

— PART V —

Workbook



Part V of *The Woods in Your Backyard* provides space for you to complete the activities discussed in Parts I–IV. Completing the activities for your own property will help you make decisions about how to manage your natural areas.



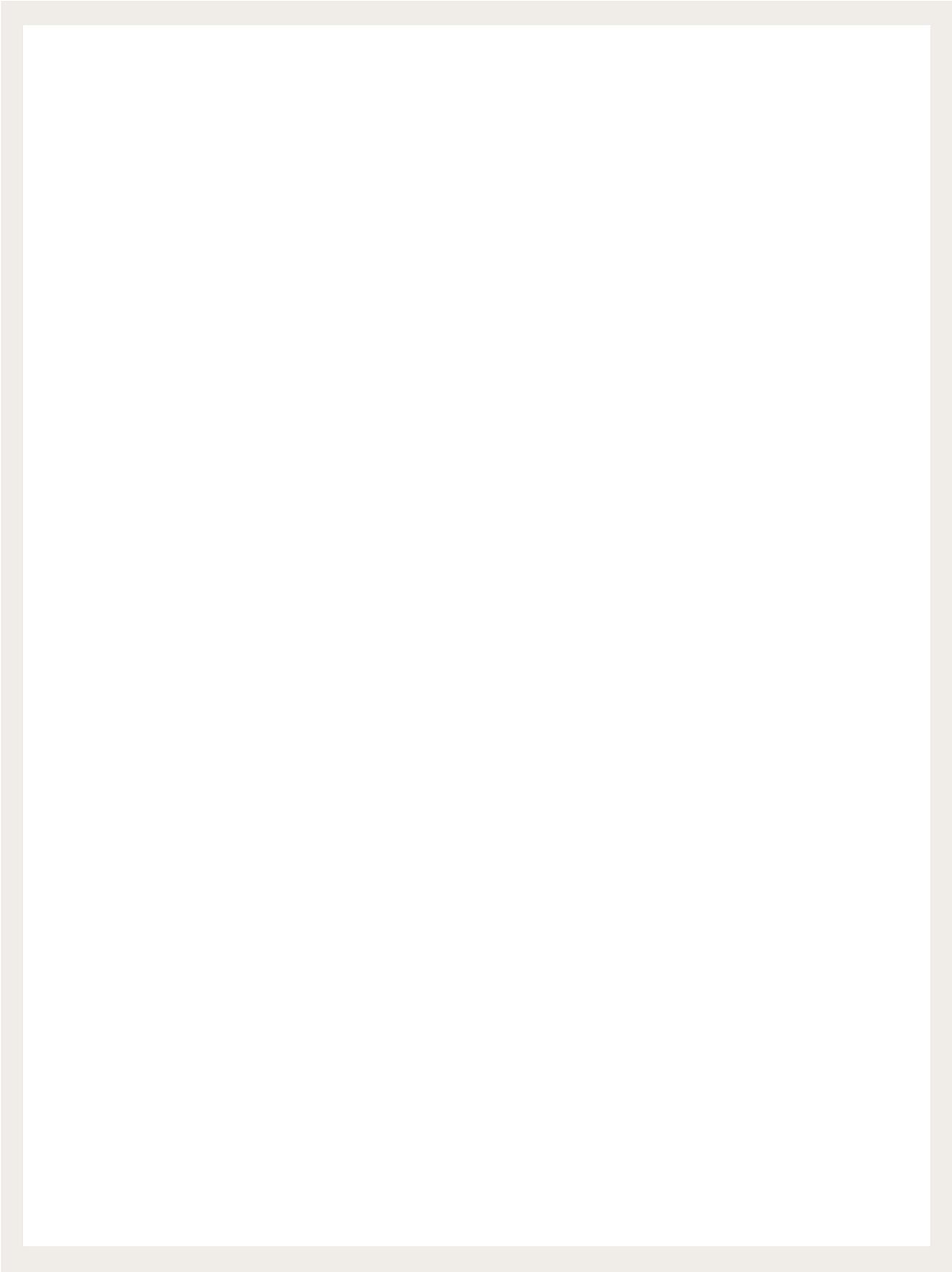
Introduction

Activity 1

Map It Out

You can gain new insights about your property by putting its features on a map, as the Nelsons did (p. 7). Start by making a hand-drawn map of your property similar to the Nelsons'. Use only about $\frac{2}{3}$ of the space on the next page to draw your property because you'll be adding to the map later. The property survey map with your property deed may help you with the overall shape and dimensions of the plot. You could also determine the average length of your step and pace off the distance. Include on the map you draw your water

well, if applicable, and septic or sewer system (keep tree and shrub roots well away from these systems), intensive-use areas, such as your house, driveway, and any other buildings on the property. Then map the intermediate-use areas, such as lawns, gardens, and pastures. Lastly, add the natural areas. Include forests, shrubby and unmowed areas, streams, rivers, ponds, and wetlands. See the additional case studies (pp. 105–119) for more examples of property maps.



Activity 2

What Have You Got and What Do You Want?

1) Complete the table below for your land. The Nelson's answers are on page 8.

	Intensive use area (buildings, driveways, paved areas)	Intermediate use area (lawn, garden, pasture, orchard)	Natural area (forested; unmowed areas with small trees, shrubs, tall grass; streamside, etc.)
	(% of total property)		
Total land owned: _____ acres*			

*An acre is a square about 210 feet on each side (43,560 ft²) or a rectangle a little smaller than a football field.

2) In what year did you buy or acquire the land? _____

3) Why did you buy the land? What did you hope to get out of owning the land?

4) Have your reasons for owning the land changed since you bought or acquired it? How?

5) What do you most enjoy about your land? _____

Activity 2
What Have You Got and What Do You Want?
(continued)

6) What do you least enjoy about your land? _____

7) What do you want from your natural land now? (some possibilities: protect and enjoy wildlife, privacy, produce firewood, pay taxes, etc.)

