Management Planning for Woodland Owners: An Example
C. Landgren and M.C. Bondi

This publication demonstrates one way of organizing and preparing a forest management plan for your property. By no means should you consider this the best or only way for you to plan; conditions vary—and so should your approach to planning. For more information on preparing a management plan, see OSU publication EC 1125, Management Planning for Woodland Owners: Why and How.

This plan was prepared by “John Doe,” for his tree farm, the Backache-40. For background information on Doe, we will assume him to be 43 years old with a stable job of average pay. Doe wants to do much of the work on the 40-acre farm himself, but his equipment is limited and his only free time is on weekends and after work hours. He is knowledgeable, self-taught tree farmer who has learned much from the mistakes and successes of his neighbors and from educational resources.

Doe’s management plan follows. In it you will find a woodland map of his property (page 3), a summary of his inventory (page 4), and his management activity schedule and tree farm records (page 7).

Woodlot management plan for the Backache-40
Prepared by J. Doe, January 2003

Objectives
From my property I hope to obtain (in order of need):
• Money to pay for my 12-year-old daughter Susie’s college education ($15,000 to $20,000 per year, needed in 5 years)
• Eight cords of firewood per year
• Some money in my retirement years ($700 per month as supplementary income)
• Land that looks neat

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Woodlot description

Legal description—The property is in Township 90 North, Range 95 West, section 20, NW 1/4 NW 1/4, Willamette meridian. The property is in Paradox County and is taxed (except for 1 acre around the house) under the Western Oregon Land and Severance Tax. The deed is recorded in book 2, tax lot 103, and includes 40 acres.

Location—Backache-40 is 4 miles north of Happyville, on Highway 202 at Route 2, Box 20. The property is surrounded by Brand X Lumber Company land, which is not roaded. The entire property is in Douglas-fir seed zone 251.

Topography—Average elevation of the property is 1,000 feet above sea level; range is 900 feet to 1,200 feet. The area slopes gently down to an intermittent stream; little of the property slopes more than 30 percent.

Access—The only all-weather road onto the property is the one to the house from State Highway 202. Winter access is poor, but skid roads are ample for access during summer/fall dry periods.

Soils—Soil on the property is in the Goble Series. It is deep (60 inches rooting depth), well-drained, and derived from loess. Compaction may be a problem if I log (using ground-based methods) during the wet season. Plant competition is severe once these highly productive soils are cleared. Therefore, I should replant with large growing stock as soon as possible after cutting.

Other references—Aerial photographs and topographic maps of the property include photos 107 and 108 (1981) on file at the county assessor’s office, and the U.S. Geological Survey’s 1:24,000-scale map (Happyville quadrangle).

Weather—Over the past 10 years, annual precipitation has averaged 54 inches, with only a small portion falling as snow. There are about 150 frost-free days per year, extending from May 15 to October 15.

Other considerations—There are no known disease or insect problems on the property or in surrounding areas. Browse damage from deer and elk can make it difficult to establish young tree seedlings. This has been a problem in the past. Blowdown also has been a problem—the east winds can be strong along the ridge on the northwest side of the property.

My woodland inventory

Chart #1, which is a map of my property, shows the location of each of the four areas that I describe in my inventory. Also, see my Chart #2 for a summary of my inventory. I adapted the chart from a sample management plan courtesy of the Weyerhaeuser Tree Farm Family, Longview, WA.

Area #1. This 9-acre hay pasture includes the 1-acre homesite. The pasture was improved and reseeded 2 years ago. It now consists primarily of orchardgrass, New Zealand white clover, and fescue, with some bentgrass and a few scattered tansy plants (even after years of spraying and pulling).

My present operation runs a cow/calf combination on every 2 acres and selling feeder cows. I have been able to produce roughly 1,800 pounds of beef a year on the entire area.

Area #2. This is a 13-acre red alder forest, 23 years old. There are 495 stems per acre with an average diameter at breast height (dbh) of 6 inches and an average height of 60 feet. There are roughly 20 tons per acre of red alder on the area. Board-foot volumes are not significant yet.

