

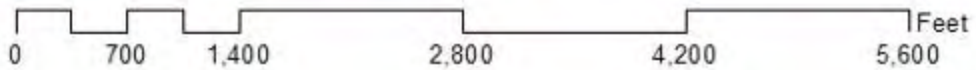
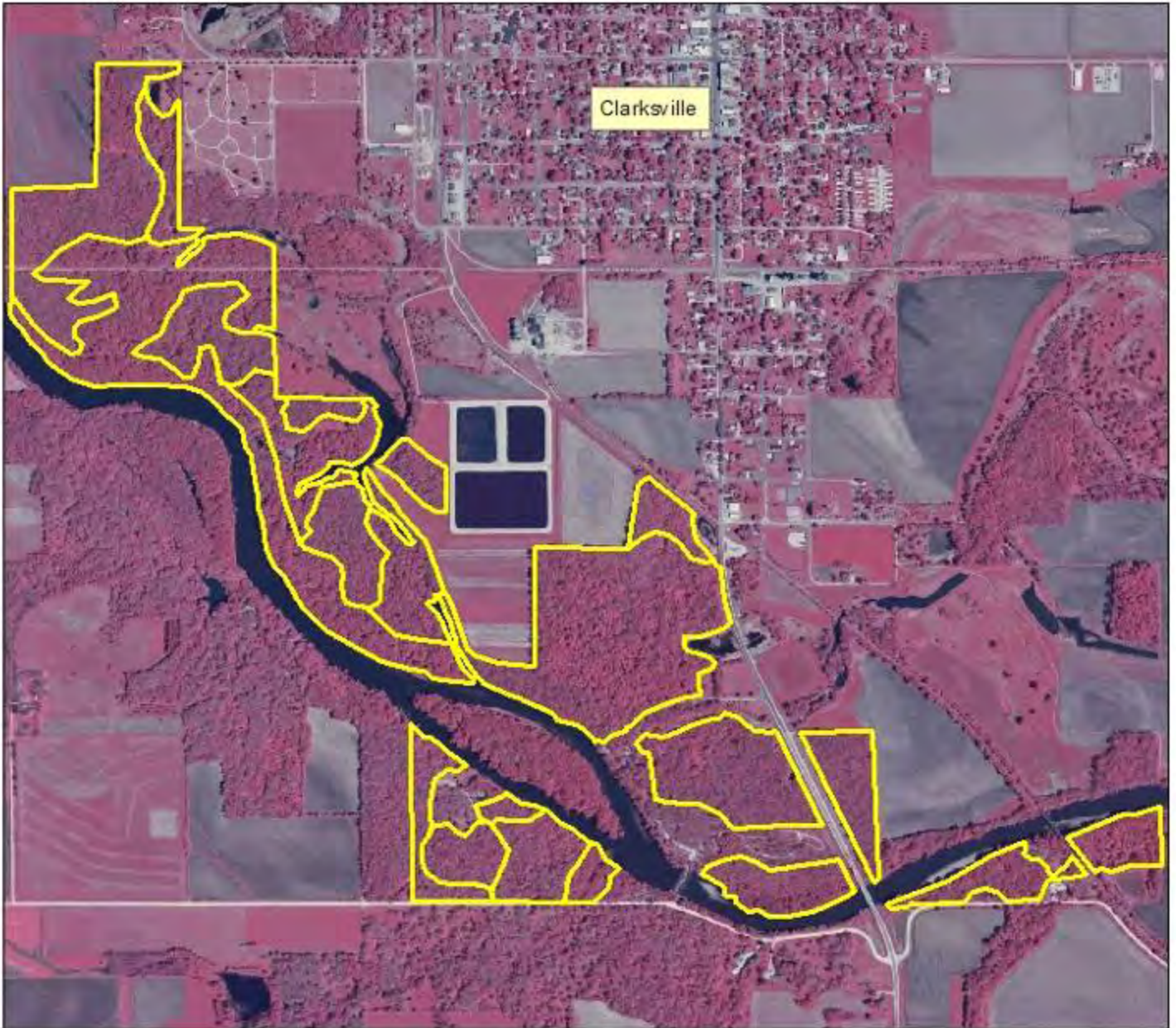
***FOREST STEWARDSHIP PLAN***  
**FOR**  
**HEERY WOODS STATE PARK**



