

**LILLIE PARK, PITTSFIELD TOWNSHIP  
FOREST STEWARDSHIP PLAN**

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**Location of Parcel:** Township 3 South, Range 6 East, Northwest 1/4 Section 14  
**County:** Washtenaw **Township:** Pittsfield **Total land ownership (acres):** 124  
**Total forested acres in parcel:** 25 **Acres included in plan:** 25

**Directions to find parcel from nearest town:** From Ann Arbor, State Street south to Ellsworth, east to Platt, south on Platt one-half mile to park entrance.

**Land manager’s goals and objectives for this property:** *To restore high quality forest values and natural ecosystem; to provide public recreational activities in a natural environment; to establish an education and demonstration site for private forest landowners.*

*Stewardship is an ethic recognizing that the land and its natural inhabitants have an inherent worth and that we have a responsibility to manage our actions as part of that. It guides us to manage our activities to the utmost of our abilities, to insure the future health, productivity, and well being of the land, its natural communities and species, and to allow our successors opportunities at least equal to ours to use the land and its resources*

*This plan is compatible with the goals and objectives of Lillie Park, and the Pittsfield Township Parks and Recreation Department. I understand that this land management plan is voluntarily accepted. This acceptance represents a good faith, but non-binding commitment to implement strategies suggested in this plan. As a non-binding commitment, control of management of Pittsfield Township property cannot be jeopardized as a result of receiving a plan.*

_____ Signature of Land Manager	_____ Date
_____ Signature of Plan Writer	_____ Date

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***SUMMARY OF PROPERTY CONDITIONS AND RECOMMENDATIONS***  
***for the 10 years of 2002 to 2011***

Lillie Park is bordered on the north by Ellsworth Road, on the east and north by the I-94/U.S. 23 interchange, and on the west by Platt Road. The south fenceline is bordered by farm fields and more of a remnant woodlot. The old Ann Arbor railroad grade separates the north and south areas of the park, and there remains a 24 acre inholding adjacent to the railroad and Platt Road which is not currently part of the park. The small woodland in the south area of Lillie Park is primarily a dry hardwoods habitat type, dominated by mature and sawlog size red and white oaks, with sawlog and pole size shagbark hickory, American elm, black cherry and red maple. The least disturbed areas of the forest with the oldest trees are the south halves of the west and east woodlots, and along the south fence line of the center forest strip. The pond and some open field areas to the north are the result of removal of soil and gravel to construct the I-94/U.S.23 interchange, which apparently reduced the size of the woodlot. There have been small roads and hiking trails in the woodlot and adjacent areas, and the trail system is being rerouted and reconstructed at this time.

**Forest Health**

The relatively natural forest stands at the east and west ends appear to be in good health, with mature (trees with diameters at breast height (**dbh**), measured at 4 ½ feet above ground, of 20 inches or more), sawlog (10 to 19.9 inches dbh), pole-size (5 to 9.9 inches dbh) and sapling age classes present in many areas. In the open borrow pit area just south of the pond and north of the road, a young black cherry savannah area, the primary understory woody species is autumn olive, a highly invasive non-native shrub. The young forest just south of there consists of primarily pole-size and sapling elm, maple, cherry and ash, with some aspen and hickory. Buckthorn is present as a major component of the understory in all except the far eastern corner of the woodlot. This is a highly invasive non-native shrub or small tree which has become a significant problem in disturbed forests in North America. It should be controlled in this woodlot.

Except for the unbalanced understory with autumn olive and buckthorn, this forest appears to be quite healthy, with no significant disease or insect problems noted. With so many oaks and black cherries, however, this forest is always at risk of attracting many kinds of insect pests and diseases. One of the most devastating insect invaders is gypsy moth, who seem to prefer the foliage of oaks, aspen, birch, apple, hawthorn, and witch hazel, and to a lesser extent cherries, sassafras, white and Norway spruce, and red and Scots pine. Keep your collective eyes open from July to May for gypsy moth egg masses on rough barked trees such as black cherry, white oaks, hickory and others. Egg masses are also deposited on stumps, dead branches, the underside of decks and porches, woodpiles, recreational vehicles and trailers. This is not a call to alarm about gypsy moths, just something to be aware of. Read the bulletin in the timber management appendix (B).