(continued on page 4)
Chart #1.—Backache-40 tree farm map.

- Property boundary
- Improved road
- Unimproved road
- Skid road
- Area boundary
- Area number
- Sub-area boundary
- Sub-area number
- Intermittent stream
- Surveyed and marked corners
- Fence line
- Year-round stream
- Swamp or marsh
- Buildings
- Bridge
- Railroad
- Utility right-of-way

Scale: 1” = 250’
Area #3. This is a well-stocked to overstocked 8-acre area of 47-year-old Douglas-fir. There are about 400 stems an acre with an average dbh of 9 inches and an average height of 85 feet. Volume is approximately 15.2 thousand board feet per acre, Scribner log rule (MBF/acre–Scribner).

Area #4. This 10-acre area was planted in 1986 and is stocked poorly now (at least, it appears so when viewed in aerial photos). A walk through the area shows numerous Douglas-fir stems that are suppressed badly by overtopping red alder. There also are a number of areas along the border where deer and elk browsing has stunted the trees.

The largest trees on the area are 20 to 40 feet tall, with an average of 38 feet. Approximately 100 trees per acre are visible in aerial photos. There probably are an additional 100 stems per acre, which possibly could be released. I estimate the total volume to be 14 tons per acre.

**Chart #2.**—A summary of my inventory.

<table>
<thead>
<tr>
<th>Area number</th>
<th>Acres</th>
<th>Exam year</th>
<th>Species or cover type</th>
<th>Percent stocking</th>
<th>Site index</th>
<th>Site year</th>
<th>merchantable stems per acre</th>
<th>Minimum dbh</th>
<th>Maximum dbh</th>
<th>Minimum Merchantable diameter</th>
<th>Tons per acre</th>
<th>MBF per acre (Scribner)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>81</td>
<td>G</td>
<td>0</td>
<td></td>
<td>1880</td>
<td>60</td>
<td>0</td>
<td>8.0</td>
<td>60</td>
<td>55.</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>81</td>
<td>A</td>
<td>80</td>
<td>100</td>
<td>1980</td>
<td>95</td>
<td>6.0</td>
<td>8.0</td>
<td>60</td>
<td>55.</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>81</td>
<td>DF</td>
<td>70</td>
<td>100</td>
<td>1956</td>
<td>90</td>
<td>0</td>
<td>12.0</td>
<td>85</td>
<td>60.</td>
<td>90.</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>81</td>
<td>DF</td>
<td>30</td>
<td>100</td>
<td>1980</td>
<td>100</td>
<td>5.0</td>
<td>7.0</td>
<td>38</td>
<td>20.</td>
<td>40.</td>
</tr>
</tbody>
</table>

Column number
1. Area number—Areas that are somewhat uniform in species, age, and density.
2. Acres—The amount of land in that stand or area (43,560 square feet in 1 acre).
3. Exam year—The year in which I made the observations.
4. Species or cover type—I use the most abundant species in the stand to describe the type. Species designations are: DF—Douglas-fir, A—red alder, and G—grass pasture.
5. Percent stocking—the percentage of ground area the species occupies. For example, if the tree crowns of a species cover 60 percent of the ground area, I wrote 60 in column 5.
6. Site index—Represents the average height of the dominant trees in an even-age stand at age 50. It can vary from 50 to 160 feet.
7. Birth year—The approximate year in which most of the stand originated.
8. Stems per acre—The total number of stems of potential crop trees.
9. Tree diameters—The diameter at breast height (dbh) taken at a point 4.5 feet above ground level. Average basal area refers to the dbh of a “typical tree” for that stand.
10. Tree heights—A measurement of tree height from ground level to treetop.
11. Tons/acre—Lower value and smaller wood is listed in tons per acre.
12. MBF/acre—Thousand board feet per acre (Scribner rule).
Management recommendations

Here are my options for each area:

Area #1. The options I consider possible for this area are raising cattle or sheep, producing timber, or growing Christmas trees.

