ō	ō	0	0	0	0	ò	ċ	0
Hoderate (85-119): Seedling/sapling:										
1-29	6	0	, o	0	0	0	0	0	0	0
50+	ň	168	-84	ř	ň	0	168	-84	1	Ň
Foletinber:		100		-	•			5.	-	•
1-29	0	0	0	0	0	0	0	0	p	0
30-59	0	Ó	Ó	0	0	0	0	0	0	Ď
60+	144	0	D	0) B	144	0	Q	0	16
Sawtimber:										
1-29	0	°.	0	0	5	0	0	0	0	0
50-35	2	ů n	U O	ň	ň	ŭ	ň		0	0
Low (50-84) /	v	v	v	v	u.			•	v	u
Seedling/sapling:										
1~29	0	C	0	0	0	C C	Q	0	0	e
30-59	0	0	0	0	0	0	0	0	Đ	0
60+	0	¢	0	19	9	Q	0	0	19	9
Foletimber:	- 10	•	~		-7	- 29	•	•		- 7
1-29	-28	0	0	0	-6	-28	ň	0	Ň	- 3
60+	84	ŏ	++78°	76	29	64	ŏ	-78	76	29
Sawtimber:		•		• •			-			
1-29	0	D	0	C	0	0	0	0	Û	0
30-59	0	0	٥	0	0	0	0	G	٥	0
60+	0	¢.	38	19	19	0	Q	38	79	19
Very 100 (20-49):										
1.29									**	
30-59							***			
60+				-	÷					
Poletimber:										
1-29										
30-59										
N Ge									***	
0										
Sawtimber:						-*				
Sawtinber: 1-29 30-59										

(cu ft/acre/yr),	!				· · · · · · · · · · · · · · · · · · ·	
stand size, and			Discount	rate (pct	.)	
(pet)	4.0	7.075	10.0	1 4.0	7.875	10.0
· · · · · · · · · · · · · · · · · · ·		19	78 dolla	rs/acre bu	rned ¹	
High (120+):				-		
Seedling/sapling;						
1-29		Aug 44				
30~59						
60+						
1-20						
30-59		**	*~			
60+						
Sawtimber:						
1-29	**	**				
30-59						
60+						
Roderate (85-119):						
Seedling/sapling;	•	•	•	0		
1-29	š	ň	ň	0 0	0	
30-39	144	116	103	144	116	103
Poletimber						
1-29	18	12	9	18	12	9
30-59	34	21	16	34	21	16
60+	175	151	123	175	151	123
Sawtinber:						
1-29	40	38	37	-158	-152	-149
30-59	54	62	61	-120	-116	-111
60+	322	310	305	282	212	207
LOV (50-84):						
1-20	0	n	a	0	6	Ø
30-59	õ	õ	õ	ō	ō	ō
60+	121	92	86	121	92	88
Poletizberi						
1-29	0	0	0	0	0	0
30-59	0	0	C	٥	0	0
60+	157	28	10	157	28	10
Savcimper:	_,	_ 1				
1-29	-1	-1		-1		
50-39	191	71		169	48	8
(erv)ov (20-49);						•
Seedling/sapling:						
1-29	0	0	C	0	0	Û
30-59	Û	0	D	э	0	0
60+	0	0	0	٥	0	¢
Poletimber:	-	-				
1-29	120	20	5	100	20	, D
30-23	122	22	8	122	22	8
Cut Cut	125	22	8	125	11	5
1-20	-1	-1	-1	-,	-1	-1
30-59	รว์	ŝ	-25	29	-57	-84

Table 22A--Fire-caused changes in net value of Douglas-fir stands under intenze private management, northern Rocky Mountains, by fire size and discount sate

Fire size: 1-99 acres | Fire size: 108+ acres Discount rate (pct) 4.0 7.875 10.0 1 4.0 7.875 10.0

Stand productivity [cu ft/acte/yr), stand size, and mortality class (pct)

(pct)	0-24	25~49	5099	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
							.1			·
Nigh (120+);					CU IC/	acre/yea	Σ-			
Secoling/sapling:										
1-29				~~						
30-59										
60+						~~				~~
Poletimber:										
1-29										
30~59			***							
60+									****	
Sawtizber:										
1-29			6 6e-		~-				** **	
30-59	*****									****
60+							~ ~			***
Moderate (85-119):										
Seedling/sepling:										
1-29	0	0	0	0	D	o	ů	0	Û	0
30-59	0	0	0	0	0	0	0	0	0	0
50+	0	124	-62	e	0	0	124	-62	۵	0
Poletimber:							-			
1-29	. 4	0	0	0	0	. 4	0	Ç.	0	0
30-28	75	0	0	a	1	12	0	0	0	1
60+	96	0	0	¢	12	96	D	0	0	12
Savtimber:										
1-29	v.	0	0	2 2	, v	, v	v.	9	0	6
30-39	0	U C	0	Ň	2	ů.	0	°.	Č.	0
007 1 44 (10 - 0 4) -	+0	U	u	0	U	U		U	U	0
Low (Su-64);										
1-20		•		•	'n		'n		•	~
30-59	Ň	Ň	ž	ň	ň	ň	ň	ň		š
50-55	ň	ž	š	ň	ă	ň	ő	ň		Ň
Polatimhars			•	•	•	•	v	•		v
Juge	0					n	•	¢.	0	•
10-59	ň	ň		ŏ	ň	ň	ň	ň	ě	Ň
60+	ň	ň	52	ň	11	ň	ň	52	ň	1.1
Sautimbers	•	•		•		•			•	
1-29	-16	0	0	0	-2	-16	0	a	0	-7
30-59	~28	Ď	ã	ŏ	-3	-28	ō	ő	ŏ	~1
60+	12	ō	ō	ō	1	12	0	ò	ō	ž
Very low (20-49):		-	-		-		-	-	-	-
Seedling/sapling:										
1-29	0	o	0	0	٥	o	0	0	e	٥
30~59	0	0	0	٥	0	0	0	0	0	Ó
60+	0	0	0	0	0	0	0	0	U	0
Poletimbor:										
1-29	0	o	0	0	0	0	0	0	0	0
30-59	0	0	32	0	8	G	0	32	0	8
60+	0	0	32	D	8	0	0	32	o	8
Sawtimber:										
1-29	-B	0	D	0	-1	-8	0	0	٥	-1
30-59	12	C	0	0	1	12	Q	0	e	1
60+	12	0	¢	0	1	12	D	0	0	1