Timber management in this woodland should focus on protecting the mature and most sawlog hardwoods from damage or development, thinning some of the dense saplings and larger trees to favor mast-producing oaks and hickory, and removing much of the autumn olive and buckthorn from the understory. Prescribed fire and very selective timber harvest are other management

tools that will open up the understory and help to perpetuate the fire-adapted oak-hickory forest.

### **Significant Wildlife Features**

The mix of mature and young forest, wetlands and open water, savannahs and fields in the park provides significant habitat for a large variety of wildlife species. The abundant mast-producing trees and shrubs (oaks, maples, hickory, black cherry and yes, buckthorn and autumn olive) offer food for turkeys, deer, rabbits, squirrels, grouse and many other species. The deep leaf litter and fallen logs and branches on the forest floor provide critical habitat for insects, slugs, centipedes and millipedes, salamanders, snakes, mice, shrews and chipmunks, and many songbirds. Songbirds, grouse, squirrels, herons, hawks, owls and ducks use the different layers of the forest. Wood ducks, mallards and geese likely use the wet areas, as do turtles and frogs, herons and deer. The standing dead trees, and a few live trees, provide feeding sites and home sites for woodpeckers and flickers, and many other birds who use their cavities. The wetland and pond habitats provide resting, feeding and cover habitats for fish, aquatic insects, crustaceans and amphibians. These in turn may provide food for larger fish, herons, mergansers, snakes, mink, raccoons, opossums, coyotes, kingfishers, osprey, and people. Muskrats probably use the wetland and ponds.

Wildlife habitat management in the woodlands will include managing the trees to favor mast-producing species over others, planting and encouraging fruit-producing shrubs as part of brushy borders along forest edges, building rock piles and brush piles, and installing nest boxes and platforms for birds, bats and perhaps other mammals.

### **Soils**

As can be seen on the soils maps, nearly all of the forest stands overlay Blount loam, 2 to 6% slopes. A small area in the east woods is over Pewamo clay loam.

#### BbB- Blount Loam, 2 to 6 % slopes:

These soils are found on glacial till. The top ten inches of soil is usually silt loam. Below that is silty clay loam and silty clay about 22 inches thick. These are somewhat poorly drained soils with medium to slow surface runoff, slow permeability, no flooding or ponding, with the water table perched between 1 and 3 feet depth January to May. Dominant use is typically as cropland. These soils are considered good for grasses and legumes, and for wild herbaceous plants, hardwood trees and conifer trees. They are good for openland wildlife and for woodland wildlife. Trees to favor in existing stands are white, bur, pin and red oaks, white and green ash, basswood and cottonwood. Trees preferred for planting are white spruce, white and red pines, northern white-cedar, eastern red-cedar and tulip-poplar. Woodland management is limited slightly from competition from other plants, limited moderately from equipment access and potential for surface damage, and limited severely by seedling mortality and potential for windthrow.

#### Pe- Pewamo Clay Loam, 0 to 2 % slopes:

Formed in clayey glacial till or lacustrine sediments on till plains, lake plains and moraines. The surface layer is clay loam 13 inches thick, and the subsoil is mottled silty clay 24 inches thick. These poorly and very poorly drained soils have slow permeability, medium to slow surface runoff, and some flooding or ponding, with water table at or above the surface

December to May. Dominant use is typically as cropland. These soils are considered poor for grain and seed crops and for grasses and legumes, fair for wild herbaceous plants, hardwood and conifer trees, good for wetland plants. Pewamo series soils are considered poor for openland wildlife, good for wetland wildlife, and fair for woodland wildlife. Trees to favor in existing stands are red and silver maple, white, black and green ash, eastern cottonwood, pin and swamp white oaks. Trees to plant are white pine, white spruce, white and green ash and red maple. Potential native plant community includes willows, grape, poison ivy, hawthorn, gray dogwood, blue beech, ironwood, hazel, elm, elderberry, virginia creeper, northern dewberry, bristly greenbrier, deerberry and prickly-ash. This soil type may underlie the shrub swamp in the east part of the Lillie Park woodlot.

### **Environmental Education and Recreation**

This park property is well suited as a diverse outdoor classroom. The combination of forest, fields and wetlands is a good outdoor laboratory for study of aquatic insects, fish, amphibians and reptiles, mammals and birds, aquatic, shoreline and forest plants, and plant succession.

I recommend that you develop one or more outdoor classrooms in the forested areas, just off the trail system, with rustic seating such as large diameter cut log sections or log benches. When the weather is good, these can be centers of learning, nature observation, gathering, storytelling and sharing. Local schools and colleges could conduct field trips and hold science and other classes there. If you wish you could build a small pavilion over one of the sites, with study tables for investigation.