I have been producing about 1,800 pounds of beef each year on the 8 acres. Gross income has been about $0.62 per pound, which equals $1,116 per year for the 8-acre area, or $140 per acre per year.

An option would be to convert to raising lambs. I probably could raise about 23 lambs on 8 acres. This year, lambs sold for about $50 each. Theoretically, I could make slightly more income from this type of operation. Since my family knows little about sheep, however, the possible extra income doesn’t seem to warrant the switch.

Other potential uses of this area include converting to timber production or growing Christmas trees. The family has thought a great deal about planting trees in the pasture. However, remembering how much work it was to clear the area, and how tight money is at present—both for us and for federal cost-sharing programs—I decided not to plant the area to timber.

Instead, I have decided to plant 2 acres of Christmas trees in the lower pasture—1 acre this year and another the next. I will keep 6 acres available for beef production. This seems to be a safe approach to providing more immediate income and some potential added income while Susie attends college.

The time frame I’ll need to complete my project and my expected income flow, appear in Chart #3; these represent only a rough guess.

I should be able to do all the proposed work with my own equipment, without hired assistance.

Area #2. This stand of 21-year-old red alder is a real problem. The trees are too small to be marketable now. Converting to conifers would involve significant cost, even after tax credits and cost sharing. I’ve decided to wait until the trees are marketable and to harvest at that time.

Simply piling and burning the trees seems a tremendous waste of possibly usable wood. So, my plan is to wait 10 years, hope for a good market, and try to sell the alder then. By that time, the alder should be marketable, at least by today’s standards.

Finally, since it is close to the house, this area will be well suited to supply our family home with about 8 cords of wood each year. We easily could gain this amount from thinning. When the time comes to do the logging, my equipment (and I) might be old enough that I’ll need to contract out most of the work.

Area #3. This is the best stand of timber on the farm—and the area that I hope will help pay for Susie’s college expenses. Five years from now, when I’ll need the money, I expect there will be nearly 19 MBF/acre in this area.

Chart #3. Time frame and projected income for Area #1.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yearly cost or revenue—gross ($/acre)</th>
<th>Affected acres</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle production</td>
<td></td>
<td>6</td>
<td>+140</td>
<td>+140</td>
<td>+140</td>
<td>+140</td>
<td>+140</td>
<td>+140</td>
<td>+140</td>
</tr>
<tr>
<td>Christmas trees</td>
<td></td>
<td>1</td>
<td>-200</td>
<td>-15</td>
<td>-15</td>
<td>-15</td>
<td>+2,000</td>
<td>+4,000</td>
<td></td>
</tr>
<tr>
<td>Christmas trees</td>
<td></td>
<td>1</td>
<td>0</td>
<td>-200</td>
<td>-15</td>
<td>-15</td>
<td>-15</td>
<td>+2,000</td>
<td>+4,000</td>
</tr>
</tbody>
</table>
There are a number of possible ways of generating income during these years. One method is to clearcut 2 acres during each of the 4 years that I’ll need the income. Another method, although it wouldn’t generate as much income, is to thin the entire stand heavily. The income these management steps could generate appears in Chart #4.

My preference is to thin the area and avoid clearcutting. However, since I will need approximately $15,000 per year for Susie’s education, and clearcutting appears to be the best way to generate that money, I will clearcut approximately 2 acres each year. If the log price jumps in any of the 4 years, I may contract the operation and clearcut the entire area in 1 year. The revenue from harvest will not cover college costs but will help.

**Area #4.** This area needs some immediate attention. I plan to remove the alder in order to release the badly suppressed fir. I will do the work myself by hacking the bark and injecting an herbicide in the cut frill. The alder will die and rot in place.

Felling the alder is simply too slow, and there is danger of covering over or knocking down some of the established trees. I plan to use some of the alder for firewood, but much of it is too small.

