



# STATE FOREST NOTES

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## TIMBER SALE APPRAISALS FOR JACKSON STATE FOREST

Gary F. Ross <sup>1/</sup>

Historically, logging cost information for timber sale appraisals on Jackson State Forest has been solicited from local logging contractors and used along with current log prices to determine stumpage values. This method could lead to serious problems if these cost figures contained inaccuracies which were not realized by those preparing appraisals. The Jackson State Forest staff has adapted a logging cost guide for appraisals from the USFS Regions Five and Six, the Bureau of Land Management Timber Appraisal Production Cost Schedule, and Cost Control in the Logging Industry by D. M. Matthews <sup>2/</sup>. This guide is used mainly to determine individual machine rates which are then applied to a model assembled specifically for one logging plan. The machine rates along with current local labor rates, administrative costs, material costs, and local production figures make up the total cost estimate for a given timber sale.

To determine the fixed cost portion of the machine rate, inquiries are made at local equipment dealers to find the new prices for fully equipped machinery. These figures usually include all necessary logging equipment, tax, freight, and delivery to the job site.

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<sup>1/</sup> Formerly Forester, California Division of Forestry, Jackson State Forest, Fort Bragg, California.

<sup>2/</sup> Matthews, D. M. 1942. Cost control in the logging industry. McGraw-Hill Book Company, Inc. New York.

As a general rule, the contractor cannot afford costly breakdowns and contract penalties so he rotates equipment replacements on a planned schedule to trade in everything within 10,000 hours of useful life. Occasionally, a small timber operator will squeeze more than 10,000 hours out of a piece of equipment and avoid the new equipment costs.

Local union labor rates are obtained each year from the International Woodworkers of America for use in timber appraisals. They are compared with local logging contractor rates and labor rates published by the USFS. Thirty percent is added for payroll taxes, unemployment insurance, and health and accident insurance.

Operating costs take into account fuel, oil, grease, repairs, maintenance, tires, etc. Prices for fuel, oil and grease are obtained from local distributors and are priced delivered to the job location.

Logging production rates are estimated from past history on similar timber sales. These rates are comparable to the graphs in McDonald's<sup>3/</sup> study at Challenge.

Culvert, oil, rock and bridge structure costs are estimated after checking materials prices with local outlets.

To gain an insight into logging costs, a model of the typical logging operation is developed. The number of tractors, skidders, loaders, trucks, and miscellaneous equipment required to log a sale of given volume during a specific time period is estimated. The hourly machine rates along with hourly labor rates are inserted in the model to attain the daily total logging costs (see Table 1). To help visualize each phase of the model operation a PERT<sup>4/</sup> chart is drawn showing the time frame for each individual operation.

In summary, this approach for determining logging costs is not new in concept. It is a practical approach currently utilized by Jackson State Forest personnel for many timber sale appraisals. Having all of the cost data available facilitates audits of timber sale appraisals and prevents the possibility of inaccurate cost figures distorting stumpage prices. The usefulness of this method relies upon accurate local production figures to develop the model and careful application of cost data to the model.

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<sup>3/</sup> McDonald, Phillip M. 1972. Logging production rates in young-growth, mixed-conifer stands in north central California. U.S.D.A., Forest Serv. Res. Paper PSW-86

<sup>4/</sup> Program Evaluation & Review Technique (PERT) is a graphic display management planning method developed by the U. S. Navy about 1958.