The trail systems, while offering routes for strenuous walking, also allow the solitary observer or small groups to move almost silently and thus see much more than when crashing noisily through the dense forest. It might help to add more simple sitting benches along the trails. The trails should be assessed for condition and maintenance needs using a trail log, and then trail maintenance scheduled and tracked. It would be useful to place location signs at trail intersections, perhaps with locations lettered or numbered on your main park map.

You may want to build what I call raptor nests near the edges of the woodlots, and within the woods. These are sturdy tree platforms with rails, from which individual people can quietly observe wildlife happenings in the forest and adjacent fields and wetlands. They can be accessed using a removable ladder, so that park managers can control access periods. They may have to be removed during deer hunting season. These nests should be built of sticks and small logs, and lashed together, to avoid driving nails or bolts into the trees.

### **Planning methods**

To gather information for this stewardship plan, a forest stewardship assessment form was completed by Parks and Recreation Director Cooperrider to determine current uses of the forested portion of the park and goals for future management. Using an aerial photo provided by Mr. Cooperrider, the forested areas of the park property were surveyed for tree and shrub information at 11 locations on July 24, 2002. Basal area was measured at each forest plot, recording each tree by species and diameter at breast height ( 4.5 feet above the ground - **dbh**).

Basal area measurements are an indication of density of trees at a specific plot location, using an angle gauge to decide which trees to count. If all the trees in an acre were cut off leaving 4.5 foot tall stumps, the area of the tops of all the stumps, summed and converted to square feet, would be the basal area of trees in that acre of forest. A ten-factor angle gauge was used to count trees at each plot, and the results were multiplied by 10 to reach an estimate of the total trees of each size and species over the surrounding acre of forest. Forest information, along with stated goals, was used to determine the recommended management strategies for this forest habitat in the park.

Many of the recommendations in this plan came from *Managing Michigan's Wildlife: A Landowner's Guide*, a collaborative publication of state and federal government agencies, conservation organizations, and Michigan State University. This would be an excellent guide to use in making habitat management decisions for Lillie Park and other Pittsfield township properties.

**MANAGEMENT TYPE INFORMATION**

**I. DRY HARDWOODS: NUMBER OF ACRES: approx. 24.13**

**MAJOR OBJECTIVES FOR THE TYPE**

**1.** Preserve, maintain and restore these mixed oak/hickory/black cherry/maple forest stands for high quality forest values, including soil stabilization, a natural ecosystem, and for roosting and nesting habitat and food value for wildlife species. **2.** Maintain and develop the hardwood forest for nature/environmental study and recreation for park visitors. **3.** Develop wildlife habitat improvements, such as flicker and screech owl nesting boxes and great horned owl nesting platforms, brush and rock piles. **4.** Establish an education and demonstration site for private forest landowners.

**EXISTING CONDITIONS**

**COVER TYPE AND MAJOR SPECIES:** Mixed red, pin, and white oaks, with shagbark hickory, black cherry, red maple, American elm, quaking aspen, basswood and white ash. Buckthorn is a major component of the understory in much of the forest.

**SIZE CLASS:** Saplings, poles, sawlogs, mature

**SOIL TYPES:** Blount loam,  
Pewamo clay loam

**SITE QUALITY:** Moderate to good

**STAND QUALITY:** Moderate to good

**STAND DENSITY (Basal Area):** 11.52 ft.<sup>2</sup>/acre pole timber, 31.61 ft.<sup>2</sup>/acre saw timber, 118.57 ft.<sup>2</sup>/acre mature timber

**MANAGEMENT TYPE DESCRIPTION:** The forest in Lillie Park is predominantly mixed oak-hickory mature trees and sawlogs with components of red and silver maple, elm, basswood, black cherry and white ash sawlogs and poles. The east and west blocks of the woodlot are mixed-age hardwood stands. The center area south of the pond, south of the road, is predominantly a sapling and small polesize stand with mature oaks and hickories mostly along the south fenceline. This young tree zone appears to have been part of the borrow pit, or the area was cleared in anticipation of extending the borrow pit farther south than it was. The area north of the road, south and west of the pond was excavated as borrow pit, and forest vegetation is slowly reestablishing. This area is filling in with dense autumn olive.