In 10 years? _____

8) How much land could you/do you want to convert from intermediate use to natural area?

Activity 3
Family Goals Assessment

Photocopy this page for each member of your family or work team. Anyone who is or will be involved in your property should privately answer the ques-

tions below. (Note: Every statement may not apply to everyone's situation.) See page 9 for the Nelsons' answers.

	Agree	Disagree
I would like to have more natural areas and less mowed land.		
I do not understand what kind of land management projects are possible and what is involved with each.		
I'm very enthusiastic about making changes to improve the land stewardship of our property.		
Any new land management projects are too much for us to handle now.		
I am worried about how land management projects will affect our time for other family and/or personal activities.		
I am concerned that other family members do not understand what I value most about our property.		
I believe we could handle the financial cost of carrying out some land management activities on our property.		
It's important for the children to learn to work the land, even if other activities have to be reduced.		
I believe my opinions and feelings about potential new projects on our property will be taken seriously.		

After everyone has completed the questionnaire, gather to discuss the answers. Where do you agree and disagree? Is there adequate family support for devoting time and money to some natural lands management projects? If only one member of the family is really

interested in pursuing land management, it may be best to start small and plan short-term projects. Maybe other family members will become interested as they see progress made. Reconcile misunderstandings or disagreements before proceeding.

Activity 4

Identify Your Interests in the Land

Look back at your answers to Activity 2 (p. 83). Write out three possible interests for your natural area. You can modify these as you learn more through this book. See page 10 for the Nelsons' answers.

1) _____

2) _____

3) _____

Now place each of your interests within the table below. Keep in mind the distinction between active and passive managers made on page 10 as you decide on your priorities.

Human values					
Resource benefit	Income production	Enhance property value	Personal satisfaction	Privacy and sanctuary	Reduced lawn mowing
Natural area improvement					
Forest products					
Wildlife					
Water resources					
Recreation					
Aesthetics					

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Activity 5

Investigate the Legal Constraints on Your Land

Check your property deed and homeowners association documents for easements, rights-of-way, and covenants that govern the use of your property. Page 12 provides some examples of these types of legal constraints. Record below any constraints you discover.

Mark where they apply on the map you created in Activity 1 (p. 82). If you find out that your property has none of these constraints, also note that. See page 12 for the Nelsons' answers.

Easements – _____

Rights of way – _____

Covenants – _____

Other constraints – _____

Optional – Talk with municipal or county officials about your area's zoning ordinance, or obtain a copy of a recent growth planning report. Find out where growth is planned or projected around you, what kinds of new facilities and roads are planned, and how they might affect your property and your ability to manage

your land. For instance, if you find out that the farm field behind you will soon become a housing development, the kinds of wildlife you can hope to attract will be limited and your priorities might change. For example, you might want to plant trees for visual and noise screening before construction begins.

Activity 6

Beyond Your Boundaries

Add your immediate neighbors' properties to the map you drew on page 82. (If you need extra space, tape blank sheets to your map.) Label each with the owner's name and indicate the basic landscape features as you

did for your own property. Even if you know your neighbor's land, an aerial photo may help you see how landscape features interrelate (see "Working with Aerial Photos" sidebar, p. 19).

Describe important features of your neighbors' property (house lots with large lawns, farm fields, forested areas, etc.).

Describe any features (such as forested areas or water bodies) on your neighbors' property that might help attract wildlife to your property.

How could you modify your property to take advantage of those habitat features? For instance, could you plant trees to create a safe passage way?

See pages 20–21 for the Nelsons' answers and map.

Activity 7

Designate Land Management Units

These characteristics will help you identify management units:

- vegetation height: tall (> 30 ft.) or short (< 30 ft.)?
- vegetation type: deciduous or coniferous? (see p. 25 for definitions)
- vegetation class: trees, shrubs, tall grasses, lawn, old field, stream, pond, other?

The land management units you designate will likely be different sizes and shapes. Two patches of

the same unit might be disconnected. You might have more than one patch of lawn that you want to stop mowing and plant in trees, for example. See the case studies (pp. 106 and 114) for further examples. See pages 23–24 for the Nelsons’ answers.

Jot down the land management units you see as you walk around your property (e.g., shrubby area by back border, eastern white pine stand behind wood shed). Ignore the intensive and intermediate use areas of your property unless you want to stop mowing an area.

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

Now use your answers to fill in the “Management unit” and “Vegetation type” columns of Table A on page 90 with information related to your land. Use the Nelsons’ table (p. 23) and the tables in the case studies (pp. 107 and 115) as guides. If you have more than four land management units, use another sheet. You will fill in the rest of the columns in Table A when you

complete activities 8 and 9. Note that for each column in Table A, the activity with which you will fill in the column is noted.

Refer back to the map you created in Activity 1 (p. 82). Name, outline, and number your property’s various land management units on the map. See page 24 for the Nelsons’ map.

Table A
The Vegetation on Your Land

Management unit (Activity 7)	Vegetation type (Activity 7)	Three most common tree species (Activity 8)	Three most common shrub species (Activity 8)	Succession stage (Activity 9)

Activity 8

Get to Know Your Trees

Using the steps outlined on pages 25–27 and a tree and shrub identification guide, identify the three most common tree species and the three most common shrub species in each land management unit of your natural area. If you can't identify three kinds in each unit, do the best you can. Some units might contain

only one type of vegetation, such as a pure stand of eastern white pines. Fill in the tree and shrub columns in Table A on page 90. The Nelson case study (p. 28) and those on pages 107 and 115 show some typical combinations of species of trees and shrubs in the Mid-Atlantic/Northeast area.

