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REDUCING HAZARDOUS FUELS ON WOODLAND PROPERTY

Disposing of Woody Material

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Thinning to reduce hazardous fuels often generates large amounts of woody residues, such as small-diameter logs, tree tops, and branches. This publication discusses several options for economically and effectively using and disposing of woody material.

Using thinned materials

During thinning operations, trees are felled, limbed, and bucked into logs of varying lengths. The logs often can be used rather than left in the woods or piled and burned. Ways to use small logs include selling commercial products, such as sawlogs, posts and poles, and firewood.

Some thinnings may pay for themselves or even generate a profit. However, most thinnings to reduce fire hazard have a net cost. The amount of cost will vary considerably, depending on the difficulty and size of the job and the amount of salable material available. Sale of products may help offset these costs.

Sawlogs

Markets for small-diameter logs vary considerably with the locale and current economic conditions. Merchantable sawlogs generally must be at least 5 inches in diameter at the small end (inside bark) and at least 12 feet long, though longer logs are much preferred. Usually, a standing tree must be at least 8 inches in diameter at chest height (4.5 feet from the ground) to generate a sawlog. Sawlogs typically are sold by the board foot or the ton.

The expense of handling small sawlogs—bucking, yarding, sorting, and loading—is considerable. In recent years, a variety of small-scale, low-impact logging equipment has been developed to more efficiently process this material. To justify the cost of moving in equipment, you should have one truckload or more of logs and approximately 1 week's worth of work to do.

Selling even small amounts of forest products poses certain requirements. For example, you must file a harvest notification with the Oregon Department of Forestry (ODF), and you may owe taxes on sale proceeds.

Biomass

Biomass utilization is yet another option. Biomass includes tree limbs, tops, and other woody material that traditionally is left in the woods after thinning or logging.

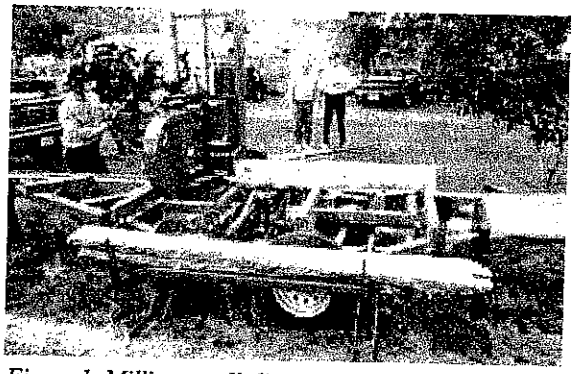

Figure 1. Milling small-diameter logs. Photo: Jim Reeb.

Recently, there has been considerable interest in using this material as fuel for biomass power plants. However, the cost of gathering small-diameter material and transporting it from the woods to a power facility has been prohibitive in most cases.

In addition, biomass utilization generally requires on-site chipping, large landings, good road access to accommodate chip vans, and relatively short hauling distances. These requirements may be difficult to meet on many woodland properties. Nevertheless, recent increases in the price paid per ton of biomass have made it economically viable to utilize in some locales.

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- Lay limbs and stems parallel and in the same direction to minimize "air pockets."
- On a hillside, align material in the same direction as the slope, to prevent the pile from rolling.
- Pile sizes can vary but should be at least 4 feet wide and 4 feet high (Figure 5, page 3).

Figure 6. Whole-tree chipper in pine stand.

Cover hand piles if material is not going to be burned immediately. Covering hand piles allows you to burn during rainy or wet periods and provides a dry ignition spot.

- Cover a hand pile when it is about 80 percent complete. After covering, put the rest of the material on top of the cover to hold it.
- Remove the cover before burning. Or, if the cover is made from pure polyethelene plastic, it can be left on the pile and burned.

Burn piles only when conditions are safe.

- Before burning, obtain a burn permit. Check with both your local fire department and ODF.
- Burn hand piles when burning restrictions are lifted, during daylight, and when it's wet or rainy with little or no wind.
- Have a shovel and water nearby and ready to use.
- Check carefully to make sure the piles are out before you leave the area.

Chipping

Chipping can be a very effective method of slash disposal. A layer of chips a few inches deep spread across the ground poses relatively little fire hazard. Chipping results in a neat appearance, and the mulch holds soil moisture, covers exposed soil, and inhibits weed germination. Depending on moisture levels and the depth of the chips, they may decompose rapidly or slowly. There is no evidence that chips spread over the soil surface "tie up" nitrogen in the soil. However, chips may inhibit the growth of some ground vegetation.

Chipping is well suited to homesite and defensible-space thinning. However, chips should not be deeper than a few inches and should **not** be used at all around a home's foundation because they could ignite from an ember.

Many contractors, including arborists and tree service companies, have large chippers that can process relatively large-diameter material efficiently. Homeowners can rent chippers, but the machines are usually smaller and productivity is much lower. In general, chipping is very labor intensive and costly. Most of the labor is in dragging the material to the chipper and feeding it by hand. The material also can be piled first and the chipper moved around to each of the piles. Chipping requires fairly level ground and good access, since most chippers are towed by a truck or tractor.

Self-propelled, whole-tree chippers also have been developed and may be available for contract work in some areas (Figure 6).

Haul away

Slash may be carried to a Dumpster or a pickup and hauled away. This is labor intensive and best suited for relatively small amounts of material near homesites, where access is good. The material can be hauled to a landfill or other disposal site. Some counties occasionally have "free days" where residents can bring in slash and debris for free. Contact your local landfill manager. A few landfill sites may have biomass power facilities that offer slash disposal for free or a low fee.

Table 1.—Summary of woody material disposal options.

Considerations	Option				
	Utilization	Cut and scatter	Cut, pile, burn	Chip	Haul away
Objective and effectiveness	Remove small logs; sell when feasible to offset treatment costs. Follow with slash treatment.	Reduce ladder fuels and redistribute fuel load. Not as effective as other treatments, except when fuels loads are light.	Remove woody residue generated in thinning. Reduce ladder and surface fuels. Very effective.	Remove woody residue generated in thinning. Reduce ladder and surface fuels. Effective	Remove woody residue generated in thinning. Reduce ladder and surface fuels. Very effective.
Use near home?	Yes	No	Yes	Yes	Yes
Use in riparian zone?	Maybe	Yes	Maybe	Maybe; depends on access.	Yes
Slope	All ground-based, mechanized log-handling equipment usually limited to slopes of less than 35%.	All slopes.	All slopes.	Yes, if slopes are less than 40%	Flat or nearly flat terrain.
Equipment needed	Small log-handling equipment; e.g., all-surface vehicle (ASV).	Chainsaw	Can be done by hand or using equipment.	Chipper that can handle material up to 6 inches or larger	Truck
Site disturbance	Varies	Little	Some; can be considerable with mechanized piling.	Little	Little
Contract cost range per acre	Highly variable	$25–$100	$275–$1,500 (major cost is piling).	$500–$1,500	Highly variable
Advantages	Can offset treatment costs.	Cheap and easy to implement.	Very effective way to reduce slash and fuels.	Effective; neat appearance.	Effective; neat appearance.
Disadvantages	May not be feasible. Cost may greatly exceed benefit.	Less effective than other treatments; the fire hazard may remain for several years.	Labor intensive and costly.	Labor intensive and costly.	Labor intensive and costly.
ODF notification requirement	Yes	Yes	Yes	Yes	Maybe

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