**PLANNED MANAGEMENT ACTIVITIES (PRESCRIPTIONS)**

for the next 12 years: 2002 to 2013

**Timber Management:** As with many oak forests in southern Michigan, the Lillie Park forest consists of mature oaks and hickories in the overstory, with more shade-tolerant saplings in the understory, such as red maple and ash, and much of the forest understory dominated by buckthorn. In the past periodic fires kept the oak/hickory overstory from closing in, but now

there is too much shade for oak seedlings to grow. Deer also have a major impact by browsing many seedlings that do get started. In the absence of fire, timber harvest or other disturbance, your predominantly mature oak forest will eventually convert to maple-beech or other forest types. While not necessarily bad, generally oak acorns and hickory nuts are more significant as wildlife foods than the fruits and seeds of maples, beech, aspen, basswood, black cherry and ash. For instance, consulting *American Wildlife and Plants*, 1951, oaks were known to be used by 96 different wildlife species with 263 uses; hickories and pecans had 23 uses by 25 species; maples had 61 uses by 33 wildlife species; black cherry and other wild cherries had 104 uses by 81 species of wildlife; elms had 17 uses by 20 species; ashes had 12 uses by 20 users; basswoods show 7 uses by 10 species; hawthorn had 22 uses by 29 birds and mammals; buckthorns show 24 uses among 25 users; and aspen and cottonwoods had 46 uses by 28 wildlife species. While this information is dated, it indicates that there are great differences in the wildlife value of different plants. If your goal is to maintain the mixed oak forests and the wildlife that use them, then this kind of conversion should be prevented. One way to continue a predominantly oak/hickory forest is to plant oak and hickory seedlings in more open areas of the forest, at the same time removing some of the maple, basswood, ash, buckthorn and other tree saplings. You may want to combine this with a small amount of selective cutting of least valuable trees to create very small clearings in the forest, taking no more than 3 to 5 trees in one spot. This will open up the forest floor in those spots to sunlight and promote the growth of oaks and hickories. One way to achieve this easily is to slightly expand certain trail intersections.

Black cherry is a valuable forest tree for the fruit and for nest sites it provides for wildlife. It is also a valuable timber tree. Black cherry is an opportunistic species colonizing various open sites, such as fence rows, old fields, forest edges and forest openings ( and edges of borrow pits). It is fast-growing and moderately long-lived (150 to 200 years). It would be a valuable species to retain while managing primarily for oaks and hickories.

Most deciduous trees and shrubs will readily sprout from the stumps after you cut off the above-ground trunk. Conifer trees do not sprout from stumps. To eliminate deciduous trees and shrubs requires repeated cutting of stump sprouts annually, or painting the freshly cut stumps with an herbicide such as Glyphosate, which will kill the plant within days.

To maintain small forest openings, you will have to periodically pull or cut any new trees and most shrubs that grow up, especially in the middle of the opening. With very small openings your primary goals would be to maintain their current size and keep them from filling in with trees and shrubs. Mow or disc them periodically, every three to five years, to set back succession to grasses and wildflowers.

Another tool in maintaining oak stands is fire. Prescribed burning will decrease competition from maples, beech and other shade-tolerant species. Fire prepares a good seed bed for oak or hickory seeds by reducing leaf litter and releasing nutrients into the soil, and also maintains the variety of ground plants, especially prairie vegetation. If you have an interest in prescribed burning to maintain the oak forests, or to maintain grassy areas and promote prairie establishment, let me know and we can plan for it.

The Lillie Park woodlot is part of a larger woods, which is one of many small fragmented woodlots in the area. This is the time to determine the composition of this future forest, and to work toward the forest type that you want. At present, the dominant species filling in most of the open areas and the more open forest understory areas are autumn olive and common or

glossy buckthorns. Autumn olive was highly recommended as a wildlife food and cover plant by state departments of natural resources, Soil Conservation Service and the universities throughout the 1960's and 70's, and planted extensively. While it provides good food and cover, it has proven to be a virulent invasive species, and its use is now discouraged in most of North America. Common and glossy buckthorns are both Eurasian species, escaped from cultivation. Glossy buckthorn rapidly colonizes wet or swampy areas, and common buckthorn forms thickets in any disturbed areas or clearings, along rivers and swamp edges, and even forest interiors. Autumn olive and non-native buckthorns fruit prolifically, grow rapidly, and are widely disseminated by birds. They compete vigorously against native species, and can easily adapt to many sites.