Table 1. Timber Sale Logging Cost Model<sup>a/</sup>  
8.2 MM Net Board Feet

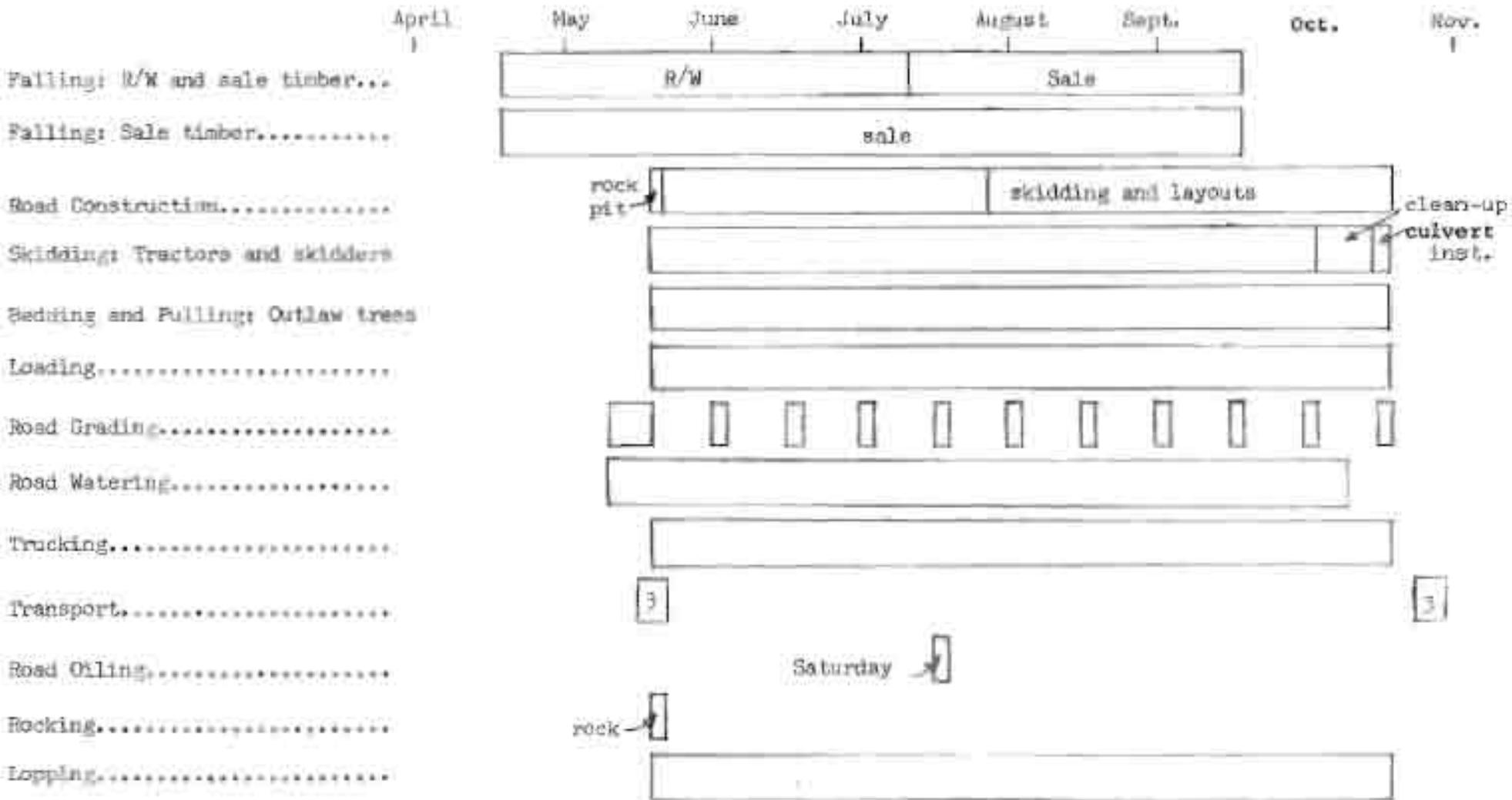
	Per Day	
A. Equipment Costs <sup>b/</sup>		
1 966C Loader	\$ 246.	
3 D6C Tractor	832.	
1 D8H-46A	449.	
2 Cat 518 Skidders	358.	
1 D7F Tractor	326.	
1 Cat 12E Grader	25.	
1 Carryall	62.	
1 4WD Pickup	42.	
1 Mechanic/Welder Truck	57.	
1 Fuel/Grease Truck	12.	
1 Water Truck, 3,000 Gallon	50.	
		\$ 2,459.
B. Labor		
1 Mechanic	\$ 75.	
1 Mechanic's Helper	57.	
1 Landing Man	53.	
1 Water Truck Driver	53.	
7 Chokemen	440.	
2 Loppers	104.	
1 Bullbuck	60.	
1 Woods Boss	81.	
		\$ 923.
C. Trucking Costs - 5 Trucks		\$ 1,670.
D. Falling Costs - 5 Fallers		
Saw Rental	\$ 94.	
Operating Cost	20.	
Labor	358.	
		\$ 472.
	Total Daily Costs	\$ 5,524.
	Sale Cost (Total Daily Costs x 100 Days)	\$552,400.
E. Transport Service (move in/move out)		
6 days x \$277.50 =		\$ 1,665.
F. Culvert Cost		\$ 7,640
G. Rock (materials provided by State)		\$ 1,746.
H. Road Oil		\$ 2,660.
I. Administration		\$ 19,000.
	Total Sale Cost	\$585,111.
	Cost Per M. Net Board Feet for 8.2 MMBF	\$ 71.36

a/ Sample costs based on a 100-day season, 9 hour days.

b/ Includes operator, overtime, FICA

PERT CHART

Timber Sale Logging Cost Model (100 day season)



Representative types of equipment and crew sizes for each operation are contained in Table 1.