 ${}^{1}_{2kegative}$ (-) values = gains; positive values = losses; 0 = no set fire impact; -- = situation not analyzed.

Table 22B--Fire-caused changes in met timber output of Douglas-fir stands under intense private management, northern Rocky Mountains, by fire size and time period

pactive private management, northern Rocky Kountaina, by fire size and time period Stand productivity Fire size: 1-99 acres i Fire size: 1004 acres (cu ft/acre/yr), Fire size: 1-99 acres i Fire size: 1004 acres stand size, and Time period (years) mortality class 0-24 25-49 50-99 100-200 0-200 10-24 25-49 50-99 100-200 0-

Table 21A--Fire-crused changes in net value of lodgepole pine stands under padaive private management, northern Rocky Hountains, by fire size and discount rate Table 218--Fire-caused changes in net timber output of lodgepole pine stands under passive private management, northern Rocky Kountains, by fire size and time period

lnegative (--) values = gains; positive values = lossen; 0 = no net fire impact; — = situation not analyzed.

 $^{1}\mathrm{Hogative}$ (-) values = gains; positive values = losses; 0 = no net fire impact; --- = situation not analyzed.

Stand productivity	Fire a	ize: 1-9	acres	Pire	size: 100+	acres
(cu ft/acre/yr), stand size, and			Discount	rate Ind	:t)	
mortality class						
(pet)	4.0	7.875	10.6	4.0	7,875	10.0
		19	78 doj 1	re/acre	ourned ¹	
High (120+):						
Seedling/sapling:						
1-29	785	617	484	765	617	488
30~59	785	617	469	785	617	488
60+	1657	834	548	1569	760	479
Poletimber:		226	222			- 99.2
1~29	239	474	464	-299	~201	-213
30-39	1111	1010	1855	2020	1921	1766
Sawtimbart			,	2040	1011	1.00
1-29	56	64	63	-287	-270	-261
30-59	177	171	169	~148	-136	-130
50+	1008	836	795	848	691	658
Moderate (85-3-195:						
Seedling/sapling:						
1-29	0	0	'n	0	0	0
30-59	0	0		0	0	. 0
60+	441	229	159	441	229	159
Poletimber:		107			107	
1-29	192	107	375	149	107	26.0
20-22	1496	1002	876	1410	90.5	123
Sautimbers	1400	1002	013	1415	340	
1-29	34	33	33	-118	-114	-112
30-59	69	85	Ba	-49	-47	-47
60+	675	485	454	580	401	376
Low (50-84);						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	0	_0	0	0	0
60+	322	127	87	322	127	87
Poletimber:		-	-			
1-29	600	705	172	5 an	22	1,10
30-39	543	402	281	520	378	260
Dut Dautémbers	045	442	201	013	210	200
1-29	50	46	47	-116	-112	~110
30-59	196	187	181	20	20	16
60+	574	615	597	494	543	528
Very low (20-49):						
Seedling/sapling:						
1-29	~-					
30-59			*~			
60+						
Poletimber:						
1-29						
30-59						
50-59 60+						
30-59 60+ Sawtimber:						
30-59 60+ 5awtimber: 1-29 30-59			2			

è.

Stand productivity (cu ft/acre/vr).		fire s	ize: l	-99 acre	8	ţ	fire s	ize: 1	00+ acre	٥
stand size, and					Time pe	riod (yea	rs)			
(pct)	0-24	25-49	50-99	100-200	0~200	0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yea	1			
High (120+): Seedling/sapling:										
1-29	52	52	114	0	28	52	-52	114	0	28
30-59	52	-52	114	0	28	52	-52	114	0	28
60+	-104	204	0	6	15	-104	204	0	6	15
Poletimber:										
1-29	0	0	0	0	0	0	0	0	a	0
30-59	ø	p		0	0	Q	0	0	0	0
60+	0	0	0	0	0	0	0	0	C	0
Sawtimber:										
1-29	0	0	0	0	0	0	0	0	0	C
30-59	0	0	0	۵	0	0	0	0	D	0
50+	¢	0	0	0	0	0	0	¢	0	C
<pre>Koderate (85-119): Seedling/sapling:</pre>	:				_	_				
1-29	0	0	0	0	0	D	0	0	0	0
30~59	0	۵	0	0	0	0		0	0	0
60+	4	172	~86	45	23	4	172	-86	46	23
Poletimber:		-			-				-	
1-29	-12	o	0	0	1	-12	6	0	0	-1
30~59	28	-4	2	0	3	28	-4	2	0	3
60+	28	0	- 4	z	5	28	U U	4	2	2
Sawtimber:			_	-			-	-		
1-29	D	0	0	0	0		U O	0	0	ž
30-59	0	a	0	0	0	U U		0	U O	-1
60+	C	4	2	2	2	0	4	2	2	~
LOW [50-84]1										
Resoling/sabling	•			~	•	•		•	~	
1-29	0	ů,	0	0	Ň	U O	u o		U D	ů.
30-59	Ň	1.56	- 20		- 0	Ň	166		-10	
607	v	130	-70	-13			130		-13	-,
Polecimbert		•	•	n	-1	-16			0	2
1-23	-10	Ň		10	-4	5.6	ŭ		20	
50-39	56			20	-15	56	ň	-116	20	-15
Court Indiana	20	U	-110	10		24	v		.40	-14
1-29	n	n		0	0	0	0	0	0	n.
20-50		ž	Å	Ň	ŏ	ň	ň	ŏ	ŏ	ñ
50-35	Ň	ň	-19	-19	-16	ň	ň	- 78	-1 š	-19
Very 100 (20-49).	•	v	-50	-17		•		- 30	-15	
Seedling/sapling										
1-29	·								**	
30-59			_ <u>`</u>							***
60+										
Poletimbers										
1-29										
30-59										
60+	***									
Sawtimbers										
1-29										
จิก-ร์จ					***					
60+										