**Developed by:**  
**Greg Heidebrink**  
**Assistant District Forester**

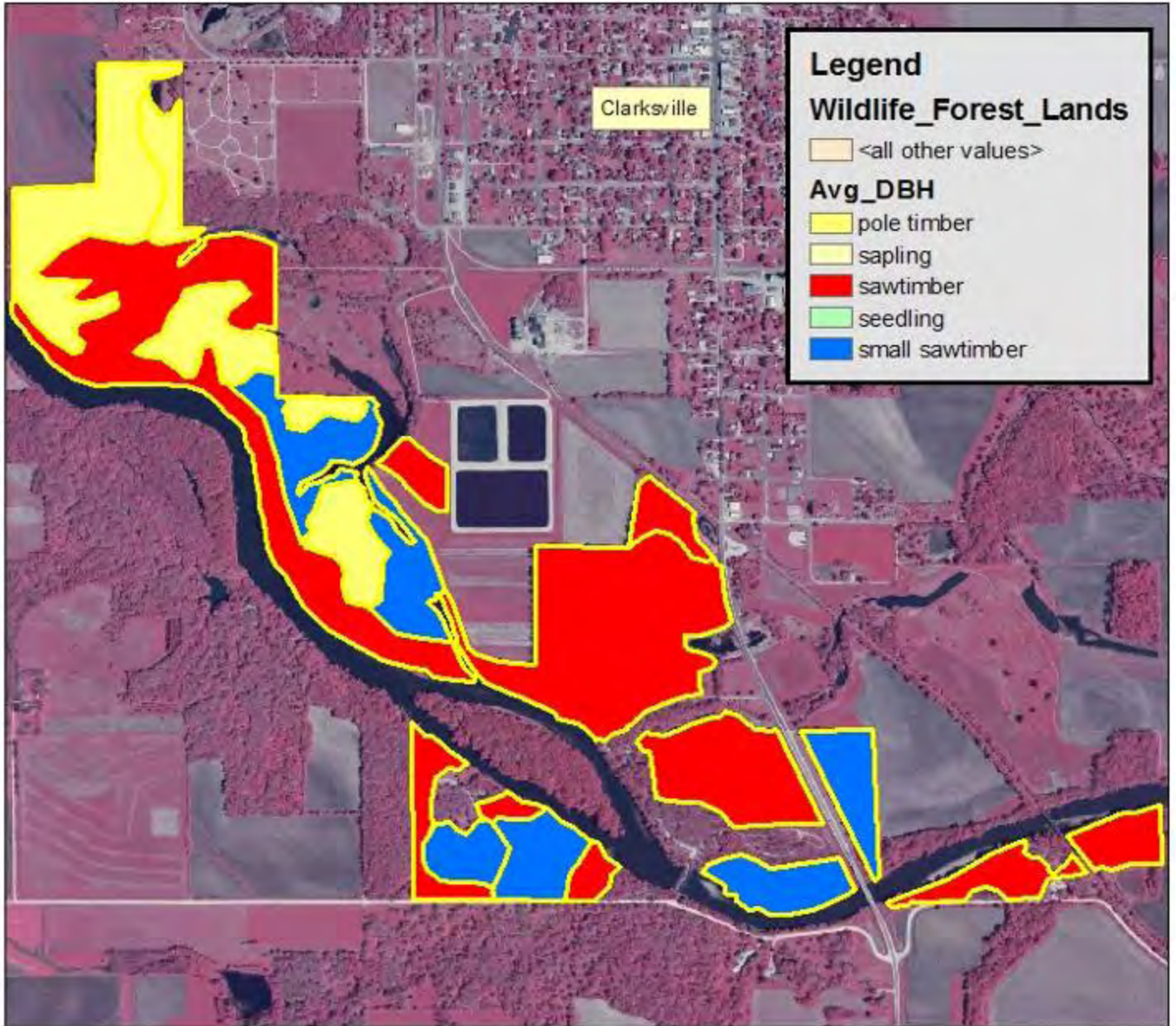


Heery Woods State Park  
Stewardship Map  
12-17-2007  
247.5 acres

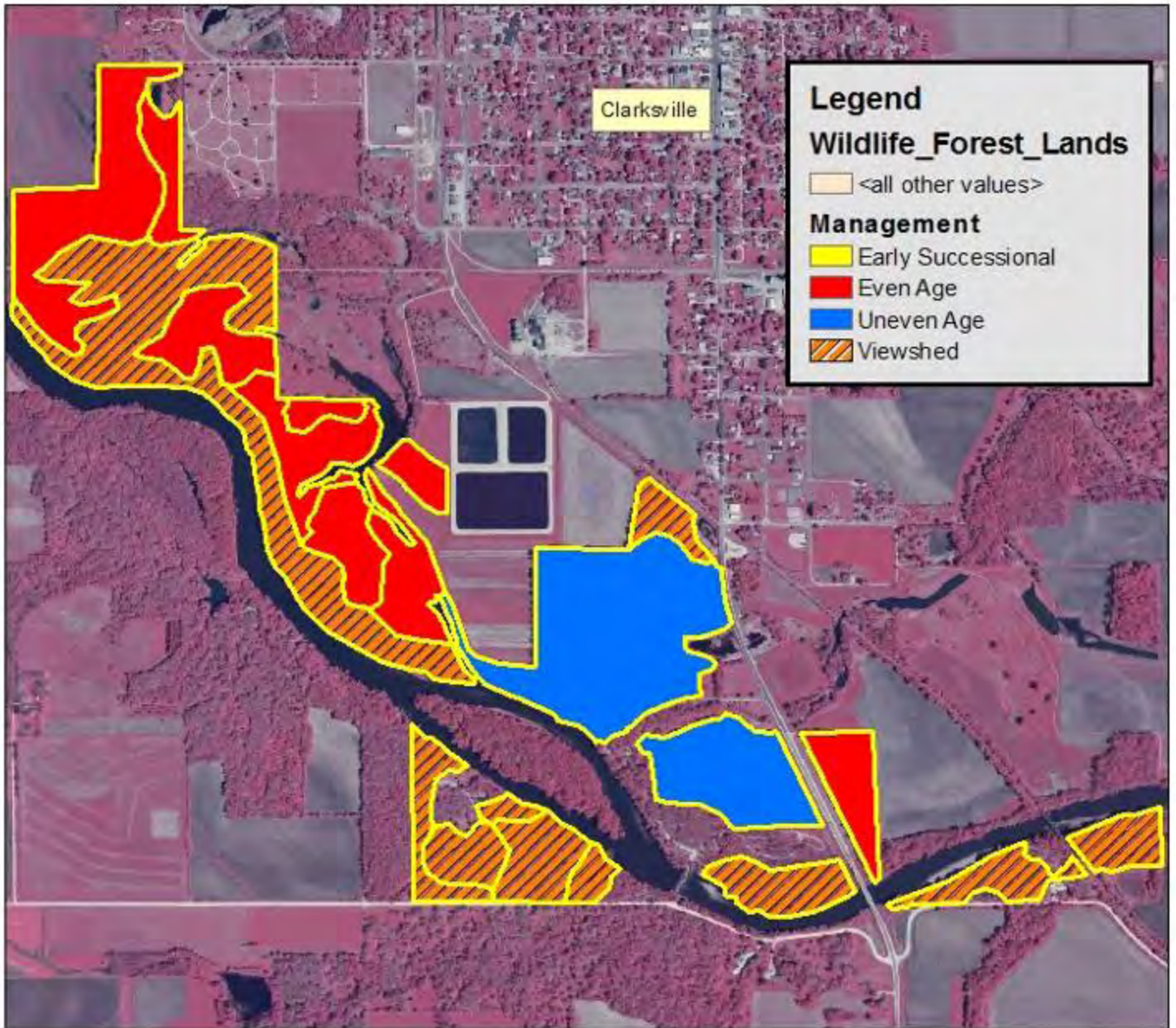


Sec. 19, Butler Twsp.  
Sec. 13, Jackson Twsp.  
Butler Co.  
T92N-R15W  
T92N-R16W

# Heery Woods State Park Average Tree Size



# Heery Woods State Park Management Systems



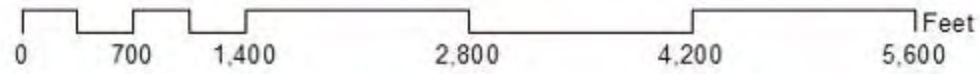
**Legend**

**Wildlife\_Forest\_Lands**

<all other values>

**Management**

- Early Successional
- Even Age
- Uneven Age
- Viewshed



Sec. 19, Butler Twsp.  
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T92N-R15W  
T92N-R16W

## ***HOW THE FOREST STEWARDSHIP PLAN WAS DEVELOPED***

Heery Woods State Park is under a management agreement between the State of Iowa and Butler County Conservation Board (Butler CCB). This agreement has been in effect since March 3<sup>rd</sup> of 1988 and is effective through December 31<sup>st</sup> of 2013. A copy of this agreement has been attached in the appendix of this plan.

To develop this plan the entire area was walked and broken into stands. Stands are identified by tree species, tree size, topography, and management system. A specific prescription is then written for each stand. Forester recommendations are designed to manage the stand to reach the goals and objectives of the Butler CCB and the Iowa Department of Natural resources (IDNR).

The Butler CCB is the manager of this area. Foresters are assisting the Butler CCB to implement woodland management practices.

One of four management systems is specified for each stand. This identifies the overall management system for that stand and designates the “road map” for what work will take place on the site in the future.

Each management system is described in detail in this plan. A brief description of each management system is as follows –

### ***Early Successional -***

There are no early successional stands on this property.

