

A Beginners Guide to Forest Thinning on Private Lands

by April Fletcher, Environmental Biologist

March 2006

Forest thinning can be a daunting task if you live in a densely forested area. In the South 14 corridor, a good deal of the property has a combination of densely growing pinyon pine, juniper (mostly Rocky Mountain, but some one-seeded and alligator) oak, and ponderosa pine. Although the Ciudad Soil and Water Conservation District offers an excellent cost-share program for thinning, some landowners may wish to do their own thinning – or want to have a say in how the thinning is done. This guide is designed for East Mountain landowners of that kind of property who haven't yet begun seriously to thin, and want to know where to begin.

Precautions

Usually, the safest season to thin is late summer (in a normal summer rainfall year; later in a drought year), fall and early winter, when fire risk is down and bark beetles are less likely to be drawn to your trimmed and cut trees. If the weather is hot and dry when you begin thinning, I strongly recommend you carry a small fire extinguisher with you, and clear leaves and needles away from the base of trees you are cutting with a chainsaw. Even a spark from the chainsaw can start a fire smoldering.

Due to current extended drought conditions, bark beetles (*Ips confusus*) have been killing many of New Mexico's stressed pinyon pines. You are likely to draw insects if you cut green trees or trim living branches during the times of year when beetles are active. Therefore, during this major beetle threat, I recommend you postpone cutting trees or trimming living branches until after we begin to get freezing night temperatures-- from late September or early October through January, since cuts at other times of the year may attract insects. I have cut as late as February, but cover logs and remove branches quickly.

Pinyon trees that begin to yellow are probably infested with bark beetles. You can confirm this by removing a patch of bark about 2-3 feet from the ground and checking the bark for insects and engravings. There is nothing you can do once a tree shows signs of beetle infestation except take precautionary steps to prevent the insects from spreading to other trees by cutting the tree down promptly and properly disposing of it.

If you must remove trees in late winter, spring or summer due to beetle infestation or for other emergency reasons, immediately haul off (don't chip!) the branches of trees you cut, and cover all cut firewood with plastic, securely sealed, in a sunny spot where the heat of the sun can bake the logs and kill insects. Use clear, heavy-duty, plastic, don't stack more than 3 feet tall, and seal the bottom tightly with dirt to create a a greenhouse. Make several smaller stacks rather than one larger one, and pile logs tightly. Don't pile cut wood or chips near the base of trees: They will invite insects to your healthy trees. Consider hauling off the beetle-infested logs for disposal at the East Mountain Transfer Station.

Planning Thinning

1. The first step is to walk through your property and get to know it from the ground up to the top of the trees.

- Is the ground bare or covered with needles and dead branches? Are there grass tufts where it looks like the ground is eroding in between (an indication that trees are taking too much moisture, not leaving enough for grasses and wildflowers)?
- Are the tree branches alive to the ground, or have they died back up a good ways (too much competition or lack of moisture)?
- Are the mountain mahogany actually shrubs or are they spindly stalks (not enough light)?
- Are there rock outcroppings (indicating shallow soils and possibly greater competition for soil moisture)?
- What is the slope of the land: is erosion occurring (not enough grasses and wildflowers to hold the water)?
- Is there mistletoe in your trees? Is it spreading among the trees? (Mistletoe is species-specific, meaning the kind found on juniper is different from those kinds found on ponderosa pine and pinyon.)
- Are insects infesting your trees? Look for holes, pitch blobs or drips in the bark, or dead needle tips. (New Mexico State Forestry has a guide to forest insects to help you identify which insect you have.)

Preliminary Work

2. If you can't walk through your property with ease, you have preliminary work to do. First get the right equipment:

- A good pair of loppers (I recommend Sears Craftsman, which come with a lifetime guarantee. I prefer the straight bill, not the parrot bill)
- A sturdy pair of boots or shoes
- A pair of leather palm or all leather gloves
- Protective glasses (it's easy to run into branches in dense vegetation!)
- Marking ribbon (A surveyor's tape)
- If you have oak that you want to permanently clear away, I recommend you use Garlon 3A or A Roundup Pro® herbicide. You will have a great deal of trouble trying to get rid of oak without it--it will grow back with a vengeance.