Activity 9

Identify Successional Stages

What successional stages exist in each of the land management units in your natural area (see photos,

p. 31)? Fill in your answers on Table A on page 90. See page 35 for the Nelsons' answers.

Look back at the map showing your neighbors' properties (p. 82). What stages of succession are least represented on your and your neighbors' properties?

Activity 10

Assess Competition Among Trees

Note: This activity is best done when leaves are on the trees.

Choose a tree you want to keep (crop tree) because it helps meet your land management objectives and whose crown is in the main forest canopy for that land management unit. Stand underneath the tree and determine if there is open space around 0, 1, 2, 3, or 4 sides of the canopy. Is the crown distinct or does it touch others? Is there a patch of sky visible on any side of the crown? Record your observations in the crown competition table below. (You may not need all the columns below, depending how many forested land management units you have.) Repeat this process until you've assessed two crop trees in each forested land management unit in your natural area.

Next average the number of open sides in each land management unit (see the example below). If the average number in a land management unit is less than 2, consider thinning to reduce competition on your crop trees. In the bottom row of the crown competition table, answer "yes" or "no" to the question, "Is thinning recommended?" Answer "yes" if the average number of open sides per management unit is less than two. Now transfer your yes or no answer to Table B on page 93 under the column "Thinning recommended?" See "Timber Stand Improvement" (p. 71) for more information about thinning.

See page 38 for the Nelsons' answers. Note that for each column in Table B, the activity with which you will fill in the column is noted.

Crown Competition

Tree	Example		1	2	1	2	1	2
Management unit	1							
Species, if known	yellow poplar	hickory						
Canopy open on __ sides	2	0						
Average open sides per management unit	1							
Thinning recommended?	yes							

	1	2	1	2	1	2	1	2
Management unit								
Species, if known								
Canopy open on __ sides								
Average open sides per management unit								
Thinning recommended?								

Table B
Natural Area Health

Management unit (Activity 7)	Thinning recommended? (yes or no) (Activity 10)	Young trees present? (yes or no) (Activity 11)	Broken or dead? (yes or no) (Activity 12)	Exotics/invasives? (list names) (Activity 13)

Activity 11

Assess Tree Reproduction

A healthy natural area will contain trees of all different heights.

Walk your forested natural area. Are many trees less than 6 feet tall present? In Table B on page 93 under “Young trees present?” mark “yes” or “no” for each land management unit. If there are few young trees

less than about 6 feet tall, you may have an overpopulation of deer or you may need to do some thinning. See pages 69–70 for tips on dealing with deer and see “Timber Stand Improvement” (p. 71) for information on thinning. See page 40 for the Nelsons’ answers.

Activity 12

Survey for Broken and Dead Trees

Survey each forested land management unit for broken and dead trees. Mark “yes” or “no” in Table B on page 93 under the column “Broken or dead?” for each land management unit. Broken or dead trees may result from wind or storm damage, or may indicate

an insect or disease problem that needs attention.

When you have time to address any problems you find, deal first with trees that pose a danger to people or buildings. See “Pruning” (p. 67) for more information. See page 41 for the Nelsons’ answers.

Activity 13

Assess Invasive and Exotic Plants

For each land management unit, note in Table B (p. 93) under the column “Exotics/invasives” the names of

any invasive and/or exotic plants that are widespread. See page 44 for the Nelsons’ answers.

Activity 14

Water Resources Around You

Walk your natural areas and note on your hand-drawn map (p. 82) ponds, rivers, streams, or lakes. Note areas where you could create or enhance a riparian buffer. Also note areas that are wet much of the year, where you suspect or know that a spring, seep, or vernal pool occurs. Note in Table C (p. 96) under the column “Water resources” how you might improve water

resources in any applicable land management unit, and add these features to your map on page 82. See page 47 for the Nelsons’ answers.

Are there any water bodies on your neighbors’ property? Can you do anything on your property or in cooperation with your neighbor to enhance wildlife use of those areas or to improve water resources?

Note that for each column in Table C, the activity with which you will fill in the column is noted.

Activity 15

Habitat Elements on Your Land

Tour your natural area in search of habitat elements such as those named on pages 49–52. Note them in Table C on page 96 for each land management unit,

and add them to your map on page 82. See page 53 for the Nelsons’ answers.

Activity 16

Assess Your Natural Area’s Suitability for Recreation

Take a walk around your natural area and assess where your recreational interests might best be accommodated. Note your results on Table C on page 96. Mark

your ideas on the property map you drew on page 82. See page 58 for the Nelsons’ ideas.

Table C
Assessing Your Land's Potential

Management unit	Water resources (Activity 14)	Wildlife and habitat elements (Activity 15)	Recreation (Activity 16)	Aesthetics (Activity 17)

Activity 17

How Could You Improve Your Natural Area's Aesthetic Appeal?

Walk your natural area and assess its current state of physical beauty. Consider how it looks in each season of the year. Do any of the ideas mentioned on pages 59–60 interest you? Note on Table C on page 96 and

on your hand-drawn property map (p. 82) how and where you could improve your natural area's aesthetic appeal. See page 61 for the Nelsons' answers.

Activity 18

Identify and Rank Your Objectives

Look back at the statement of interests you wrote in Activity 4 (p. 86). With those interests in mind, and what you've learned since then, complete the table below to identify and rank your specific objectives for your natural area. If an objective interests you or you agree with the statement, and it seems possible for your natural area given what you now know, mark

an X in the "Potential objective" column. Then in the "Rank selected objectives" column, rank the top five objectives across the whole table. There's a space in each section for you to write your own objective, if you choose. See pages 62–63 for the Nelsons' answers. See the case studies (pp. 109 and 117) for more examples of completed tables.