### ***Even Age -***

Shade intolerant species such as oak and walnut require full sunlight to grow. Even age management involves a clearcut at some point to create the full sunlight condition. Even age stands are clearcut every 125 years.

### ***Uneven Age -***

Uneven age management can be used to manage species that will grow in shade such as hard maple and basswood. Every 20 years, the stand can be selectively harvested to remove the mature and defective trees. The openings are filled with young maple and basswood, creating an all age or uneven age forest. Since the uneven age stands on this property are near the heavily used recreation areas, this system will be modified to “Big Tree” management. This will allow us to keep big trees on these areas as long as possible.

### ***Viewshed -***

These are buffers along the river and recreational areas. No active management is scheduled to take place in these areas. This does not mean that management won't be done in these areas; it means that any activities should be sensitive to the surrounding recreational areas.

**DATE: 12/17/07**

# **FOREST STEWARDSHIP PLAN FOR HEERY WOODS STATE PARK**

**MANAGER:**

Butler County Conservation Board  
Steve Brunsmma  
28727 Timber Rd.  
Clarksville, IA 50619

**TELEPHONE:** 319-278-4237

**LOCATION:** Sec. 19 Butler Twsp., Butler County  
Sec. 13 Jackson Twsp., Butler County

**TOTAL ACRES:** 247.5

## **DESCRIPTION OF AREA**

The 247.5 acres addressed in this plan are outlined on the attached aerial photo. The area is divided into 21 different areas or stands, labeled 1-21 on the map. Each area is described in this plan and recommendations outlined for woodland management.

Heery Woods State Park is a popular recreational area on the south side of Clarksville in Butler County. The Shell Rock River runs through the middle of the park. The areas around the Nature center and campgrounds can have heavy usage during the summer, but the rest of the property has light usage during most of the year. Currently no hunting is allowed on any of the park.