NOTE: Garlon 3A (diluted 50% with water) or Roundup Pro (full-strength) needs to be applied to the cut surface of the stump within 5 to 10 minutes after cutting. Then wait a few minutes, and re-apply. You can apply it with a small paintbrush from a wide, flat bottomed jar in which I pour a little at a time from the bottle into the jar, or from a chemical-resistant spray bottle if you need a lot.. (Never store herbicide in an unmarked container!) Read the label carefully and always use unlined, chemical-resistant gloves and any protective clothing recommended on the label when pouring and applying an herbicide. Apply it to the outer rings and bark of the cut surface of the stump , since that is the part which will carry it down to the roots. Apply liberally -- don't skimp; you need to get enough on to get down into the roots to kill them, but minimize what runs down the sides of the cut stump..

Don't try to use Garlon 3A or Roundup Pro(available from Home Depot) in the spring when the sap is flowing: Once the oaks have begun to leaf out, herbicide effectiveness will drop significantly. You will usually get the best control with these herbicides in late summer, fall, or late winter.

Caution: If you have shrubs or sensitive trees that are right next to your oak, I suggest using Roundup Pro, since the active ingredient, glyphosate, will bind with the soil and be inactivated. Garlon 3A, a triclopyr product, may affect some plants, such as mountain mahogany or honey locust, immediately adjacent to the treated oak. since oak roots apparently intertwine with other plants' roots. Roundup Pro will only be effective when applied towards late summer or fall, or in February or early March (depending on elevation), before leaf budding. Do not substitute another Roundup product for Roundup Pro.

3. Choose an area to begin. If you don't yet have a defensible space around your home, I suggest you start around your house, first on the southwest and west sides. That is the direction from which winds are most likely to come during May-July (usually the driest season) and consequently the direction from which fire is most likely to approach your property. Then move to the south, east and north sides respectively. OR if your house is on a hill, you may want to consider thinning on the downhill side first. (Note: There are no guarantees on the direction from which a fire will come, but you can go with the odds).

4. Remove lower dead limbs from pinyon trees and small juniper (any time of year) and then cut juniper and pinyon (those small diameter trees that are tall and skinny and have only a bit of green at the top) that you can lop off at ground level. Then trim lower living limbs up from the ground (preferably after August 1 in normal wet years -- later during drought periods, as previously mentioned). Don't leave tall stubs of juniper -they often re-sprout. Remove deadwood (fallen, broken branches).

NOTE: Don't trim more than 25% of the living branches off of pinyon or ponderosa pines, as the trees may not survive such drastic loss.

5. Remove oak from near your house. Lop and treat the stub within 5 minutes with herbicide (see cautions above). Remember, the outer edge of the stub is the living part which will transport the herbicide to the roots. Oak control is best done when the oak are actively growing. You will probably have to re-treat some smaller oak stubs, so leaving a short stub the first cut isn't a bad idea--that way you can re-cut and re-treat if it comes back (catch regrowth early). Avoid leaving stubs in areas where people, especially children, might trip on them.

NOTE: Oak groves are often one oak plant--i.e. have one root system. If you cut just a few, the rest of the trees may provide the energy for rapid re-growth in the cut area. Likewise, if you cut only part of a grove and treat the stubs with herbicide, you may kill some of the remaining oak.

Thinning

6. After your preliminary work, you should be able to see most of your trees and your forest easily. Look them over carefully and put surveyors ribbon around trees you obviously want to remove. Things to look for in selecting trees to remove:

- tree growth is all on one side. These will eventually go over in a heavy snowstorm.
- trees that are spindly with little needle growth at the top.
- trees with tops broken off or that have lost most major branches
- smaller diameter trees that are leaning badly and likely to go over under weight of snow.
- trees that are crowded together. As a rule of thumb, consider the roots will go out 22 times the crown (the needled top). Then look to see how many trees are drawing from the same soil moisture. Crowded trees are probably stressed and likely to be vulnerable to beetle infestation.
- trees that are large, beautiful old trees.
- insect or mistletoe-infested trees.

NOTE: Marking trees to remove is my preferred method. State Forestry and the U.S. Forest Service both mark trees to save, but they are dealing with much larger areas and can't afford to be quite as picky as a private landowner. Choose what works for you.