1				
situation not	<pre>(-) values = gains; analyzed.</pre>	DOLLING VALUES	• 1059887 U = no	net file ispact)

BCBILL BILLEY BILD			oracoune	race (bac		
(pet)	4.0	7.075	10.0	1 4.0	7.875	10.0
			78 doula	ro/acra hu	rned ¹	
Righ (120+);		*3	TO GOLLA			
Sodling/gapling:						
1_29	a	0	Ô	0	0	0
20-59	õ	ō	õ	ā	Ū	Ó
60+	592	398	292	592	398	Z 9 2
Patotistor.	332	2				
1_20	64	44	36	-56	-72	-77
20-50	63	43	35	-111	-126	-131
50-35	1202	666	438	568	65	-149
00+	1202	000	450	200	•••	
J-20	308	297	291	-367	-365	-355
1-49	600	6 01	683	-161	-124	7114
30-39	1220	1169	1142	203	179	175
	1133	1109		203		***
doetate (82-113):						
Secoling/sapling:		•	•	•	•	
1-29	, v	, v	ž	ů	Ň	ň
30~59		163	100	221	161	105
60+	331	121	148	331	121	200
Poletimber:			~~~			100
1-29	690	301	200	640	256	129
30-59	690	301	200	640	256	150
50 +	700	290	185	652	250	143
Sawtimber:						
1-29	192	185	182	~227	-214	-207
30-59	445	429	421	-72	-65	-61
60+	767	720	703	131	115	113
.ow (50-84):						
Seedling/sapling:						
1-29	0	0	0	Q	0	0
30-59	480	155	97	480	155	97
50+	478	155	97	478	155	97
Poletimber:						
1-29	0	C C	0	0	0	0
30~59	0	0	0	C	0	0
60+	941	292	160	915	272	142
Sawtimber:						
1-29	72	82	92	-99	82	-78
30-59	177	183	141	-37	-22	-19
60+	327	269	252	67	24	23
lery low (20~49);						
Secdling/sapling:						
1-29						
30-59			~~			
50-33			-			
Poletimber.						
1-20			· · ·			
1-23						
30-37						
0.0+						
Sawcimper:	_			_		
1-29						
30-59				~~~		
60+						

Table 23A--Fire-caused changes in net value of ponderoma pine stands under intense private management, morthern Rocky Mountains, by fire size and discount rate

Fire mize: 1-99 acres | Fire mize: 100+ acres

Stand productivity (cu ft/acre/yr),

<pre>mortality class (pet) </pre>	0-24	25-49	50-99	1-00-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/yes	r1			
High (120+):										
Seedling/sapling:				-					•	
1-29	0	0	0	0	0	, N	ŭ	, v	Ň	ň
30-59	0				, v	12	-12	124	-0	ň
60+	12	++11	124	-01		12	-12	124	-04,	•
POIECABDOTS			~	0	-2	-20	0		0	-2
1-29	-20	Š	ň	ň	-4	-32	ň	ň	ŏ	-4
30-39	-32	-12	ž	ň	11	88	-12	š	ŏ	n
Cautimbara	00	-11	•			**			•	
1_20		ñ	a	0	0	0	0	0	0	0
20-50	ň	ň	ň	ŏ	ŏ	ŏ	č	ō	ŏ	ō
50-55	ň	ñ	ă	ŏ	ō	ō	ō	ò	0	Ó
Rodorate (85-1191	•	•	•	•		-				
Seedling/sapling:										
1-29	0	D D	p	0	0	D	0	0	٥	0
30-59	ā	ō	ó	0	Ó	0	Û	Q	0	0
60+	ŏ	168	-84	1	0	0	168	-84	1	0
Poletimber:										
1+29	0	144	-85	43	18	0	144	-86	43	18
30-59	0	144	-86	43	18	0	144	+B6	43	18
60+	ò	144	-86	43	10	0	144	-86	43	18
Sawtimber:										
1-29	0	0	0	٥	0	0	0	0	0	a
30-59	0	0	0	0	0	0	0	0	ç	0
60+	0	0	0	0	0	0	C	0	o	0
Low (50-84):										
Seedling/sepling:					-		•			~
1-29	0	-0	0	0	0	9	U	ų.	ů,	Š.
30-59	0	0	0	0	u u	, e	, N		Ň	š
60+	¢	0	ų	v	U	Ű	v	U		v
Poletimber:				^	•			•		0
1-29	U L	v.	ž	, v	ž	ă	ň	ő	ň	ň
30-59		100	- 116		- 4	ň	196	-114	ň	- ă
6U+	v	190	-110			÷	134	-110	•	•
SAVEINDEF:			n	0	a	n	n	0	¢.	a
20-50	Ň	ŏ	ň	ň	ň	ŏ	õ	ň	ň	õ
404	ă	ň	ŏ	ő	ā	ŏ	ō	ă	õ	ō
Very 108 /20-491		•	•	•	-	-				
Seedling/sapling:										
1-29										
30-59						+-				
60+										~ ~
Poletimber:										
1-29										
30-59	***									
60+										
Sawtinbers										
1-29										
30-59										
50+		***								

¹Negative (-) values = gains; positive values = losses; 0 = no net fire impact; - = situation not enalyzed.