**Objectives -**

The primary objectives for the area are:

- Improving the quality of the timber by:
  1. Adding diversity to the species composition
  2. Harvesting stressed and declining trees
- Improving wildlife habitat by:
  1. Promoting mast producing species like oak in upland areas
  2. Adding brush piles and ground cover through harvest and Timber Stand Improvement (TSI) activities
  3. Maintaining den trees throughout the property
- Improving recreational opportunities by:
  1. Diversifying the existing cover types (adding savanna area)
  2. Managing for big trees along the blacktop bike trail
- Improving water quality by:
  1. Maintaining a healthy forest community
  2. Maintaining buffers along the river

**Income from Timber Harvests -**

Harvesting is conducted to regenerate stands to desirable species and to achieve a diversity of tree sizes and species. Income from timber harvesting operations will be reinvested into the area to plant trees, thin young stands, and convert areas to more desirable species.

**Current Distribution of Tree Size on the Area -**

The woodland was stand mapped according to the average tree size as follows:

<u>Tree Size</u>	<u>Acres</u>	<u>% of Total Area</u>
Sapling (<4" dbh)	0	0
Pole size (5-12" dbh.)	53.7	22
Medium Size (14-18" dbh.)	51.7	21
Large (>20" dbh)	142.1	57
Totals	247.5	100

**Proposed Management Systems for the Area -**

Recommendations for each stand were based on whether the area will be managed to create early successional growth, or on an even age system, uneven age system, or as viewshed. The decision on what system would be used was based on the objectives for the area to maintain an oak component where feasible, develop a diverse woodland landscape, protect fragile sites and improve water quality.

Based on my recommendations for Heery Woods State Park, the acres under each management system are as follows -

<u>Management System</u>	<u>Acres</u>	<u>% of Total Area</u>
Early Successional	0	0
Even Age	86.6	35
Uneven Age	62.6	25
Viewshed	98.3	40
Total	247.5	100

***Early Successional Management -***

Many species of birds such as ruffed grouse, American woodcock, gold winged warbler, blue winged warbler, black billed cuckoo, yellow billed cuckoo, and eastern towhee are dependent on the early stages of woody growth. The high stem density of both trees and shrubs provides suitable nesting habitat and protection from predators. Because aspen will sprout from the roots when the parent tree is cut, aspen is an excellent species to create the dense growth needed by these species. Aspen also is a short lived tree species, and cutting the aspen will rejuvenate and expand the aspen stands through root sprouting.



The majority of early successional management is on the woodland edges and aspen stands. This work will “feather” the edges and make a gradual transition from the field edges to the larger trees. Feathering or softening the edges results in less nest parasitism of interior forest bird species by brown-headed cowbirds.

Aspen provides critical habitat for ruffed grouse. Aspen is most easily regenerated by root suckering. Once aspen is allowed to become over mature, its ability to root sucker is decreased. The best method to maintain aspen and expand the aspen clone is to cut the stand while the trees are in a healthy condition. Ideally, 1/3 of the aspen would be sapling size (1-4” dia.), 1/3 pole sized (5-10” dia.), and 1/3 medium sized (12-16” dia.). Big tooth aspen will grow to 16-20” in diameter, but small tooth aspen generally begins to die at 14-16” in diameter.

**There are no early successional areas planned for Heery Woods State park.**



## ***Even Age Management -***

Even age management is essential for wildlife species depending on oak/hickory forests. Even though large blocks of forest are needed on some Wildlife Management Areas for some wildlife species, each stage of an even age stand provides habitat for wildlife. For example, regenerating stands (1-10 years old) benefit the same species of birds as does early successional stands, golden-winged warbler, blue-winged warbler, black-billed cuckoo, yellow-billed cuckoo, Eastern towhee, along with ruffed grouse and American woodcock.

Sapling to small pole sized stands between 10 and 20 years old, may be used by black and white, Kentucky, and worm eating warblers. From age 20-60 years, pole to medium size trees tend to be used by canopy nesters such as scarlet tanagers, wood thrushes, and ground nesters such as ovenbirds and black and white warblers.

Mature stands of 60 to 125 years of age are used by birds such as the wood thrush, Acadian flycatcher, ovenbird, worm eating warbler, and scarlet tanagers.

Even age management involves growing a stand of trees which are close to the same age. At some point in the stands life, the area is clearcut which creates the even age structure. Even age management creates excellent habitat for deer, turkey, and grouse and is



essential for regeneration of oak which require full sunlight. The only way that oak can be maintained as a component of the forest is by practicing some form of even age management.

Even age management involves clearcutting and planting, clearcutting with regeneration already established, or a shelterwood system to develop desirable seedlings on the ground.

Shelterwood is a form of even-age management. The final cut is a clearcut, but several thinnings are done prior to the final cut. The large, healthy trees are left to provide seed for naturally reseeding the stand, and to create partial shade to inhibit the growth of weeds and brush until the desirable seedlings are well established. The final cut or clearcut is normally done when there are a sufficient number of desirable trees that are 3-5 ft. tall. The shelterwood system can take many years to develop a good stocking of desirable young trees. You may have to kill the undesirable species several times to favor the species you want. The final clearcut should not be made until you are satisfied with the stocking of desirable young trees.