These autumn olive shrubs along the borrow pit pond shore and the buckthorn in the woods understory should be substantially reduced to allow more desirable native species to flourish. As described in the Element Stewardship Abstract in Appendix E, the most successful way to kill autumn olives has been by cutting them off near ground level and painting the fresh stumps with herbicide. Glyphosate is effective and leaves no residual chemical after a short time (hours). A combination of cutting, herbicides and burning has been The Nature Conservancy strategy for eliminating buckthorn. I find that hand-pulling works well for buckthorn seedlings and saplings up to one inch diameter size. The best time for herbicide application is in late August or September when the plant is actively translocating materials to the roots. You can do this work yourselves on an annual basis, treating some areas each year. This will take a dedicated effort from your staff over a long time period, but I believe the end results will be an improvement for native habitats in the park and surrounding areas. If you wish, I can accomplish autumn olive and buckthorn reduction on a contract basis.

After removing these non-native invasives, areas can be planted to the tree species you prefer, such as oaks, hickory or white pine, and some native shrubs such as juneberry, staghorn sumac, dogwood, ironwood, hazelnut or witch-hazel.

**Wildlife Management:** Protection and proliferation of native hardwoods, especially important food-producing trees and shrubs such as oaks, cherries, and aspen, is perhaps the most important wildlife management practice for this general forest type. Reforesting some of the former field and borrow pit areas would be a positive action toward improving the habitat value of the overall Lillie Park property, thus enlarging the forest.

As with other forest types, adding nest boxes and nesting platforms, and preserving snags and den trees will provide homes for a variety of birds and other wildlife species. Encouraging a 26 to 40 foot wide buffer of food-producing shrubs along forest edges will increase their use by many songbirds, rabbits, grouse and deer, as well as several predators such as snakes, fox and coyotes. For snakes, brush piles and rock piles near the forest edge will provide homes and ready food sources of rodents and insects. Rabbits will also use brush piles. These piles are a natural by-product of any thinning or timber harvest you may do. Leaving down logs will also add to the available home sites, especially for small rodents and salamanders. In addition to *Managing Michigan's Wildlife: A Landowner's Guide*, other great source books are *Landscaping for Wildlife* and *Woodlands and Wildlife* (see Source Literature listing).

To add to wildlife use of your fields and borrow pit area, you can place bluebird, wren

and swallow nest boxes around the perimeter of each open area, and along the forest edge. These need to be cleaned out each spring or late winter before nesting season, to reduce the bird lice load on the nesting adults and hatchlings. The boxes can be checked in the fall, to see if they have been used, and by what species. Keep in mind that they may be used by mice and squirrels over the winter, and these guests will need to be ousted, and their winter nests cleaned out before the intended summer guests arrive. If you do build and place nest boxes or platforms, or bat houses, around the fields and throughout the forests, it is best to map their locations, number each one, and keep yearly records of their use and maintenance. Examples of these nesting and roosting structures and records of their use could be part of your forest management demonstration project.

**Environmental Education:** Native Americans have long known that acorns are one of the best wild foods available. Among the Michigan oaks, bur oak acorns have the best taste, in my opinion, and require the least preparation to be palatable. Your visitors may enjoy trying different acorns, hickory nuts, maple and ash seeds, and fruits of cherries and wild blackberries to judge the tastiest and easiest to make a meal of. You might add this information to your demonstration area.

If you build them (nest boxes, nest platforms, brush piles) the animals will use them. There are several wildlife habitat improvement practices that lend themselves to construction by scout or school groups, and can be done in a day or less. Subsequent waves of scouts or other students can then survey the structures for wildlife use, and you can keep records over time of habitat use change. See the book *Woodworking for Wildlife* by Carrol L. Henderson, Minnesota DNR for many nest box and nest platform plans and the type of habitats to place them in.

To allow your staff and visitors easier wildlife viewing opportunities, it would be good to install wildlife observation blinds along the edges of your open fields, especially where existing trails emerge from the woods. These are simple post and board structures, and you can use cut log sections for seats (see *Landscaping for Wildlife*, page 107). You can also place a couple raptor nests as I described earlier at the edges of fields, to allow observation from on high.