Objectives to Meet Your Goals	Potential objective	Rank selected objectives
<i>Natural area improvement</i>		
I have a grassy field or lawn I want to plant in trees.		
I want to manage exotic and/or invasive species.		
I want to improve the health of my natural area.		
I want to improve forest regeneration (tree reproduction).		
I want my trees to grow faster.		
I want to cut dangerous dead or damaged trees.		
I want to cut vines that are strangling and/or weighing down my trees.		
Other:		
Other:		
<i>Forest products</i>		
I want to cut firewood for myself or others.		
I want to start a forest products enterprise for fun and a little extra money.		
Specific enterprise of interest:		
Other:		
Other:		
<i>Wildlife habitat elements</i>		
I want to create some snags for woodpeckers and other cavity-nesting animals.		
I want to create a soft edge between my lawn and forest to improve wildlife habitat diversity.		
I want to provide more shelter and/or food for wildlife.		
I want to have more reptiles and amphibians.		
I want to discourage deer.		
I want to attract more wildlife to my property.		
Specific species of interest, if applicable:		

	Potential objective	Rank selected objectives
Other:		
Other:		
<i>Water resources</i>		
I want to create or enhance a riparian forest buffer.		
I want to protect the water quality in my waterway or spring/seep.		
Other:		
Other:		
<i>Recreation</i>		
I want to build a recreational trail.		
I want to build a road to provide or improve vehicle access.		
I want to create a special place in the woods for reflection, campfires, etc.		
I want to create a place for nature study.		
I want to build a tree stand for deer hunting and/or wildlife viewing.		
Other:		
Other:		
<i>Aesthetics</i>		
I want to make my forest more colorful throughout the year.		
I want to block an unpleasant view or have more privacy.		
I want to create a scenic view.		
I want to protect some special trees.		
Other:		
Other:		

The rankings in this table should identify your top five priorities for land management activities.

Congratulations on completing a step-by-step assessment of your natural area resources and identifying

your land management goals, while learning a little about forestry and wildlife along the way! Now let's think about putting your ideas into practice.

Activity 19

Project Schedule and Details

Fill in the table below for specific projects you want to complete. When it's done, you'll know where to begin on your land management projects. Don't get discouraged if you fall behind schedule. Remember that doing any well planned land management work

is better than doing none. Each little step you take will move you closer to your goals. Keep at it and readjust your timetable as needed once you have a better feel for how you're progressing. See page 75 for the Nelsons' project schedule.

Management unit	Goal	Project description (Provide details and step-by-step activities)	Priority	Start date	Projected completion date	Who will do it?	Cost estimate

Activity 20

Record Your Progress

Paste in pictures of your land at different times as you complete projects. Use the table on page 104 to track your progress and record what you learn through practical experience. See page 77 for the Nelsons' answers.

Your Natural Area Photos

Activity 20
Record Your Progress

Your Natural Area Photos

Activity 20
Record Your Progress

Actual Project Completion Data

Managed unit	Project	Date completed	Actual cost vs. projected cost	Comments

Case Study 1



The Lees

Property description and why we bought the land

We (my husband, Philip, age 55, and me, Gloria, age 57) bought our 1.5-acre lot 25 years ago as the site for our new home. We wanted to build a passive solar house, so the site had to have good sun exposure. We wanted to buy a lot large enough to have a canning garden, a small orchard, and a Christmas tree plantation yielding about 20 trees a year, and to be separate from our neighbors.

The lot we bought was just about perfect. It's long and relatively narrow, about 480 feet long and 130 feet deep. A wooded fencerow runs behind the house. Behind that on the north side, along the edge of our property, there's a narrow right-of-way that the local electric company keeps open. This provides a path through the thicket that has developed behind the house. We often see deer, turkeys, and rabbits along this pathway. On the west side there's a patch of mixed deciduous trees with some conifers in the back corner and lawn in the front corner. In the back corner on the eastern side we planted Christmas trees soon after we moved in. A stream, Trout Run, lies over the hill about 250 yards to the north on our neighbors' property. It isn't very wide, but it has some small pools—somewhere for animals to drink even in the driest years.

Changes over time

Now, nearly 25 years after buying the lot, things have changed. We didn't really manage it, so the Christmas tree plantation (Douglas firs) no longer provides any

trees. Some of these trees are now pushing 30 feet in height. The wooded patch on the west side of the property has a mix of European alder, Scotch pine, eastern white pine, American elm, basswood, black walnut, and a couple of red oak trees. The tallest trees are probably 40 feet tall. The fencerow behind the house is widening. It now extends about 25 feet in places into our property. The fencerow has some trees, mostly ash, black cherry, black walnut, elm, and basswood, but much of the greenery is bush honeysuckle and autumn olive—exotic, invasive plants.

Where to go from here

We'd like to convert the lawn area on the west side to trees for more privacy. We'd also like to keep all the native trees throughout the woods on the west side and encourage even more trees. We don't like the fact that the fencerow is full of exotic plants, because they are really pushy. Every year, they take over more of the lot and make it hard to see into the edges. We never planted these species; they just showed up on their own. We'd like to open a patch in the Christmas trees, creating a natural haven or quiet place to sit. Deer and birds use this small patch of trees—it is a special place on the property.