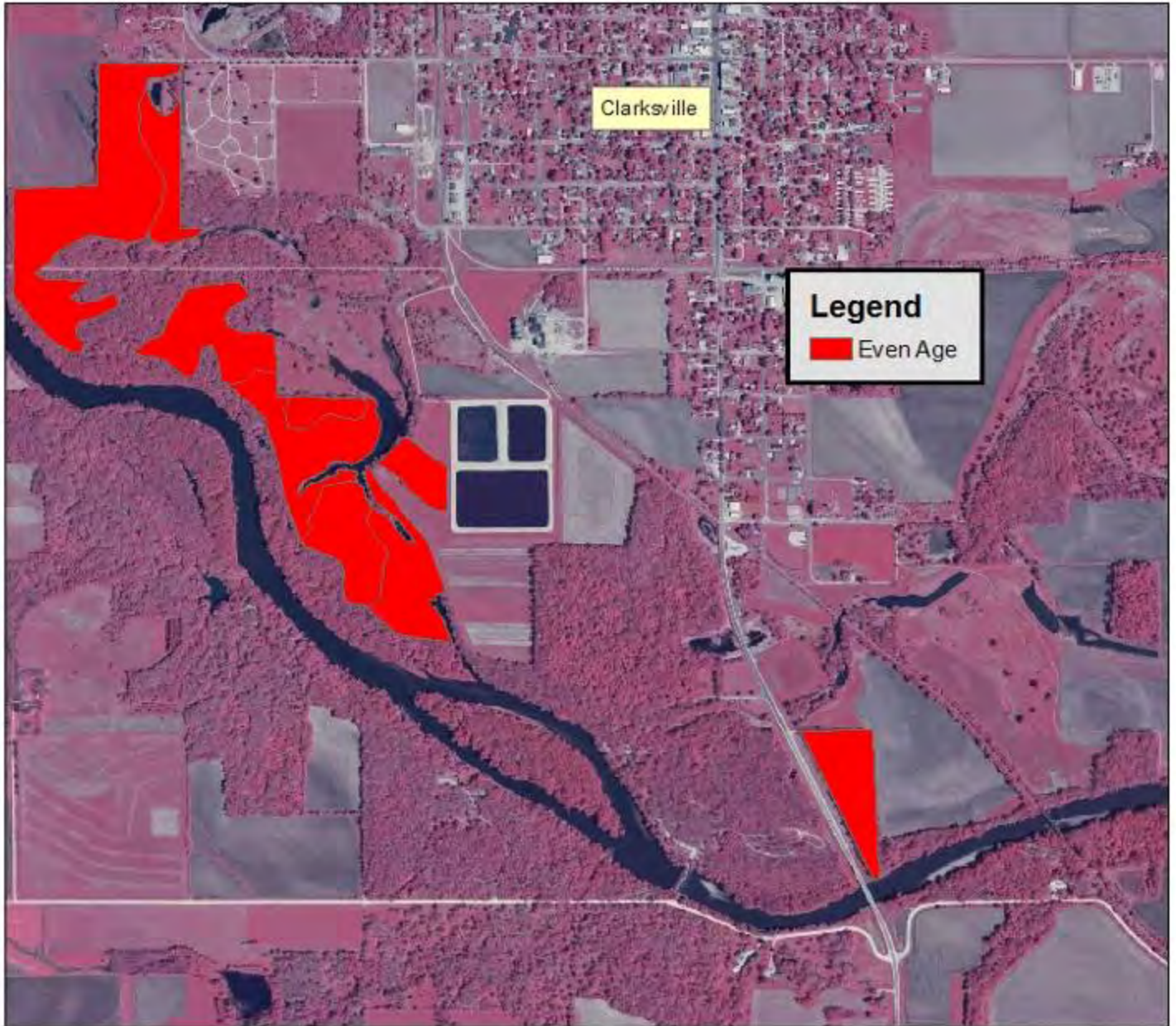


Clearcutting to create full sunlight is essential at some point in the stand's life to successfully regenerate oak. If stands are not clearcut, the oak component of the forest will be lost to shade tolerant species. Clearcuts also provide additional early successional habitat in the early stages. The area is in the brushy stage for a very short period, normally 10-15 years. After that time, the trees will totally shade the ground, and the area becomes a pole sized (5-10" dia.) stand of trees.

Fire is a tool in managing oak stands that is currently being studied. Frequent burning of the leaf layer in the woods will kill thin barked species such as hard maple, cherry, elm, bitternut hickory, and ironwood. Fire will expose mineral soil and open up the ground to sunlight. These conditions favor the natural regeneration of oak. Oak seedlings will tolerate light fires. The top will be killed by the fire, but the deep root systems survive and sprout. Fire will be utilized on a limited scale to encourage oak regeneration in oak stands. Once a good number of oak seedlings are present, these stands will have to be clearcut or the young oak will die from lack of sunlight.

There are 86.6 acres that will be managed as even aged woodlands to regenerate shade intolerant species. Approximately 3.5 acres will be clearcut every 5 years.

Heery Woods State Park  
Even Age Management  
86.6 acres



0 700 1,400 2,800 4,200 5,600 Feet



Sec. 19, Butler Twsp.  
Sec. 13, Jackson Twsp.  
Butler Co.  
T92N-R15W  
T92N-R16W

## ***Uneven Age Management -***

Uneven age management develops a stand of trees with all tree sizes represented. The stand structure is developed by selectively harvesting mature and defective trees, and removing unwanted small trees that are damaged or defective. Because uneven age stands always have large trees present, this system favors species that will grow in shade such as hard maple and basswood.