Table 248--Fire-caused changes in net timber output of western white pine stands under intense private kanagement, northern Rocky Mountains, by fire size and time period

 Table 238--Fire-caused changes in net timber output of ponderoma pine stands under intense private management, northern Rocky Nountains, by fire mize and time period

 Stand productivity| (cu fc/acto/yr), stand pize, and mothlity class (pct)
 Pire mize in the period (years)

 Time period (years)
 1

 (pct)
 10-24

 25-49
 50-39

 10-24
 25-49

21

 $l_{\rm logative}$ (-) values = gains; positive values = lonses; 0 = no net fire impact; --- = spact; situation not analyzed.

Stand productivity	Fire a	ize: 1-9	9 acres	Fire s	ize: 100+	acres
stand size, and		····	Discount	rate (pct	}	
mortality class		2 0 26	10.0	1 4 0	7 975	10 0
(pet)	4.0	1.015	10.0	1 410	1.013	
		19	78 40118	re/acre he	rned ¹	
High (120+):						
Seedling/sapling:						
1-29	921	1062	974	921	1062	974
30-59	913	1054	966	913	1054	960
60+	1620	1224	959	1248	1190	9.93
Poletimber:		222	267	-57	-51	- AB
1-29	203	509	489	221	217	214
30~57	1766	1991	1863	1658	1782	1769
Cautimbers	1100	1001	1000		****	
1-79	149	144	141	-55	-49	-47
30-59	812	783	76B	214	210	208
69+	939	1084	1081	173	350	364
Koderate (85-119);						
Seedling/sapling:						
1-29	824	768	591	824	768	591
30-59	817	761	564	817	761	584
60+	1926	927	591	1891	897	564
Foletimber:					14	17
1-29	273	263	258	173	176	172
30-59	206	190	1997	1746	1205	1758
60+	1973	1021	1011	1140	1103	1130
Sawtinber:	142	139	126	-14	-11	-9
1-29	346	363	357	235	238	236
50-33	1011	1073	1059	966	1034	1021
100 /50-841-						
Seedling/sapling;						
1-29	0	0	Ó	0	0	0
30-59	D	C	¢	0	D	
60+	344	196	133	344	186	133
Poletimber:						
1-29	78	54	- 44	78	24	- 13
30-59	146	101	82	145	101	263
60+	737	458	363	124	447	300
Sawtimbers	0.2		8.2		43	43
1-29		450	450	410	436	429
30~59	810	661	643	797	549	633
Very 104 (20+49)+		001			•••	
Soedling/sapling						
1-29						
30-59						
60+						***
Poletimber:						
1-29		~~			~~	
30-59						
6.0+						
Savtimber:						
1-29						
30-59						
60+						-

Stand productivity		Fire o	ize: 1-5	9 acre	8	I	fire o	izer li	00+ acre	6
stand size, and					Tize pe	riod (yes	rs)			
(pet)	0-24	25-49	50-99 1	00-200	0-200	0-24	25-49	50-99	100-200	0-200
					C	/	1			
High (120+):					Cu II,	/acre/yea				
Seedling/sapling:										
1-29	212	-312	<u>ç</u>	9	-12	176	-312	0	0	- 22
30-59	136	-312	- 12	-5	-22	52	-24	-22	-5	- 22
Boletisher.	32	-24	-22						-	
1-29	0	n	n	0	Û	0	0	0	0	0
30-59	ŏ	ŏ	ō	ō	Ó	0	0	0	0	0
50+	ē	-12	-28	-5	-11	0	-12	~2B	-5	-11
Sawtimber:										
1-29	C	0	0	0	0	0	0	0	0	
30-59	0	0	0	ų.	-11	, North Contraction of the second sec	-12		-5	-11
bot the second	Ū.	-12	-29	- 3	-11		-14		,	-11
Moderate (05-119):										
1-79	320	-320	2	41	21	320	-320	2	41	21
30-59	232	-320	2	41	10	232	-320	2	41	10
60+	166	-4	-86	40	19	168	-4	-96	40	19
Foletimber:										
1-29	0	0	0	0	<u> </u>	0	0	8	0	0
30-59	0	ę.	<u>o</u>	- 2	-2	0	-4	_2	_2	-2
604	a	-4	2	-1	-2	v				
34VC1000F(0	•	n	a	D D	0	0	0	0	0
30-59	ň	ă	ă	õ	õ	ō	D	Ó	Ó	0
604	ō	-4	-2	-2	~2	0	4	-2	-2	-2
Low (50-84):										
Seedling/sapling:	1									
1-29	0	0	0	0		, e	0	0	0	0
30-59	0	0	0		, u	, i	126	- 60	10	, v
60+	0	136	-66	13	,		130	-00	19	,
POIECIMOET:		•	0	a	-1	-8	0	0	D	-1
30-59	-20	ň	ň	ŏ	-2	~20	Ó	Č.	ō	-2
60+	20	ŏ	38	19	21	20	0	38	19	21
Sawtimorii										
1-29	0	0	0	0	0	0	0	0	0	0
30-59	Ð	0	0	.0	.0	ő	°.		0	
60+	0	0	38	19	19	0	U	30	13	13
Very 10w (20-49):										
Sceding/saping	·						~-			
30-59										
60+										
Poletimber:										
1-29									•	
30-59										
60+										
Sawtimber:										
1-29			~							
20-22										

Table	26AFire-caused changes in net value of hemlock stands	
under	intense private management, northern Rocky Mountains, by fire	
size a	ind discount rate	

Fire size: 1-99 acres | Fire size: 100+ acres

	 	 	 ~*	healock	stands	

lNogative (-	<pre>values = gains; positive values = losses; 0 = no net fire impact; - =</pre>
situation not an	lyzed.