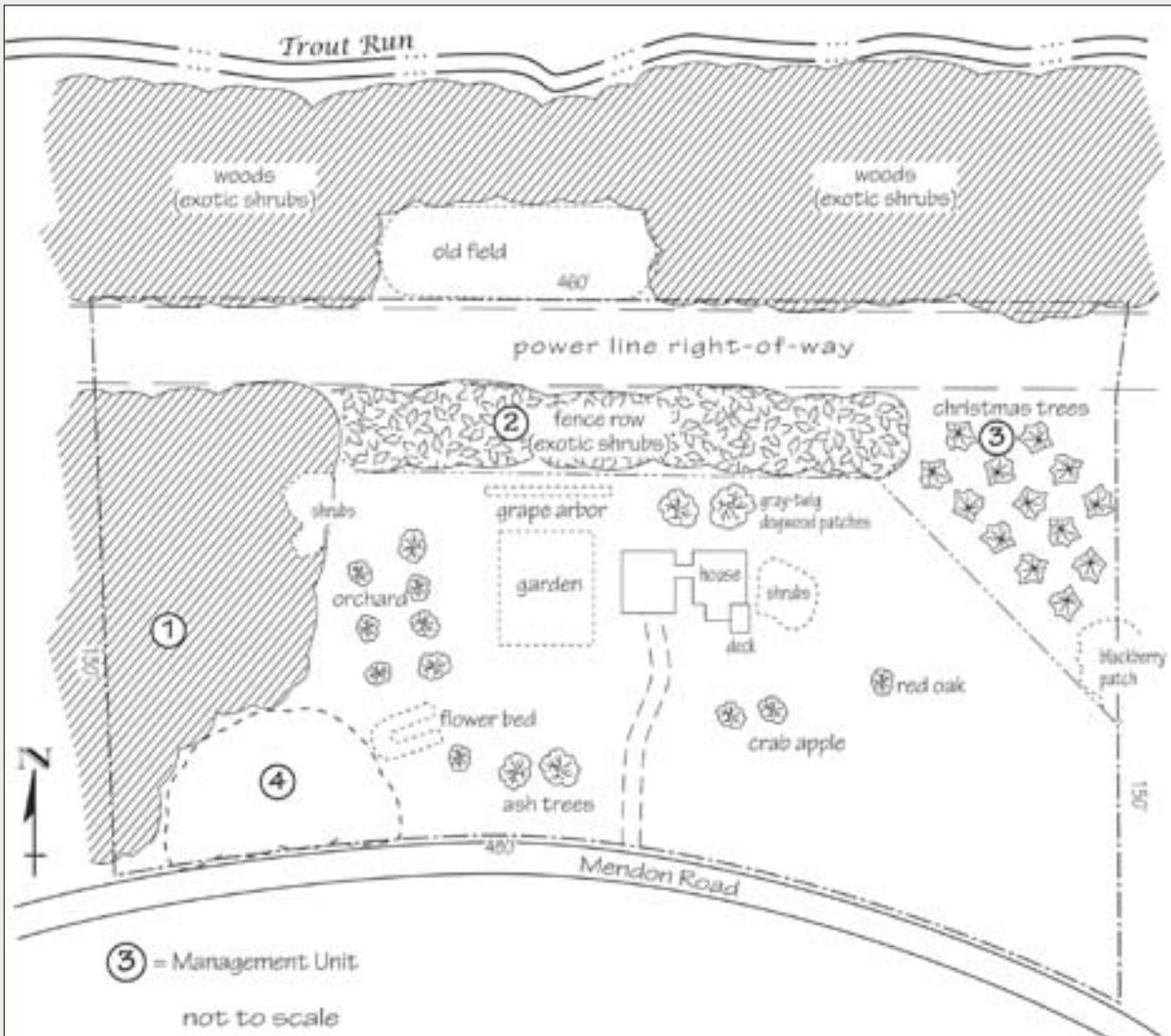
The Lees' statement of interests

1. Remove exotic plants as much as possible; keep native wildlife food plants (walnuts, oaks, some grapes).
2. Plant lawn on west side in trees for more privacy.
3. Develop a natural haven in the Douglas fir area.

Interests Table

Resource benefits	Human values				
	Income production	Enhance property value	Personal satisfaction	Privacy and sanctuary	Reduced lawn mowing
Natural area improvement			1		
Forest products					
Wildlife habitat					
Water resources					
Recreation					
Aesthetics				3	2

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Land Characteristics and Potential
(a combination of Tables A, B, and C in Parts II–IV)

Management unit	Vegetation type	Three most common tree species	Three most common shrub species	Succession stage	Thinning recommended? (yes or no)	Young trees present? (yes or no)
1	west woods—mixed hardwoods and a few conifers	European alder, Scotch pine, American elm	sumac	3	no	yes
2	north fencerow	ash, black cherry, walnut	bush honeysuckle, autumn olive, mile-a-minute vine	2–3	no	yes, mostly invasive and exotic species
3	Christmas tree planting	Douglas fir	grapevine, blackberry, sumac	3	no	no
4	west lawn	n/a	n/a	1	n/a	no

Land Characteristics and Potential

(continued)

Broken or dead? (yes or no)	Exotics/ invasives (list names)	Water resources	Wildlife and habitat elements	Recreation	Aesthetics
yes	garlic mustard, English ivy	n/a	Soft mast; winter cover	Deer trails present, but no maintained trails for wildlife viewing or access.	Green foliage of pines all winter provides color in winter landscape.
no	bush honey- suckle, autumn olive, multi- flora rose	n/a; Trout Run down hill on neigh- bor's land; close enough to expect occasional wildlife moving to and from the stream.	Soft mast from brambles and shrubs, dense thicket for shelter, soft edge.	Good wildlife viewing opportuni- ties but no main- tained trail access.	Invasive species and other vegetation smothering trees and making it hard for tree crowns to develop for fall foliage color.
Yes, some fir trees are dying or dead.	grapevine	n/a	Dense winter cover, soft mast, a few dense thickets.	Some existing deer trails could be developed as walking trails.	Secluded location provides for solitude.
4	lawn grass	n/a	none	Lawn games	Plant in trees for privacy.