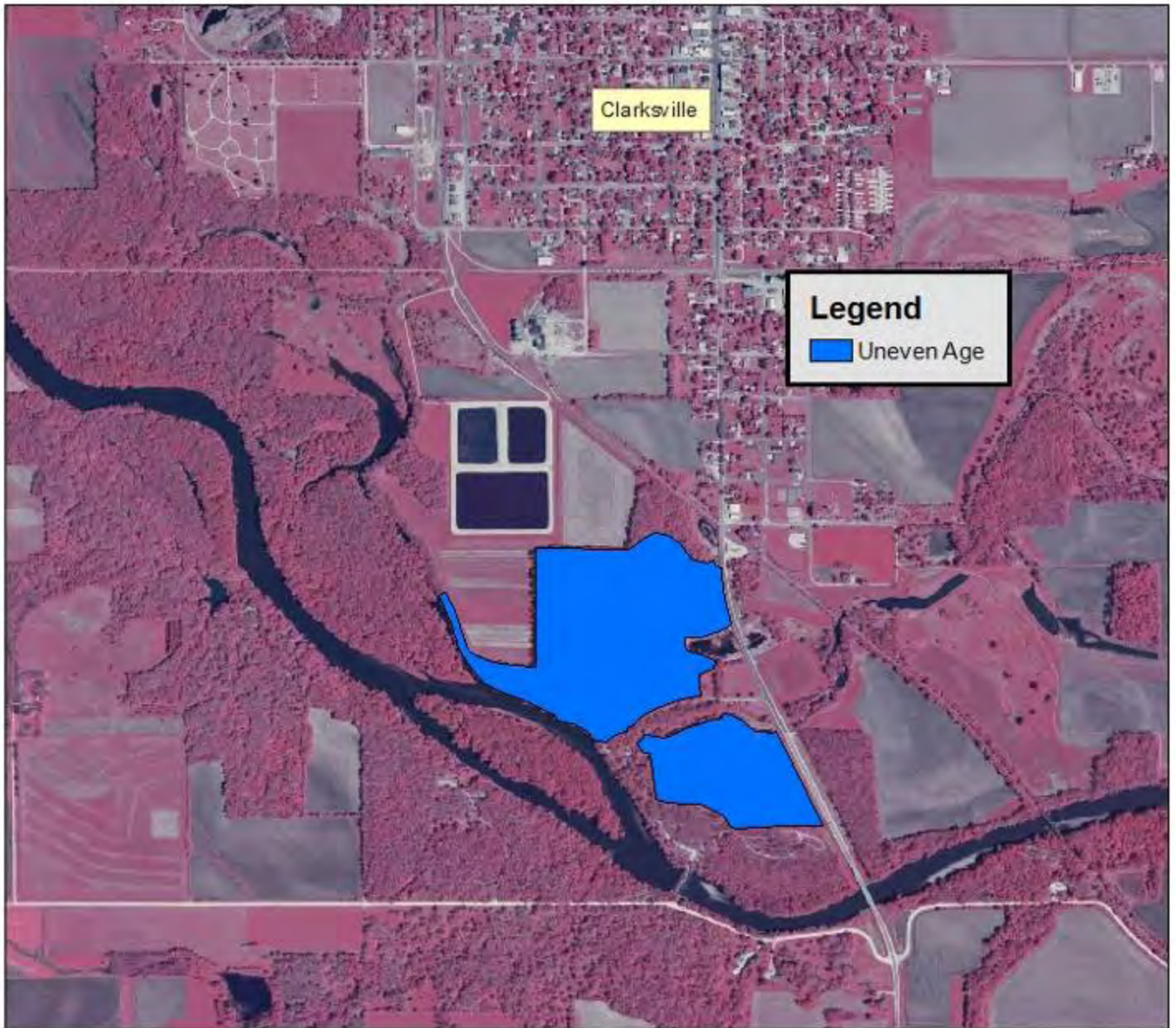
Uneven age management will maintain blocks of woodland that will always have larger trees. Uneven age management is desirable where the understory is mainly hard maple, on steep slopes, and on areas where always having large trees is important.



Uneven age management areas will provide continuous tracts of woodland with minimal disturbance. Large tracts of uneven age management will provide necessary habitat for Neotropical migratory bird species such as cerulean, hooded, Canada, and Kentucky warblers. Selective harvesting will create small openings in the canopy, which will increase ground cover, and enhance stand structure. Den trees will be left to provide cavities for wildlife such as woodpeckers, bats, and squirrels, including the Northern myotis and red squirrel, species of greatest conservation need. Timber stand improvement and selective harvesting will create woody debris on the forest floor for reptiles and amphibians.

There are 62.6 acres that will be managed as uneven aged “Big Tree” forests. The areas could be selectively harvested every 20 years (5.6 acres every 5 years).

Heery Woods State Park  
Uneven Age Management  
62.6 acres



0 700 1,400 2,800 4,200 5,600 Feet

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T92N-R15W  
T92N-R16W



## **Viewshed Management -**

Viewshed areas are typically steep slopes, recreation areas and areas along streams which are fragile and are best left to naturally progress through succession. Areas where endangered plant or animal species exist will also be under viewshed management.