Stand productivity	Fire s	ize: 1-9	9 acres	Pire S	ize: 100	+ ACTES				
(cu ft/acre/yr), stand size, and	Discount rate (pst)									
mortality class ((pot)	4.0	7.875	10.0	4.0	7.875	10.0				
	1978 dollars/acre burned ¹									
High (120+):										
Seedling/sapling:										
1-29	458	334	247	458	334	24/				
30-59	458	334	247	458	334	246				
60+	450	327	240	424	527	240				
Poletisber:	162	147	177	192	143	122				
1-29	324	241	205	324	241	205				
50-33	1337	1054	899	1255	982	832				
Castimber:										
1-29	90	87	86	-191	-180	-175				
30-59	275	265	260	52	54	55				
60+	663	586	567	548	483	469				
Moderate (85-119):										
Seedling/sapling:				-	-					
1-29	0	0	C .	0	0	100				
30-59	593	16	100	293	104	100				
60+	283	164	100	232	104	100				
Poletimber:		- 7	-3		-3	- 3				
1-29		-5	-3			-5				
30-59	1362	417	198	2382	364	149				
Cauchinhans	****			****						
Saw CIRDEII	50	48	47	-113	-106	-102				
30-59	69	76	77	~88	-72	-68				
60+	344	322	314	276	260	256				
Low (50-84):										
Seedling/sapling:				-						
1-29	0	o	0	0	ç	0				
30~59	. 0	0	0	0	0					
60+	458	275	179	458	276	1/9				
Poletimber:		~1		110	71	54				
1-29	110	120	01	106	120					
30-39	3348	844	629	1361	801	รรดิ				
Enutimber:	1949									
1-29	80	77	75	-2	1	2				
30-59	108	116	115	36	48	49				
60+	267	247	241	229	213	209				
Very low (20-49);										
Seedling/sapling:										
1-29				** **						
30-59			~~							
60+						-*				
Poletimber:										
1-29										
50~33										
60+										
50-35 60+ Sawtimber:										
50-35 60+ Sawtimber: 1-29 30-59	==	==								

Table 25A--Fire-caused changes in met value of fir-spruce stands under intense private management, morthern Rocky Hountaine, by fire size and discount rate

Stand productivity		Fize a	ize: 1-	99 acre	\$	1	Fire s	ize: 10	0+ acze	8	
[cu ft/acre/yr], stand size, and	Time period (years)										
mortality class (pct)	0-24	25-49	50-99	100-200	0~200	0-24	25-49	50-99	100-200	0~200	
					Cu ft,	acce/yea	1 I				
High (120+):											
1-29	12	~12	124	-51	0	12	-12	124	-61	0	
30-59	12	-12	124	-61	¢	12	-12	124	-61	0	
60+	-92	-12	124	-61	-13	-92	-12	124	-61	-13	
Poletimber:					,					,	
1-29	-12	a	0	ů.	-1	-11		Ň	0		
50-39	-23	-12	š	ă	- 1	32	-12	š	ŏ		
Savtimber:			•	•				-	-		
1-29	0	0	0	0	0	0	0	0	0	0	
30-59	0	Û	0	0	0	0	0	0	0	0	
60+	0	0	Ç	Q	e	Ų	0	U	a	e	
Hoderate (65-119)1											
1=29	- D	0	C	0	0	0	0	D	0	0	
30-59	õ	Ŭ	õ	0	0	٥	0	0	0	0	
60+	0	0	0	0	0	0	0	0	0	D	
Poletimber:		-		•		-32		•	•		
1-29	-32	, e	0	Ň		236	ŏ	Ň	, v		
60+	-140	268	-86	43	16	-140	268	-86	43	16	
Sawtimber:											
1-29	D	0	0	0	0	0	0	0	0	0	
30-59	0	0	0	0	0	0	0	0	ç	ů.	
60+	¢	0	D	0	0	¢	¢	Q	Q	0	
Low (50-84):											
3-29	۰ ۱	0	٥	a	٥	0	Ð	0	0	Ď	
30-59	õ	ō	ŏ	ō	ō	Ó	0	Ó	ó	ō	
60+	-104	332	-166	0	-13	-104	332	-166	Ó	-13	
Foletimbers								•	•		
1-29	-36	0	0	Č,		-36	0	ů.	0	-4	
20-23	36	ň	0	ŏ	- 4	36	õ	õ	ŏ		
Sawtimbers	20	•	٠		-		-	-	-	-	
1-29	0	0	0	0	Ô	0	0	0	0	0	
30-59	0	0	Ŷ	0	0	0	<u>o</u>	Ő.	0	0	
60+	0	0	0	ç	0	u	0	0	e	Q	
Very Low (20~49): Seedling/sepling:											
1-29	•			~-							
30-59		***									
60+											
Poletimber:											
1-29											
50-39											
Savtinber											
1-29				~-							
30-59						***	~~		**		
60+		***					****				

lasgative (-) values = gains; positive values = losses; 0 = no net fire impact; - = situation not analyzed.

 $^{1}\mathrm{Nogative}$ (-) values = gains; positive values = losses; 0 = no net fire impact; — = situation not analyzed.