As part of your forest management demonstration area, it would be quite interesting to track the course of forest and field succession at several points. This can be done using permanent line transects, 30 to 60 meters long, laid out from the forest edge, running perpendicular to the edge into the forest and out into the field. These could include places where you are working to eliminate autumn olive and buckthorn, where you thin to favor oaks and hickories, as well as places where you actively or passively re-establish new forest (i.e. different treatment areas). Simply identify and record plant species that touch a small diameter pole at each meter. This will give you some indication of species composition as it changes over time at each specific transect. For more detail you can make small square frames, such as 1/4 or 1/2 meter on a side, and sample the vegetation more completely at intervals along the transect, maybe every third or fifth meter. Your visitors would learn much about plant identification and ecology with such a project. You could put out permanent frames or transect lines at some spots, with signs identifying species. Results of these vegetative transect surveys could be available where you display other forest management information.

You could also show areas of the forest where you have thinned or burned to favor oaks and hickories, and contrast them with originally similar areas where you have not done any

management actions.

It would be useful to survey forest birds, mammals, snakes, turtles and amphibians, and insects such as butterflies, before you make management changes, then periodically after.

You might consider planting small forest wildflower gardens with signage at your demonstration site or elsewhere along the forest trails.

## ***MANAGEMENT TYPE INFORMATION***

### **II. SHRUB SWAMP: NUMBER OF ACRES: approx. 1.5**

#### **MAJOR OBJECTIVES FOR THE TYPE**

**1.** Preserve and maintain this small shrub swamp for wildlife habitat and as an example of the type for nature and environmental study for park visitors. **2.** Protect the swamp and its water source from disruption.

#### **EXISTING CONDITIONS**

**COVER TYPE AND MAJOR SPECIES:** Buttonbush, dogwoods, elderberry and willow are the major woody species in and along the edge of this swamp.

SIZE CLASS: Shrubs

SOIL TYPES: Blount silt loam,  
or Pewamo clay loam

SITE QUALITY: N/A

STAND QUALITY: N/A

STAND DENSITY (Basal Area): N/A

**MANAGEMENT TYPE DESCRIPTION:** This small shrub swamp is in the east block of the woods. It is a slight depression, with dense shrubs growing in a broad ring around the perimeter, and cattails and other emergent aquatic vegetation in the center. Buttonbush, willow, dogwoods and elderberry are the majority of shrubs, with some honeysuckle.

#### **PLANNED MANAGEMENT ACTIVITIES (PRESCRIPTIONS)**

for the next 12 years: 2002 to 2013

**Timber Management:** Avoid timber harvest or road building adjacent to the shrub swamp. Avoid any activity that may alter the water table in the swamp. You may want to plant a few white pines around the upland edge of the swamp.

**Wildlife habitat management:** This small shrub swamp provides food and shelter for a variety of small birds such as chickadees, nuthatches, several warblers, goldfinches, and woodpeckers, herons, coots and other water birds, wood ducks, snakes, turtles, frogs and toads, mink, muskrats, squirrels and deer, butterflies, dragonflies and other insects, and snails. Rabbits, voles and mice use the swamp in the winter for shelter, predator escape cover and food, while foxes, coyotes, hawks and owls hunt these same furred residents for their food.

If open water becomes limited in the center of this small swamp, you can cut small amounts of the shrubs to ground level or ice level during the winter months, especially after a dry fall. Work from the center out, leaving at least 70 percent of the existing shrubs intact.

You may wish to install a couple wood duck boxes on posts in the wetter area of the swamp, with metal cones or sleeves below the box to deter raccoons, squirrels and snakes. A couple logs placed in the water would attract turtles for sunning. You could also place several

flicker and owl nest boxes, or bat houses, in the trees near the shrub swamp.

Brush piles in the swamp and around the upland edge will provide additional shelter and cover.

**Environmental Education:** Shrub swamps are a magnet for many wildlife species. You may want to build a small viewing blind at the edge of this swamp, accessed by a small path coming off the main trail nearby. Alternatively this would be an excellent location for one of the “raptor nests” described earlier.

If you haven't already developed a park herbarium, now might be the time to begin. An herbarium collection can be an invaluable teaching aid, while identifying plants when they are first encountered, and for easier comparison in plant identification for all future staff naturalists that you work with. You will add to the existing knowledge of plants of the area if you maintain an herbarium over time. Be sure to collect the entire plant for grasses, ferns, wildflowers aquatic plants and mosses, in flower if possible. Collect leaves and small stems of woody plants. Remember to thank each plant for contributing to your knowledge. Carefully press each plant between sheets of newspaper or botany paper, and be sure to include an index card with exact location, date, collector's name, species, and notes about the plant and its companions, soil type, etc. Plants can be kept in a file cabinet or map cabinet, or to start you can use one of the large cardboard file or storage boxes. Keep them organized into broad groups such as grasses, ferns, trees, etc., and within those groups by family and genus. You might also divide the plants by where they are found, such as stream, lake, lakeshore, swamp, marsh, upland forest, field. Whenever a new plant is found, a sample is added to the herbarium, and the name and location is added to the parks plant list. Find out what threatened and endangered plant species are in our area, and keep several eyes open for them.