A bit of road work also is needed to gain access into this area. I plan to extend the road from area #3 to about the middle of area #4. I’ll hire out the work to my neighbor, who has the equipment. Some time in the future it will be useful to rock the road, but that simply is too expensive now. The road will have to remain a summer road only.

To control deer browse on the trees I release, I plan to install budcaps just before budbreak.

Also, if some of the site preparation for the Christmas trees is difficult with the tractor, the Cat used in the road construction may prove useful.

**Summary**

The activities I have planned seem best to meet our family needs now. All these items, though, may change with time. If they do, the plan will change, too.

Signed,

John Doe
Management activity schedule

The following schedule summarizes specific activities that have occurred and will occur on my property. It also prioritizes the activities in the order in which they were and are to be accomplished.

<table>
<thead>
<tr>
<th>Area #</th>
<th>Acres</th>
<th>Activities</th>
<th>Time period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>Maintain cattle production.</td>
<td>Yearly work</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Site preparation; spray/plow/one disking; order 1,500 Douglas-fir seedlings (seed zone 251—1,000 feet); Plant trees; spray atrazine on 2 acres.</td>
<td>Summer '03</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>Hack and squirt alder with full strength 2,4-D amine in July to release fir.</td>
<td>Summer '03</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>Do road extension from area #3 to area #4; order 500 to 2,000 feet of Cat work (to be bid in winter).</td>
<td>Summer '03</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Plant Christmas trees. Spray atrazine on 1 acre.</td>
<td>Spring '03</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Site preparation: spray/plow/one disking; order 1,500 Douglas-fir seedlings (seed zone 251—1,000 feet); Plant trees; spray atrazine on 2 acres.</td>
<td>Summer '04</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Order 800 Douglas-fir seedlings (seed zone 251—1,000 feet) for area #3A; log area #3A.</td>
<td>Summer '07</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Plant area #3A; order 800 Douglas-fir seedlings (seed zone 251—2,000 feet) for area #3B; log area #3B.</td>
<td>Spring '08</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Plant area #3B; order 800 Douglas-fir seedlings (seed zone 251—2,000 feet) for area #3C; log area #3C.</td>
<td>Summer '09</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Plant area #3C; order 800 Douglas-fir seedlings (seed zone 251—2,000 feet) for area #3D; log area #3D.</td>
<td>Spring '10</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Plant area #3D (spring).</td>
<td>Spring '11</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>Check on cost sharing; cut alder; prepare site; order 5,200 Douglas-fir seedlings (seed zone 251—1,000 feet).</td>
<td>2012</td>
</tr>
</tbody>
</table>

Tree farm records: Backache-40 property

This chart shows cash flow on my property from 1959 to the present.

<table>
<thead>
<tr>
<th>Date</th>
<th>Account type</th>
<th>Events/comments</th>
<th>Cost $</th>
<th>Revenue $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1/59</td>
<td>Land</td>
<td>Purchased property (paid cash).</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>12/31/59</td>
<td>Land/taxes</td>
<td>Yearly ad valorem taxes</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>(yearly entries)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12/31/79</td>
<td>Land/taxes</td>
<td>Switched taxes to Western Oregon Land and Severance Tax because of lower land tax.</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>(yearly entries)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/1/80</td>
<td>Equipment</td>
<td>Purchased Farmall tractor with disk and plow attachment (paid cash).</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>1/5/81</td>
<td>Equipment</td>
<td>Spent $100 on gas and oil and $50 on tractor maintenance (paid cash).</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>6/1/87</td>
<td>Timber</td>
<td>Sold alder firewood from area #4. Sold cuttings from area #4 to Boy Scout Troop #107.</td>
<td>500</td>
<td></td>
</tr>
</tbody>
</table>

*The first numeral in this age classification system (2-0) gives the number of growing seasons the seedling spent in the nursery seedbeds; the second gives the number of growing seasons spent in nursery transplant beds.*

—Chal Landgren and Mike Bondi

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