SCILLILY CLASS						
(pet)	4,0	7.875	10.0	4.0	7.875	10.0
		19	78 dolla	ars/acce bu	rned ¹	
Bigh {120+}:						
Seedling/sapling:						
1-29	0	0	0	0	0	0
30-59	0	0	0	0	D	0
60+	255	139	117	155	139	117
Poletimber:						
1-29	37	22	17	37	22	17
30-59	302	317	255	151	178	121
60+	77	378	351	-10	299	276
Sawtimber:						
1-29	64	61	60	~286	~269	-261
30~59	102	99	97	-228	-213	-206
60+	174	446	474	50	331	363
Moderate (85-119):						
Secoling/sapling:		-			-	
1-29	0	0	0	0	0	0
30-59					0	
50+	180	136	114	190	130	114
Polecimber:						
1-29	36	22	17	30	22	17
30-59	202	39	10	204	39	30
CUT Paulo (all a sec	221	290	225	375	269	204
Savtiaper:		20	37	_150	-153	
20.50		30	21	300	-192	-149
204.39	212	210	205	-120	-116	-113
1 m (50-9414	322	310	303	202	272	207
Condling/rapling.						
J-Jo	0		÷	۵		
30-59	č	ž	ă	ě	Ň	š
604	152	104		163	104	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Polatishers	***	104	24	152	104	24
1-79	0	0	0	0	•	•
30-59	176		66	176	aõ	
60+	173	66	67	123	99	67
Sawtimbers			••			•••
1-29	23	22	22	~100	-96	-94
30-59	37	35	35	-77	-75	*71
60+	180	177	174	156	153	151
Very low (20-49):						
Seedling/sapling:						
1-29						
30-59						
60+						
Poletimber:						
1-29		***				
30-59						
60+						
Sawtimber:						
1-29		**				
30-59	***					

Stand productivity (cu ft/acre/yr),		fire :	size: 1	-99 acre	8	1	Fire r	ize: 1	00+ acre	5
stand size, and		•			time pe	riod (yea	r6)			
(pct)	0-24	25-49	50-99	100-200	0-200	1 0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/vea	,1			
High (120+): Seedling/sapling:										
1~29	0	0	0	0	D	D	0	0	0	0
30-59	Ó	Ó	Ó	ō	ō	ō	ō	õ	ě	č
60+	0	212	-112	-29	-11	0	212	-112	-19	-21
Poletimber:										
1-29	-16	0	0	0	-2	-16	0	0	0	-2
30~59	64	-12	6	Ó	8	64	+12	6	õ	ä
60+	64	-24	-22	-5	-3	64	-24	-22	-š	-3
Sawtimber:										
1~29	0	0	0	0	0	0	0	0	0	0
30-59	0	0	Û	0	0	0	0	0	C	0
60+	0	-12	-29	-5	~11	0	-12	-28	-5	-13
Moderate (85~119):										
Seedling/sapling:										
1-29	0	0	0	¢	Û	0	C	٥	0	0
30~59	0	0	0	0	0	0	0	0	0	0
60+	0	168	-84	C	D	0	168	-84	0	0
Poletimber:					-	-				
1-29	8	0	0	0	1	В	ç	0	D	1
30-59	-28	6		0	-3	-28	0	0	0	-3
60+	36	0	0	¢.	4	36	D	0	0	4
Sawciscer:	•	•	•							
1-29	8	Ň		0	ő	Ň	, v	0	5	
50-39	ň	ŏ	ň	5	ž	ž	Š.		ž	
LON (50-841)			v	•	•	•	•			v
Seedling/sapling:										
1-29	่อ	a	D	0	0	n	a	a	n	0
30-59	Ū.	Ó	ō	õ	ò	õ	õ	ŏ	ă	ŏ
60+	0	Ó	ė	26	13	ò	ŏ	ŏ	26	13
Poletimber:										
1-29	0	0	Û	0	0	0	Q	0	0	0
30-59	84	0	0	0	10	64	0	0	0	10
60+	84	0	Q	0	10	84	8	0	0	10
Sawtinber:										
1-29	0	0	0	0	0	0	0	Q	0	0
30-59	0	q	Q	0	Q	a	0	0	0	0
604	Q	0	0	0	0	0	Q	0	Ó.	0
Very 100 [20-49]:										
Seedling/sapling:										
1-29									~-	
50-39										
Polatishar										
1_20										
30-59										
60+										
Sautinbers										
1-29										
30-59										
60+									**	1 1-10-

Table	283Fi	ire-cause	d changes i	n net va	lue of	lodgepole p	ine	stands
under	intense	private	management,	norther	n Socky	Kountains,	by	fire
size	and disco	ount rate	•					

Table 28AFire-cau under intense privat size and discount ra	sed changes in net value of lodgepole pine stands e management, northern Rocky Kountains, by fire te
Stand productivity (cu ft/acre/yr),	Fire size: 1-99 acres Fire size: 100+ acres
stand size, and mortality class	Discount rate (pct)

7 074

Table	28AFire-caused	changes in a	et value of	lodgepole pine	stands
under	intense private m	magement, no	rthern Socky	Kountains, by	fire
size a	ind discount rate				

Table 288Fire-caused changes in not timber output of lodgepole pine st	ads under
intense private management, northern Rocky Mountains, by fire size and tim	a period