Identify and Rank Your Objectives

	Potential objective	Rank selected objectives
<i>Natural area improvement</i>		
I have a grassy field or lawn I want to plant in trees.	X	2
I want to manage exotic and/or invasive species.	X	1
I want to improve the health of my natural area.	X	4
I want to improve forest regeneration (tree reproduction).		
I want my trees to grow faster.		
I want to cut dangerous dead or damaged trees.		
I want to cut vines that are strangling and/or weighing down my trees.		
Other:		
<i>Forest products</i>		
I want to cut firewood for myself or others.	X	
I want to start a forest products enterprise for fun and a little extra money.		
Specific enterprise of interest:		
Other:		
<i>Wildlife habitat elements</i>		
I want to create some snags for woodpeckers and other cavity-nesting animals.		
I want to create a soft edge between my lawn and forest to improve wildlife habitat diversity.		
I want to provide more shelter and/or food for wildlife.	X	5
I want to have more reptiles and amphibians.		
I want to discourage deer.		
I want to attract more wildlife to my property.	X	
Other: I want to attract more hummingbirds and butterflies.	X	
<i>Water resources</i>		
I want to create or enhance a riparian forest buffer.		
I want to protect the water quality in my waterway or spring/seep.		
Other:		
<i>Recreation</i>		
I want to build a recreational trail.		
I want to build a road to provide or improve vehicle access.		
I want to create a special place in the woods for reflection, campfires, etc.	X	3

Identify and Rank Your Objectives
(continued)

	Potential objective	Rank selected objectives
I want to create a place for nature study.		
I want to build a tree stand for deer hunting and/or wildlife viewing.		
Other:		
<i>Aesthetics</i>		
I want to make my forest more colorful throughout the year.		
I want to block an unpleasant view or have more privacy.	X	
I want to create a scenic view.		
I want to protect some special trees.		
Other:		

Project Schedule and Details

Management unit	Goal(s)	Project description (Provide details and step-by-step activities)	Priority	Project start date	Projected completion date	Who will do it?	Cost estimate
4-west lawn	plant to trees	Use Roundup herbicide on the grass in the fall before planting in the spring. Use some conifers for winter privacy. Use mainly shade-intolerant trees, including eastern white pine, yellow poplar, black locust, red oak, black cherry, gray dogwood, and loblolly pine. Order bare root seedlings from state nursery in late fall. Plant on a 10' x 10' spacing in this ¼-acre area (~75 trees). Install a tree shelter and a wooden stake around each hardwood seedling to protect it from deer browsing. Conifers typically do not need shelters because deer tend not to eat them. If necessary, use wire mesh to protect them. Respray the grass between the hardwood rows with herbicide in the summer after planting if needed. Mow around conifers instead of using herbicide. If desired for a neater appearance, mow between rows until canopy closes.	1	This fall	End of next spring	Phillip and Gloria will help from their child Robin.	\$100 for plants at ~\$1.35 per plant; \$30 for Roundup herbicide and backpack sprayer. \$250 for tree shelters and stakes at \$4-5 each (50 shelters; ~25 conifers)
through-out the property	manage exotic species	The various exotic plants are competing with native species. Herbicide invasive species on ground using Roundup in a backpack sprayer in early spring, late summer, and fall. Cut most grapevines. Start in the north fencerow, then west woods, then Christmas tree grove. Clear trail as necessary to access invasives and to provide access to property.	2	This spring	Continuous in growing season	Phillip, Gloria, and Robin	Estimated \$35 per year for herbicides and \$50 for saw maintenance
3-Christmas tree grove	create a natural haven	Create an opening by removing dead or dying trees. Install a bench and plant some flowering trees and shrubs. If time allows, create openings for a campfire circle or camping area.	3	Next spring	End of next spring	Phillip and Robin will create the opening and Gloria will do the planting.	\$100 for bench materials; \$100 for trees and shrubs
1-west woods	white pine planting	As exotics are cut, replace them with white pine.	4	This spring	Continuous	Gloria	\$50 for seedlings

Case Study 2



The Rothmans

Property description and why we bought the land

Recently, we (my wife, Aliza, age 44; me, Hirsh, age 45; our children, Jody, age 17, and Chris, age 15) purchased a site for our new home. We call it the Pine Woods. For several years, we'd been searching for the ideal place to build. We wanted a forested tract with good access into the woods and the home site, yet isolated enough that we felt we were in the woods. We also wanted a relatively large tract with diverse tree species and wildlife management opportunities.

The Pine Woods meets our needs perfectly. The total area is about 10 acres. The lot is on a dirt road off the road to town. Once the dirt road enters the woods, it loops completely around the property and we own the entire loop. This will give us a place to walk and easy access to firewood to help heat the house.

The property has three streams that flow year-round. Two of them (Rocky Run and Stony Creek) originate from springs on the property. The one on the east side (Farm Creek) starts at a spring just over the property line. We thought maybe we could make a pond on the property, but the soil has limestone under it and we've been told that building a pond here would not be easy. That's okay because we like the streams.

Land management history

The Pine Woods is on the north side near the bottom of a large hill. In some areas there are lots of rocks on the surface, but we are told that the soil is really productive. Because of the rocks, the site was never cleared for farming; however, there is wire in some of the trees, so we think that parts of it may have been pastured.

The previous owner, Chuck Brown, who still owns some of the land to the southwest of us, had done some timber harvesting in the woodlot over the past 20-some years. He had worked with a state forester on each occasion to meet his specific objectives. His objectives closely paralleled our interests, except we

don't need to earn income from timber sales. However, if sometime in the future we make some timber income, that'd be fine.

Anyhow, Mr. Brown did some cutting for wildlife. On the north side, near our neighbor's cornfield, there's a small cut (less than an acre in total) done in the early 1980s to leave nut-producing hickory trees and to make some wildlife cover. This has come back mostly in eastern white pine. Two of the remaining hickories have since blown over, and the area where they stood is full of what we've been told are "exotic invasive plants." Most of them are honeysuckle, multi-flora rose, barberry, and autumn olive. We don't know anything about these plants, but have been told that they are not desirable.