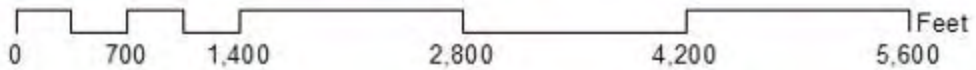
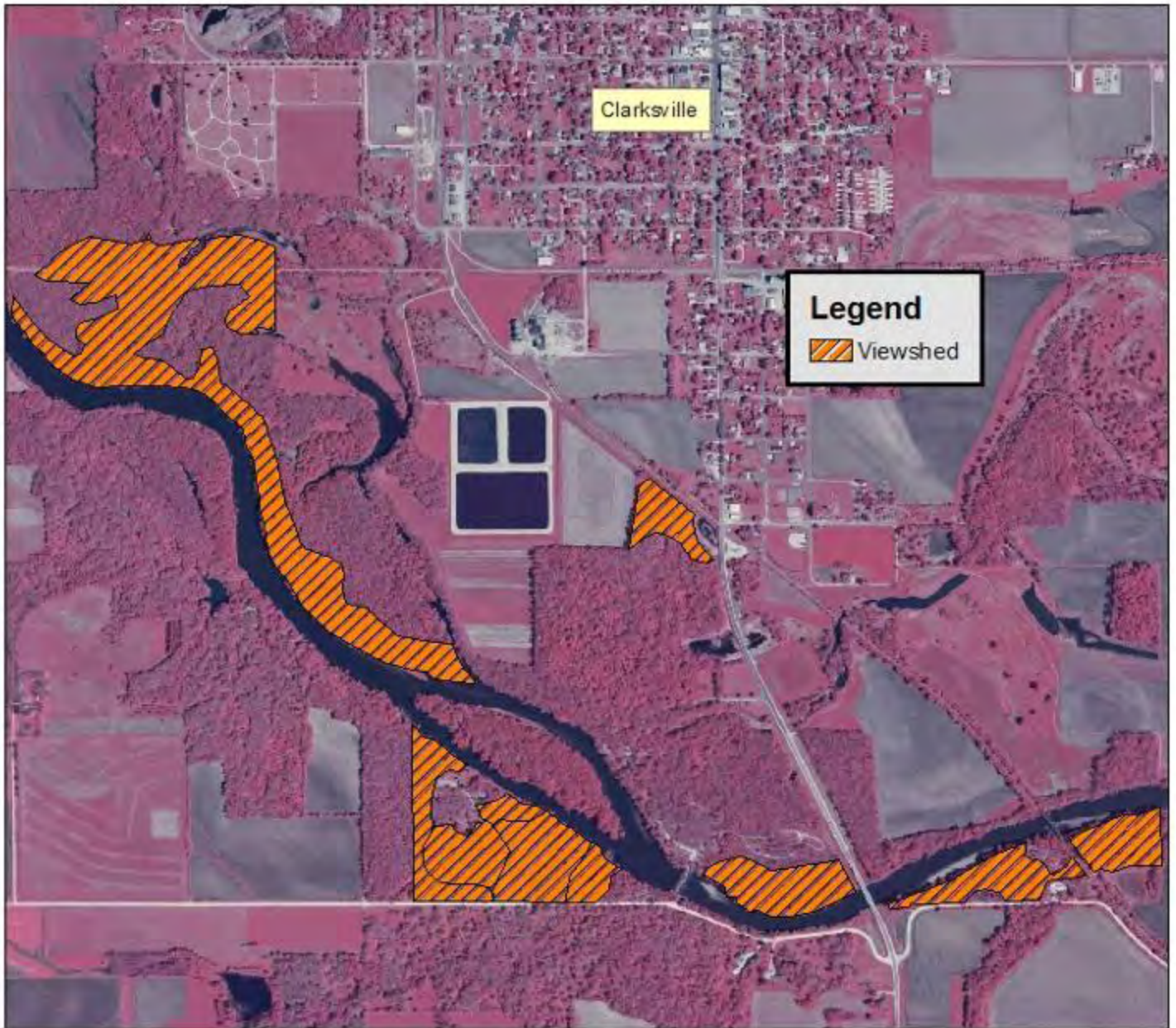
Management can take place on these areas where desirable, but the major objective is to have very minor disturbance if any.

Many Neotropical birds will benefit greatly from the areas designated as viewshed.

Viewshed management is designated for 98.3 acres on the area, or 40% of the forest resource.



Heery Woods State Park  
Viewshed Management  
98.3 acres



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T92N-R16W

## SOILS

The north end of the property and the areas right along the river are covered by Colland and Spillville soils. These soils are moist, alluvial soils. They tend to be fertile, but are subject to periodic flooding. The Colland is the wettest and can be found in the lowest areas. The Spillville soil is slightly above the Colland soil and will be a little dryer. The area along the park entrance is Dupage loam. This soil is very similar to the Spillville soil but does not flood very often.

The area just north of the main entrance is on Flagler soil. This soil is a well drained, sandy loam. These are good sites for upland hardwood trees such as red oak, white oak, bur oak, walnut, hard maple, basswood, and cherry.