scano size, and	1		DIBCOUN	. Ince they	.,						
(pet)	4.0	7 875	10.0	1 4.0	7.875	20.0					
		19	78 dolla	ra/acre bi	roed ¹						
High (120+);											
Seedling/sapling:											
1-29	611	551	450	611	551	450					
30-59	602	542	442	602	542	442					
60+	599	539	439	599	539	439					
Poletimber:	••••										
1-29	219	211	207	~369	~346	-335					
30-59	302	292	286	-255	-237	-228					
60+	1362	1244	1209	1177	1080	1052					
Sawtisher:											
1-29	85	82	8)	-306	-285	-276					
30-59	475	458	449	-113	~100						
60+	816	718	692	138	78	20					
Inderste (85-119)	••••										
Candling/anling											
1.79			n	n	0	0					
30-69	ž	ň	ň	ň	ő						
10-15	200		176	200	772	170					
Dol obdabooo	380	233	170	300	*22	110					
1_20	160	112		150	112						
1-29	159	113	100	103	113						
30-39	119	120	130	219	100	130					
60+	1010	/56	628	909	001	242					
Sawtimper:			20								
1-29	40	39	38	-179	-161	-101					
30-59	222	214	210	82	54	85					
50+	366	324	515	285	254	248					
Low (50-84) :											
Seedling/mapling:			-		-						
1-29	0	0	0	0	0	0					
30-59	0	0	ç	0	0	0					
50+	0	C	0	0	0	0					
Foletimber:											
1-29	5	2	1	5	2	1					
30-59	8	3	2	8	э	2					
60+	702	368	270	658	352	237					
Savtimber:											
1-29	67	65	63	-116	-112	-110					
30-59	369	361	355	274	270	265					
60+	685	633	613	623	580	563					
/ery low (20-49):											
Seedling/sapling:											
1-29											
30-59											
60+											
Poletimber:											
1-29											
30-59			**								
60+											
Sautimber											
1-29	**	***	~-								
10-59						-					
20-27											
0.07											

Stand productivity		Fire s	size: 1	-99 acre	g.	t	Fire a	size: 1	00+ acre	B
stand size, and					Fize pe	riod (yea	(83)			
(pct)	0-24	25-49	50-99	100-200	0-200	0-24	25-49	50-99	100-200	0-200
					Cu ft	/acre/vea	r1			
Bigh (120+): Seedling/sapling:										
1-29	52	-52	314	0	28	52	-52	114	0	28
30-59	-56	-52	114	13	21	-56	-52	114	13	21
Polotimber.	-92	-34	114	1.1	11	-92	-32	114	13	17
1-29	a	0	Ó	C	٥	0	C	8	٥	0
30-59	ō	ō	ō	ō	ō	ō	ō	ō	ō	ō
60+	0	0	0	0	0	0	0	0	0	0
Sawtimbers				-						
1-29	ů.	U N	0	0	Q C	0	0	0	U N	
504	ň	Ň	ň	Ň	ň	0	Ň	ň	ň	
Moderate (85-119): Seedling/sapling:		v	•	•	•	,	•	· ·	•	•
1-29	0	0	0	0	0	0	0	0	0	٥
30~59	0		0	0	0	0	0	0	0	0
50+		172	•88	o	Q	4	172	-88	D	Q
1-20	-16	0	0	0	-2	-16	•	0	n	-7
30-59	·-20	ŏ	ŏ	ŏ	-2	-20	Ď	ŏ	ŏ	-2
60+	28	-4	2	õ	5	20	-4	2	ŏ	3
Sawtimber:										
1-29	0	0	0	0	0	0	0	0	0	0
30-59	0	0	ç	0	0	0	0	0		0
104 (50-94)+	U.	0	v	v	U	0	U	v	v	0
Seedling/sapling:										
1-29	0	0	0	0	0	0	0	0	0	0
30-59	0	0	0	0	0	D	0	0	D.	0
60+	0	0	0	٥	0	0	Q	0	o	0
Poletimber:	-24	•			-1	-24			•	-3
10-59	-22	Ň	ŏ	ă		-12		~		
60+	56	ŏ	-7å	39		56	ă	-78	39	- 7
Sawtimber:										
1-29	0	0	0	0	0	0	Û	0	0	0
30-59	0	0	0	0	0	0	0	0	0	0
50+ Very 104 (20-49).	0	0	¢	Q	Q	U	Q	0	¢	Q
Seedling/sapling:										
1-29			~-			 -				
30-59										
60+										
Poletimber:										
1-29										
60+										
Sawtimber:										
1-29										
30-59		***								
¢0+										

Table 27A--Pire-caused changes in net value of larch stands under intense private management, northern Rocky Mountains, by fire size and discount rate

Stand productivity {cu ft/acre/yr);

Fire size: 1-99 acres | Fire size: 100+ acres

Table 27B--Fire-caused changes in net timber output of larch stands under intense private management, morthern Rocky Hountains, by fire size and time period Fire size: 1-99 acres | Fire size: 100+ acres

			is megan	Ť		
Management	Fire	size: 1-99	acres	Fire s	size: 100+	acres
emphasis, stand size,	Disc	ount rate	(pct)	Disco	unt rate	(pct)
mortality class (pct)	4.0	7.875	10.0	4.0	7.875	10.0
Moderate public						
Seedling/sapling						
1-29	_	_	_	_		******
30-59			_			
60+			_			
Poletimber						
1-29	0	0	0	0	0	0
30-59	0	0.86	0.90	0.28	0.55	0.58
60+	1.00	1.00	.99	1.00	1.00	1.00
Sawtimber						
1-29	.94	.95	.95	.77	.78	.79
30-59	.92	.84	.87	.49	.63	.67
60+		1.00	1.00	.42	.62	.67
Intense public						
Seedling/sapling						
1-29	1.00	1.00	00.1	00.1	1.00	1.00
30-59	1.00	1.00	1.00	00.1	1.00	1.00
60+	1.00	1.00	1.00	1.00	1.00	1.00
Poletimber						
1-29	.30	.94	.94	.63	.79	.80
30-59	0	.88	.91	.24	.73	.77
60+		00.1	1.00		.50	.71
Sawtimber						
1-29	.95	.92	.94	.79	.85	.87
30-59	0	.63	.79	.51	.48	.54
60+		1.00	1.00	1.00	.38	.50
Passive private						
Seedling/sapling						
1-29	0	0	0	0	0	0
30-59		0	0	.95		<u> </u>
60+	1.00		—	1.00		
Poletimber						
1-29	.88	.92	.96	.96	.98	.86
30-59	.75	.49	.78		.93	.70
60+			_	—	—	
Sawtimber						
1-29	.73	0	0	.89	.86	.86
30-59	0	0	.93	.99	1.00	1.00
60+		—		—	—	
Intense private						
Seedling/sapling						
1-29	—					
30-59		—				
60+			—	—	—	—
Poletimber	_	_				
1-29	0	0	0	.90	.91	.91
30-59	0	0	0	.63	.67	.70
60+		_	—	-		
Sawtimber				<i></i>		
1-29			—	.89	.88	.88
30-59	<u></u>			1.00	1.00	1.00
60+		_				