In the southeast corner of the property is a 2-acre clearcut that Mr. Brown did for two reasons: first, to make some money to pay for the road that loops through the woods, and second, to open the forest around some aspen trees. Again, we don't know much about these trees, but are told they are important for ruffed grouse. Many little aspens have sprouted in this area, but another invasive plant, Asian bittersweet, is quickly crowding them out. We've been cautioned that we should cut the Asian bittersweet, but we want to leave a bit of it because this fall the plants were full of pretty orange berries that work really well in dried flower arrangements.

To the west of this clearcut, there is another area of cutting. Mr. Brown liked this spot because it's near an old foundation that he says dates back to the late 1700s. In about 1984, Mr. Brown decided to cut most of the black birch trees in this area and to leave some really tall eastern white pine trees. Now, about 20 years later, the whole area is full of young white pine trees that are 6 to 25 feet tall. It's so quiet and restful among all those trees. We plan to build our house among these pines, near the old stone foundation, which we intend to work into our landscaping, preserving its historic value.

The biggest portion of the property is encircled by the road. It consists of a mature deciduous stand with quite a few white pine mixed in. This kind of vegetation also runs along the northern border of the property. The area along the streams is shrubby and dense. There are some standing dead trees with large holes in them. The kids have seen birds flying in and out of these holes. There are some areas of broken and damaged trees.

We've learned a lot about the woods from Mr. Brown. He really loved the area. Like we said earlier, his objectives and ours mostly mesh. He wanted to produce firewood, encourage wildlife, have a place to hunt deer,

and earn some income. We need the firewood, welcome the wildlife, and will still allow Mr. Brown to hunt with a bow on the property as long as he tells us when he'll be out there. We want to keep the deer population in check. We know we have a lot to learn.

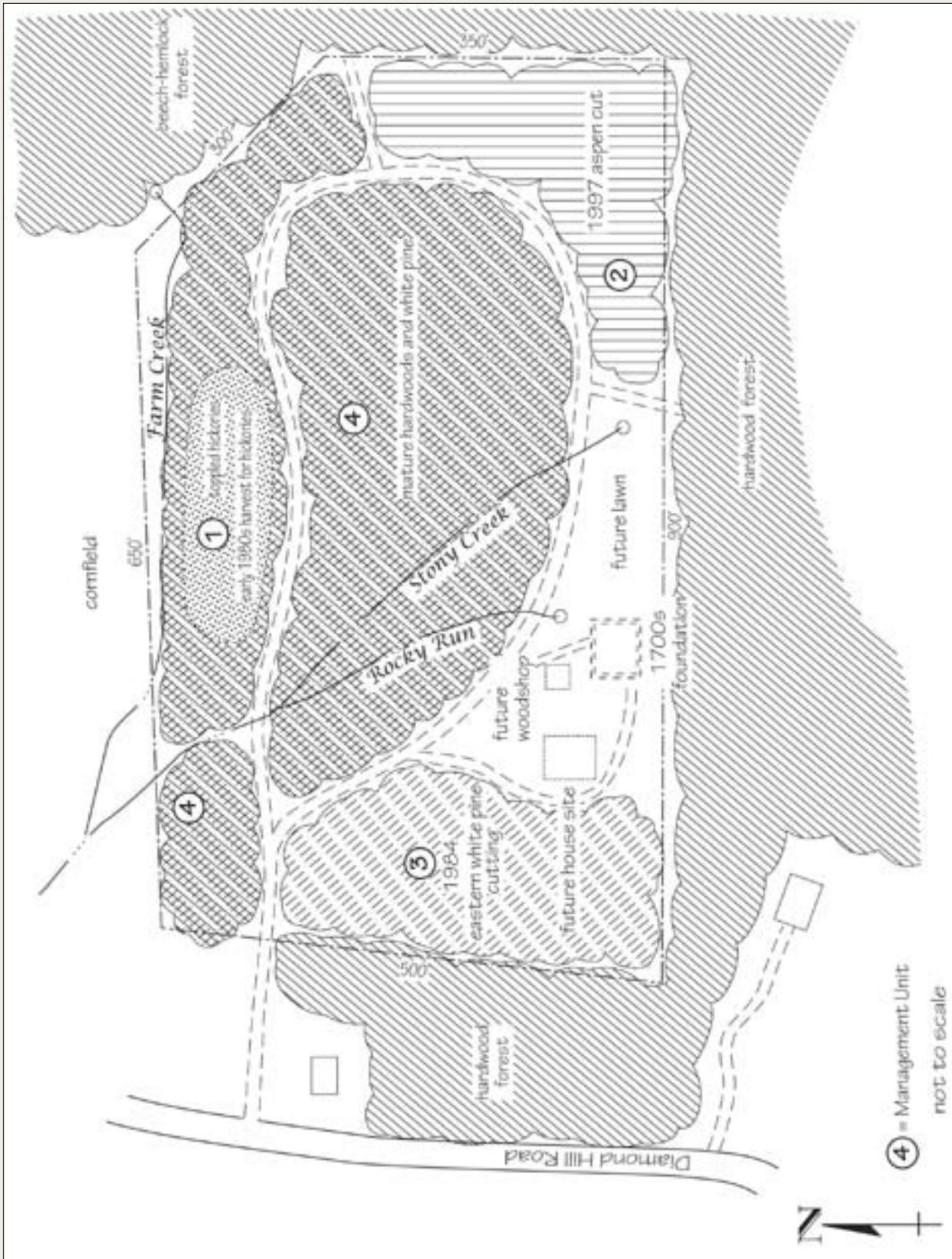
The Rothmans' statement of interests

1. Produce one to two cords of wood annually to heat the house and woodshop.
2. Encourage a variety of wildlife.
3. Maintain a healthy forest.
4. Maintain stream culverts in good repair.