7. If you have ponderosa pine trees, I recommend you clear a larger area around them to permit rain and melting snow to reach the base. That will encourage decomposition of the needle bed. If you have dense, tall slender ponderosa pines, consider thinning them out to reduce competition. Get professional help in cutting larger trees as they can be hazardous, and can damage other trees if they are felled improperly.

NOTE: The Ponderosa pine is a "Afire climax tree", which means historically it was maintained by periodic, low-temperature, fires that came through and burned small trees and shrubs, leaving a open forest with grasses, wildflowers and some shrubs underneath. Though they are adapted to fire, the density of our South 14 forest is such that a fire would burn so hot it would probably kill them.

The object of thinning well around ponderosa pines is to give them a better chance of surviving a fire when it comes through. Also, if moisture cannot reach the ground due to density of trees, then the needle bed will continue to build up. If the needle bed is more than about 4" deep, a ground fire will burn so hot it will bake the roots and kill a tree that might otherwise have survived the fire.

8. Get information on creating defensible space. The State Forestry Division has excellent publications available on creating defensible space around your home; and there is also good information on the Web (check out <http://www.nmforestry.com> ; and www.fs.fed.us/r3/fire/.) Some recommend you should clear all trees 15 feet from your house. Others recommend you thin the trees near your house so that no two tree tops are within 15 feet of each other. Keep in mind that if trees beyond your defensible space are very dense, the temperature of a fire may be such that your house could catch fire anyway. By thinning farther away from your house, you may reduce the temperature of

a fire, and provide greater protection. There are no guarantees that thinning will save your house, but it can significantly reduce the risk.

9. If you plan to cut trees yourself, I recommend you join the Backyard Tree Farm and attend their events. They provide training in how to operate a chainsaw safely. ALWAYS WEAR PROTECTIVE CLOTHING: I doubt there are any professional woodcutters who have not come close to cutting a leg off--and would have except for protective chaps--or who haven't dropped a tree that hit their helmeted heads, or had a chainsaw kick-back towards their heads and be stopped by a helmet bill. I've seen a shoe that was split right down the middle with a chainsaw (when the foot was still inside!); and serious eye damage, even loss of vision, can result from a chip flying into an eye. If really experienced professionals make mistakes, you probably will too--no matter how skilled you are.

- Chaps C essential leg protection
- Helmet with ear protection
- Eye protection
- Steel-toed boots preferred

10. I recommend you remove from your property deadfall and branches you have cut. Remember, that is all fuel for a fire. This can be done either by hauling it off (a major task), or by hiring a chipper to come and help you chip. There are several chipping services in the East Mountains, or you can rent a large chipper in Albuquerque. (Those located within the Edgewood Soil and Water Conservation District can have chipping done at no charge through a special District program.) A dense layer of chips can be used in car pullout areas that get muddy (not usually suitable for frequently used drives or roads), or wherever you don't want anything to grow.

Some people believe a thin layer of chips helps preserve ground moisture, although there is some research evidence that chips may inhibit native plant recovery. I prefer to use the chips on paths through my property--that way I can walk through the woods even on the rainiest days and not get my feet muddy. Or you can haul chips off to the Transfer Station. (Remember, a pile of fresh chips may draw beetles if they are active in an area.)

11. Set a goal for what area or areas you want to thin each year. Quit and relax when you have completed them. Don't undertake more than you can comfortably finish. This is an ongoing process that could take you several years.

Relaxing and Enjoying

12. Once you have completed your goal, relax and let nature do its work until next year at thinning time. And enjoy a fire in your wood stove or fireplace.

13. However.....

BURN ONLY WELL SEASONED WOOD IN YOUR WOOD STOVE OR FIREPLACE. Green wood produces a lot of creosote and can lead to a chimney fire. It would be unfortunate if you thin your forest for fire protection and then creosote buildup from

green wood causes your house to catch fire! Firewood cut in late winter or spring (not recommended during the beetle outbreak) and covered with plastic will be ready to burn in the fall. If you cut in late summer or fall the wood may not be properly seasoned until the next year, since it doesn't season as fast in cold weather.

NOTE: Feel free to make xerox copies of this information and pass it on to interested friends and neighbors.