Table 29-Factors for adjusting roaded net value change estimates to
unroaded estimates when roaded value is negative

Table 30—Factors for adjusting roaded net value change estimates to unroaded estimates when roaded value is positive

unrouaea estimates wh	en roaa	ea value	is positiv	·e		
Management	Fire size: 1-99 acres			Fire size: 100+ acres		
emphasis stand size	Discount rate (pct)		Discount rate (pct)			
mortality class (pct)	4.0	7.875	10.0	4.0	7.875	10.0
······		L	I	L		
Moderate public						
Seedling/sapling	1.00	1.00	0	1.00	1.00	0
1-29	1.00	1.00	0	1.00	1.00	0
30-59	1.02	1.03	1.04	1.02	1.03	1.04
60+	1.03	1.05	1.06	1.03	1.06	1.02
Poletimber						
1-29	1.01	1.03	1.03	1.07	1.02	1.03
30-59	1.02	1.03	1.05	1.02	1.03	1.05
60+	1.10	1.28	1.38	1.18	1.61	1.60
Sawtimber		1.07	1.07			
1-29	1.04	1.06	1.06	1.04	1.07	1.05
30-59	1.00	1.01	1.01	1.01	1.03	1.04
60+	1.17	1.41	1.55	1.43	1.52	1.91
Intense public						
Seedling/sapling	1.00	1.01		1.00	1.01	
1-29		1.01	1.01	1.00	1.01	1.01
30-59	10.1	1.02	1.03	1.01	1.02	1.03
60+	1.05	1.14	1.17	1.06	1.18	1.11
Poletimber		1.05			1.1.	1.02
1-29		1.03	1.04	1.16	1.14	1.05
30-59		1.03	1.04	1.04	1.04	1.06
60+	1.06	1.30	1.36	1.20	1.52	2.03
Sawtimber						
1-29	1.04	1.02	1.03	1.03	1.05	1.06
30-59	1.02	1.00	00.1	1.38	1.90	2.28
60+	1.16	1.25	1.32	1.44	1.60	1.66
Passive private						
Seedling/sapling						
1-29	1.00	1.00	0	1.00	1.00	0
30-59	1.05	00.1	1.00	1.05	1.00	00.1
60+	1.01	E.01	1.01	1.01	1.01	1.01
Poletimber						
1-29	1.01	1.03	1.03	1.03	1.04	1.04
30-59	1.03	1.01	1.01	1.12	1.02	1.02
60+	1.04	1.08	1.11	1.08	1.18	1.14
Sawtimber						
1-29	1.05	1.06	1.06	1.31	1.00	1.00
30-59	1.04	1.05	1.05	1.11	1.14	1.14
60+	1.18	1.22	1.23	1.41	1.52	1.53
Intense private						
Seedling/sapling					1.02	1.62
1-29	1.00	1.00	1.00	1.00	1.00	1.00
30-59	1.01	1.01	1.01	1.01	1.01	1.01
60+	1.04	1.08	1.11	1.04	1.09	1.13
Poletimber					1.07	
1-29	1.01	1.01	1.01	1.01	1.02	1.03
30-59	1.00	1.01	1.01	1.01	1.01	1.01
60+	1.05	1.07	1.08	1.17	1.24	1.21
Sawtimber					1.00	
1-29	1.00	1.00	1.00	1.00	1.00	1.00
30-59	1.00	1.00	1.00	1.36	1.34	1.34
60+	1.10	1,12	1.12	1.82	1.86	1.86

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The Forest Service, U.S. Department of Agriculture, is responsible for Federal leadership in forestry. It carries out this role through four main activities:



- Cooperation with State and local governments, forest industries, and private landowners to help protect and manage non-Federal forest and associated range and watershed lands.
- Participation with other agencies in human resource and community assistance programs to improve living conditions in rural areas.
- Research on all aspects of forestry, rangeland management, and forest resources utilization.

The Pacific Southwest Forest and Range Experiment Station

• Represents the research branch of the Forest Service in California, Hawaii, and the western Pacific.



Flowers, Patrick J.; Shinkle, Patricia B.; Cain, Daria A.; Mills, Thomas J. Timber net value and physical output changes following wildfire in the northern Rocky Mountains: estimates for specific fire situations. Res. Paper PSW-179. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 1985. 25 p.

One of the major economic effects of wildfire is the change in the net value of timber. Estimates of these changes were calculated for a wide range of fire situations in the northern Rocky Mountains of the United States. The results are presented in reference tables. They are intended as an alternative to calculating estimates for specific sites or to using broad averages. Specific fire situations are identified by management emphasis, cover type, productivity class, stand size, mortality class, fire size, and access parameters. The reference tables have potential uses in planning long-term fire management programs, establishing dispatching priorities, analyzing escaped fire situations, and analyzing wildfire's impact on long-term harvest schedules.

1 年來就的有中國就能做中国各基本各國的和自由的政軍的是從过到这份有關以及就及非常有效的軍民

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Retrieval Terms: fire effects, economies-to-scale, fire size, timber management regime