Interests Table

Human values					
Resource benefits	Income production	Enhance property value	Personal satisfaction	Privacy and sanctuary	Reduced lawn mowing
Natural area improvement		3			
Forest products			1		
Wildlife habitat			2		
Water resources		4			
Recreation					
Aesthetics					

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Land Characteristics and Potential
(a combination of Tables A, B, and C in Parts II–IV)

Management unit	Vegetation type	Three most common tree species	Three most common shrub species	Succession stage	Thinning recommended? (yes or no)	Young trees present? (yes or no)
1	north edge hickory wildlife cutting (early 1980s)	hickory, white pine, red oak	honeysuckle	3	no	yes
2	1997 aspen clearcut (2 acres)	aspen, elm	Asian bitter-sweet, grape-vines	2-3	no	yes
3	1984 Pine Woods cut	white pine, red oak, black birch	spicebush	3	no	yes
4	bulk of property	white pine, elm, black birch, red maple, sugar maple, hickory	hop hornbeam	4	yes	yes

Land Characteristics and Potential

(continued)

Broken or dead? (yes or no)	Exotics/ invasives (list names)	Water resources	Wildlife and habitat elements	Recreation	Aesthetics
2 toppled hickories	honeysuckle, autumn olive, multiflora rose, barberry, grapevines	Farm Creek is near edge of this patch.	Hickory and oak mast trees, white pine, grapevines. Farm Creek nearby.	Good place for wildlife watching, but there's no place to sit. Invasives cover up old hiking trails and make access difficult.	n/a
no	bittersweet, grapevines, multiflora rose	n/a	Aspens, grouse habitat, early successional habitat, grapevines.	Good for wildlife watching. Lack of maintained trails to provide easy access.	n/a
no	barberry	Rocky Run and Stony Creek originate here. Dense thicket.	White pine, oak mast, black birch, early successional habitat. 2 springs.	Lack of maintained trails for access.	Clear around old foundation and integrate into yard.
a few	barberry	Rocky Run and Stony Creek pass through. They pass under the dirt road in culverts.	Hard and soft mast. A few snags and cavity trees. Some dense thickets. Stream habitat.	Deer trails but few maintained hiking trails for access. Many secluded areas with open understory that could be used for camping or fire circle. A few old hunter's tree stands scattered throughout the area.	Good fall color from sugar maple.

Identify and Rank Your Objectives

	Potential objective	Rank selected objectives
Forest improvement		
I have a grassy field or lawn I want to plant in trees.		
I want to manage exotic and/or invasive species.	X	4
I want to improve the health of my natural area.	X	3
I want to improve forest regeneration (tree reproduction).	X	
I want my trees to grow faster.	X	
I want to cut dangerous dead or damaged trees.	X	
I want to cut vines that are strangling and/or weighing down my trees.	X	
Other:		
Forest products		
I want to cut firewood for myself or others.	X	1
I want to start a forest products enterprise.	X	
Specific enterprise of interest:		
I want to commercially harvest high-value trees.	X	
Other:		
Wildlife management		
I want to create some snags for woodpeckers and other cavity-nesting animals.	X	
I want to create a soft edge between my lawn and forest to improve wildlife habitat diversity.		
I want to provide more shelter and/or food for wildlife.	X	2
I want to have more reptiles and amphibians.	X	
I want to discourage deer because they eat understory vegetation.		
I want to attract more wildlife to my property so I may enjoy viewing them.	X	
Other:		
Water resources		
I want to create or enhance a riparian forest buffer.		
I want to stabilize a stream bank that is eroding.		
Other: I want to protect the road in the woods from erosion.	X	5
Recreation		
I want to build a recreational trail.	X	
I want to build a road to provide or improve vehicle access.		

Identify and Rank Your Objectives
(continued)

	Potential objective	Rank selected objectives
I want to create a special place in the woods for reflection, campfires, etc.	X	
I want to create a place for nature study.		
I want to build a tree stand for deer hunting and/or wildlife viewing.		
Other:		
Aesthetics		
I want to make my forest more colorful throughout the year.		
I want to block an unpleasant view or have more privacy.		
I want to create a scenic view.		
I want to protect some special trees.		
Other:		

Project Schedule and Details

Management unit	Goal(s)	Project description (Provide details and step-by-step activities)	Priority	Start date	Projected completion date	Who will do it?	Cost estimate
Mainly 4, some 3	Cut 1 to 2 cords of firewood annually; remove black birch trees	Birch occurs throughout units 3 and 4, often competing with more desired trees (e.g., white pine, oak). We will remove various kinds of trees that compete with desired species and good trees, but we will concentrate on cutting birch. We will also cut storm-damaged trees and trees that interfere with good mast-producing trees.	1	Annual	Annual	The family will all participate in cutting as they are able. If we find that it is too much work for us, we may hire a tree expert to help some-times.	\$150 per year for chainsaw depreciation and fuel.
4	Improve wildlife nesting opportunities	Create 2-3 snags per acre by girdling live trees; cut dangerous trees for firewood.	2	ASAP	1 month after start	Hirsh and Chris	\$15 for chainsaw fuel
Through-out the property	Manage exotic species	It is now apparent that exotic species are a problem, occurring in all the stands on the property. Continually remove all invasive plants along road. Apply herbicides to all other invasive plants as found, except around springs and streams.	3	This summer	Continuous in growing season	Aliza and Jody will cut. Hirsh will apply herbicide.	Estimated \$100 per year for herbicide.
4	Maintain road for travel around the woods	There are 3 culverts on the road system and some are starting to wash out. Hire a consultant every other year or as needed to check for necessary repairs. If the headwalls are damaged, they can be repaired with materials from the property. Heavy equipment may be required to reshape the road so water drains properly.	4	This spring, then every other year	Maintenance as needed	Hirsh will monitor culverts and oversee consultant.	3 hours of machine time at \$100 per hour, as needed.