**MANAGEMENT UNIT ANALYSIS TABLE**

<b>Cover Type</b>	<b>Acres</b>	<b>Description</b>	<b>Management Objective</b>	<b>Management Activity</b>
I. Dry Hardwoods: Oaks, Hickory, Maple, B. Cherry, Elm, Basswood	24.13	Upland mixed-age forest, revegetating borrow pit area	Protect, maintain forest for education, wildlife. Perpetuate oaks. Improve wildlife habitat. Develop forest management demonstration area. Reforest south & west borrow pit area.	Reduce invasives. Thin saplings, larger trees. Plant oaks, fruiting shrubs. Preserve snags, den trees. Add brush & rock piles, nest boxes. Build viewing blinds, platform, kiosk, interpretive signs, transects. Develop wildflower gardens. Burn understory.
II. Shrub Swamp	1.5	Low wet area with mixed shrubs, aquatics.	Maintain shrub component for wildlife habitat. Protect water table and surrounding forest from disturbance.	Plant white pines around edge. Add viewing blind or platform. Turtle logs. Wood duck boxes. Other nesting/roosting boxes.

LILLIE PARK, PITTSFIELD TOWNSHIP  
 FOREST STEWARDSHIP PLAN  
 SUMMARY OF RECOMMENDED MANAGEMENT ACTIVITIES  
 TO BE ACCOMPLISHED WITHIN THE NEXT DOZEN YEARS

Practice	Prescription	Years Planned	Year Complete
Trails Work	Assess trails, install signs, maintain trails	2002-04	
Benches	Add benches along trails for sitting	2002-03	
Plant trees, shrubs	Plant trees & shrubs along forest edge, interior.	2002-08	
Remove autumn olive, buckthorn	Remove autumn olive, buckthorn from fields and forest understory	2002-13	
Viewing blinds	Build wooden blinds for watching wildlife	2002-05	
Vegetation surveys	Conduct line transect surveys at permanent locations along forest interior and field edges.	2002-13	
Outdoor classrooms	Clear area slightly, build classroom seating.	2002-2005	
Loafing logs	Build, anchor loafing logs/ platforms for turtles/ducks.	2002-05	
Wildlife surveys	Survey birds, frogs, salamanders, snakes periodically.	2002-13	
“Raptor nests”	Build human nests in trees at forest edge or interior	2003-05	
Build pavilion, study tables	Build pavilion at outdoor classroom site or forest mgmt. demo area, add study tables for investigation.	2003-06	
Wildflower gardens	Develop woodland wildflower gardens at edge of forest or along forest trails.	2003-07	
Nesting structures	Build, install, maintain/survey bird nesting structures.	2003-2013	
Thin saplings, poles	Remove few trees to promote oak/hickory forest	2003-13	
Brush/ rock piles	Build brush or rock piles within forest edges, clearings.	2003-09	
Create clearings	Cut small clearings in forest for understory regeneration.	2004-08	

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## List of Plant and Animal Species Referenced in the Plan

### Plants:

#### Trees:

White Pine (*Pinus strobus*)  
Red Pine (*P. resinosa*)  
Scots Pine (*P. sylvestris*)  
White Spruce (*Picea glauca*)  
Norway Spruce (*P. abies*)  
Northern White-cedar (*Thuja occidentalis*)  
Basswood (*Tilia americana*)  
Red Oak (*Quercus rubra*)  
Pin Oak (*Q. palustris*)  
White Oak (*Q. alba*)  
Bur Oak (*Q. macrocarpa*)  
Swamp White Oak (*Q. bicolor*)  
Tulip-poplar (*Liriodendron tulipifera*)  
Black Cherry (*Prunus serotina*)  
Red Maple (*Acer rubrum*)  
Silver Maple (*Acer saccharinum*)  
Quaking Aspen (*Populus tremuloides*)  
Cottonwood (*P. deltoides*)  
White Ash (*Fraxinus americana*)  
Green (Red) Ash (*F. pennsylvanica*)  
Black Ash (*F. nigra*)  
Shagbark Hickory (*Carya ovata*)  
American Beech (*Fagus grandifolia*)  
Elm (*Ulmus sp.*)  
Blue Beech (*Carpinus caroliniana*)  
Sassafras (*Sassafras albidum*)  
American Hazelnut (*Corylus americana*)  
Common Apple (*Malus pumila*)

