Considerations for setting up a commercial timber harvest operation

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Like in any forest management operation there are critical things to consider when planning an operation of any kind. Timber harvest needs very careful planning due to both the short term and long-term impacts to your timber stands. The following information is a guide to some of the things to consider but is certainly not complete:

Questions to Consider

- Are you going to do this work yourself or hire a professional forest consultant?
  1. Do you have experience in laying out a harvest unit?
  2. Do you have experience in writing, negotiating, and administering harvest contracts?
  3. Do you have experience in making maps, filing forest practices notifications, writing written plans, and filing harvest tax forms?

- Does your harvest plan meet both your current and future management goals?
  1. Have you established a silvicultural objective i.e.: Commercial thin, fuels reduction, species manipulation, salvage, etc.?
  2. Can your objectives be accomplished within your economic comfort level? i.e.: Do you have a specific income objective or are you willing to spend money out of pocket to accomplish the management objectives.
  3. Have you written cutting specifications or marked the timber for harvest?

- Are there harvest contractors available with the proper equipment to do the harvest in the time frame you desire?
  1. In my experience there is a severe shortage of logging contractor capacity in Northeast Oregon. Independent contract loggers that are not tied to a mill or large industrial landowner are very few and most have at least one to two years of work lined out ahead.
  2. Occasionally a logger can fit you in sooner around the fringes of his already contracted logging season such as in late winter or early spring. This could be a problem if your job does not have an all-weather road system, the ground is muddy, or in some cases the mills are not buying logs. Logging pine early in the season could also create bark beetle issues in residual trees.
  3. Shortened logging seasons due to fire closures, mill delivery curtailments, and warm or wet winter/spring seasons have made finding contractors even more difficult and increased harvest costs significantly.
What to Expect in Costs and Potential Revenues for Various Operations

The following forest operation cost estimates and product values are based on current local experienced costs and prices and are not meant to be an estimate for any operation or product. Several factors influence operation costs and product values, but in my experience the following estimates fall within a typical range of what many private landowners in Northeast Oregon experience.

There are two primary logging systems currently being used in Northeast Oregon, Ground Based Mechanical Logging and Skyline Logging. The ground-based systems tend to operate on slopes under 40-45% when the skidding can be done downhill or only slightly uphill to a road. The skyline systems typically operate on slopes steeper than 40% and with the road at the top of the slope. Many factors influence the costs for either system including factors such as rockiness of the ground, volume cut per acre, tree sizes, landing size and locations, general topography, and skidding distance.

The following is a brief overview of each system:

**Ground Based Mechanical Logging Operations**

A typical operation will consist of a feller-buncher to cut the trees, a skidder or cat to skid them to the landing, a mechanical processor to buck the trees into logs and sort them, and a loader to load the logs on the truck. This type of operation will typically have a daily operating cost of around $5,000. Daily productions for these operations range from a low of about 4 loads of logs to a high of around 10 loads. Based on these estimates the stump-to-truck logging cost alone would range from about $500 per load on the low end to $1200 per load on the high end. Assuming approximately 4.2 thousand board feet per load, the range of costs would be between $120 per thousand board feet (mbf) to $285 per mbf. My experience is that most private logging jobs run from around $165 - $200 per mbf. Keep in mind that this is just to get the logs onto the truck.

Another form of ground based mechanical logging is referred to as “cut to length logging.” In cut to length operations, a harvester/processor cuts the trees down in the woods and processes them into log lengths leaving the slash from the limbs and tops in the woods. Logs may be skidded by a cat or skidder but are often hauled to the landing with a forwarder which carries the logs in a bunk and then off-loads them at the landing. The logs are then loaded on the truck by a hydraulic loader at the landing. Typically, the main difference is that the slash is left in the woods and landing piles are smaller. Generally, my experience is that the production rates for these operations tend to be on the low end of the range of conventional ground-based operations while the costs toward the upper range of the costs for conventional ground-based operations.

Trucking costs vary a great deal depending on distance to the mills and the speeds that the truck can travel based on road conditions. A typical log truck hauls approximately 27 tons of
logs and will cost about $1100 per day. Very few jobs in Northeast Oregon will be close enough to the mills to get more than about 4 loads per day. On some jobs the trucks may get only 1 load per day. Therefore, trucking costs might run from a low of approximately $65 per mbf to a high of around $285 per mbf. Per ton trucking rates typically paid for delivering pulp logs will run from $10 to $20 per ton.

There are numerous other costs associated with the logging that need to be considered as well including move-in costs for equipment often- $2000 to $4000 per job, administration and layout – often $5 to $20 per mbf (depending on need to locate property lines, mark timber, etc.), harvest taxes – approximately $4 per mbf.

This often makes private ground based mechanical logging jobs cost about $250 per mbf, ($38 per ton) to deliver to the mill. Numerous factors including size of the job and hauling distance can easily drive this up to over $300 per mbf, ($47 per ton)

**Skyline Logging w/ Mechanical Processing**

Skyline logging has become rare on private lands in Northeast Oregon due to the high costs and few operators available to do the work. In a typical operation the stump-to-truck logging cost for skyline operations are in the range of $285 per mbf to approximately $390 per mbf. After adding in the cost of trucking, move-in, administration, layout and taxes the total price to deliver logs to the mill would likely range from $400 to $500 per mbf, ($62 to $78 per ton) Only the most valuable logs would even come close to covering the cost of logging and trucking, leaving virtually nothing for the landowner.

**Product Values**

The following are current delivered log prices to local mills. These prices are somewhat lower than the last year, but very close to the past 10-year average.

Ponderosa Pine – 6”-7” logs $270 per mbf
Ponderosa Pine – 8” – 15” logs $320 per mbf
Ponderosa Pine – 15” + logs $385 per mbf
Douglas Fir - 8” + logs $420 per mbf
Western Larch 8” + logs $420 per mbf
Grand fir / Other 8” + logs $300 per mbf
Pulp logs (typically 4”-8” logs) - $32 per ton (typically cost more to deliver than they are worth but often taken out anyway to assist in cleanup of the job)
Dry Firewood logs - $40 per ton (usually post and pole logs are about the same)
As you can see by comparing the typical logging and trucking costs to the delivered mill values, there is quite often minimal stumpage value left over for the landowner in today’s markets.

It is important to emphasize that receiving little value for timber in the short term may be better than letting mortality, disease, or fire destroy long term values. It is usually never a good choice to delay doing needed timber stand improvements based solely on market speculation. Costs continue to rise, and most experts do not expect log and product values to increase significantly in the foreseeable future.

**Precommercial Thinning and Slash treatments**

As in logging, the costs to pre-commercially thin a stand vary a great deal based on several different factors including tree sizes, trees per acre, ground conditions, and required slash disposal.

In my experience, mechanical pre-commercial thinning with slash mastication is generally similar in cost to hand thinning followed by piling and burning of slash.

The lower cost thinning and slash treatment operations are often in the range of $350 per acre with the more expensive operations costing $650 or more per acre.

**Tree Planting**

Most landowners will pay approximately $.50 per seedling to purchase the tree seedlings and about $.50 per tree to plant them. Planting around 300 trees per acre in a clear-cut is typical and interplanting within a partially timbered stand might be around 150 trees per acre. Depending on the conditions, site preparation may be needed. There are several different methods used locally - including hand scalping of sod, herbicide treatment, or mechanical scarification. A broad average for this work might be about another $.50 per tree.

Planting without site preparation might cost $150 to $300 per acre.

Planting with site preparation might cost $225 to $450 per acre.