Hawthorn (*Crataegus sp.*)  
Ironwood (*Ostrya virginiana*)  
Willow (*Salix sp.*)

#### Shrubs:

Autumn Olive (*Elaeagnus umbellata*)  
Witch Hazel (*Hamamelis virginiana*)  
Juneberry (*Amelanchier arborea*)  
Staghorn Sumac (*Rhus typhina*)  
Gray Dogwood (*Cornus foemina*)  
Red-osier Dogwood (*C. stolonifera*)  
Glossy Buckthorn (*Rhamnus frangula*)  
Common Buckthorn (*R. cathartica*)  
Common Elder (*Sambucus canadensis*)  
Buttonbush (*Cephalanthus occidentalis*)  
Prickly-ash (*Zanthoxylum americanum*)  
Honeysuckle (*Lonicera sp.*)  
Blackberry (*Rubus allegheniensis*)

### Animals:

#### Birds:

House Wren (*Troglodytes aedon*)  
Black-capped Chickadee (*Parus atricapillus*)  
White-breasted Nuthatch (*Sitta carolinensis*)  
Tree Swallow (*Tachycineta bicolor*)  
Eastern Bluebird (*Sialia sialis*)  
Cerulean Warbler (*Dendroica cerulea*)  
Pine Warbler (*Dendroica pinus*)  
Prothonotary Warbler (*Protonotaria citrea*)  
Northern Flicker (*Colaptes auratus*)  
Hairy Woodpecker (*Picoides villosus*)  
Pileated Woodpecker (*Dryocopus pileatus*)  
American Goldfinch (*Carduelis tristis*)  
Belted Kingfisher (*Ceryle alcyon*)  
Wild Turkey (*Meleagris gallopavo*)  
Ruffed Grouse (*Bonasa umbellus*)  
Wild Turkey (*Meleagris gallopavo*)  
Northern Saw-whet Owl (*Aegolius acadicus*)  
Eastern Screech-Owl (*Otus asio*)  
Great Horned Owl (*Bubo virginianus*)  
Wood Duck (*Aix sponsa*)  
Mallard (*Anas platyrhynchos*)  
Common Merganser (*Mergus merganser*)  
Hooded Merganser (*Lophodytes cucullatus*)  
Great Blue Heron (*Ardea herodias*)  
Red-shouldered Hawk (*Buteo lineatus*)  
Osprey (*Pandion haliaetus*)  
Bald Eagle (*Haliaeetus leucocephalus*)  
Canada Goose (*Brant canadensis*)

#### Mammals:

White-footed Mouse (*Peromyscus leucopus*)  
Voles (*Clethrionomys sp.*)  
Chipmunk (*Eutamias minimus*)  
Squirrel (*Glaucomys sabrinus*)  
Eastern Cottontail Rabbit (*Sylvilagus floridanus*)  
Muskrat (*Ondatra zibethicus*)  
Mink (*M. vison*)  
Raccoon (*Procyon lotor*)  
Virginia Opossum (*Didelphis virginiana*)  
Red Fox (*Vulpes vulpes*)  
Coyote (*Canis latrans*)  
White-tailed Deer (*Odocoileus virginianus*)

#### Reptiles and Amphibians:

Salamander (*Ambystoma sp.*)  
E. Box Turtle (*Terrapene carolina carolina*)  
Blanchard's Cricket Frog (*Acris crepitans blanchardi*)  
American Toad (*Bufo americana*)

Northern Dewberry (*Rubus flagellaris*)  
Virginia Creeper (*Parthenocissus quinquefolia*)  
Poison Ivy (*Rhus toxicodendron*)  
Wild Grape (*Vitis sp.*)  
Bristly Greenbrier (*Smilax tamnoides*)

Insects:

Gypsy Moth (*Porthetria dispar*)  
Centipedes, Class Chilopoda  
Millipedes, Class Diplopoda

Herbaceous plants:

Cattail (*Typha latifolia or angustifolia*)  
Pondweeds (*Potamogeton sp.*)  
Duckweed (*Lemna sp.*)