The area around the nature center is mainly Lawler soil to the east and Riveville soil to the west. Both of these soils are somewhat wet but should not pose a big problem. The island of timber just south of the nature center has Wapsie soil. This soil is very similar to the Flagler soil on the north side of the river.



# **WORK PLAN**

## **FOR**

### **Heery Woods State Park**

**This “working plan” for Heery Woods State Park is designed to aid professional biologists and foresters in the implementation of forest management practices. It is written with the understanding that these professionals have a basic understanding of forest management principles and techniques. Every detail has not been outlined in the plan because the plan would become too long to be of practical use. This plan is intended to get work accomplished on the ground.**

Heery Woods State Park  
Stewardship Map  
12-17-2007  
247.5 acres



0 700 1,400 2,800 4,200 5,600 Feet



Sec. 19, Butler Twsp.  
Sec. 13, Jackson Twsp.  
Butler Co.  
T92N-R15W  
T92N-R16W

## DESCRIPTION AND RECOMMENDATIONS FOR INDIVIDUAL STANDS

### **Stand 1: 26.8 acres**

#### *Site Description -*

Second bench floodplain

#### *Woodland Description-*

The area is pole sized (5-10" dia.) hackberry, ash, elm, boxelder, walnut and Kentucky coffee tree. The understory is elm, hackberry, nettles, chokecherry, and gooseberry. There is also some scattered mature honey locust, walnut, elm and ash in this area.

#### *Management Recommendations – Even age*

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.



The trees to be removed can be felled or double girdled. No herbicide is necessary.

### **Stand 2: 48.4 acres**

#### *Site Description –*

Bottomland area along the river

#### *Woodland Description -*

Large sized (20" + dia.) cottonwood, silver maple, ash, hackberry and walnut. The understory is silver maple, ash, hackberry, boxelder and walnut.

#### *Management Recommendations – Viewshed*

-Leave this area as is to provide a buffer along the river stream.

### **Stand 3: 5.6 acres**

#### ***Site Description –***

Upland ridge

#### ***Woodland Description -***

Pole sized (5-10” dia.) hackberry, boxelder, walnut, cherry, elm, bitternut hickory, hard maple, red oak, honey locust and ash. There are also some scattered walnut, cottonwood, honey locust, hackberry and elm that could be harvested to turn this into a true even age stand.

#### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Emphasis should be on providing optimum growing space for the young oak. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, cherry, hackberry and hard maple.

The trees to be removed can be felled or double girdled. No herbicide is necessary.



### **Stand 4: 10.3 acres**

#### ***Site Description -***

Second bench floodplain

#### ***Woodland Description-***

The area is pole sized (5-10” dia.) hackberry, ash, elm, boxelder, walnut and Kentucky coffee tree. The understory is elm, hackberry, nettles, chokecherry, and gooseberry. There is also some scattered mature honey locust, walnut, elm and ash.

#### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

## **Stand 5: 11.7 acres**

### ***Site Description –***

Bottomland

### ***Woodland Description -***

Medium sized (12-18” dia.) cottonwood, silver maple, ash, hackberry honey locust and walnut. The understory is silver maple, ash, hackberry, boxelder and walnut.

### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

## **Stand 6: 2.5 acres**

### ***Site Description -***

Second bench floodplain

### ***Woodland Description-***

The area is pole sized (5-10” dia.) hackberry, ash, elm, boxelder, walnut and Kentucky coffee tree. The understory is elm, hackberry, nettles, chokecherry, and gooseberry. There is also some scattered mature honey locust, walnut, elm and ash.

### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.



-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

## **Stand 7: 8.4 acres**

### ***Site Description -***

Second bench floodplain

### ***Woodland Description-***

The area is pole sized (5-10" dia.) hackberry, ash, elm, boxelder, walnut and Kentucky coffee tree. The understory is elm, hackberry, nettles, chokecherry, and gooseberry. There is also some scattered mature honey locust, walnut, elm and ash.

### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

## **Stand 8: 9.5 acres**

### ***Site Description –***

Bottomland

### ***Woodland Description -***

Medium sized (12-18" dia.) cottonwood, silver maple, ash, hackberry honey locust and walnut. The understory is silver maple, ash, hackberry, boxelder and walnut.

### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

## **Stand 9: 3.8 acres**

### ***Site Description –***

Upland

### ***Woodland Description -***

Large sized (20" + dia.) Hackberry, red oak, basswood, bur oak and walnut. The understory consists of elm, hard maple, basswood, ash, ironwood and gooseberry.

### ***Management Recommendations – Even age***

Clearcut and plant this area to red oak and bur oak seedlings. Plant the trees 30 ft. apart or 50 trees per acre. Place a 4 ft. tall, vented tree shelter over each tree to protect them from deer and rabbits. Control competing vegetation by spot spraying a combination of Roundup and Princep 4L herbicides. Protect the seedling from the spray and spray an area 4 ft in diameter around each tree. Apply 2 quarts of Roundup and 4 quarts of Princep 4L per acre treated. The herbicides must be applied when the vegetation is actively growing.

Competing vegetation should be controlled for a minimum of 3 years

## **Stand 10: 44.5 acres**

### ***Site Description –***

Second floodplain bench to upland with Flagler soil. This area is very near the main recreational area and has a bike trail running through it.

### ***Woodland Description -***

Large sized (20" + dia.) Red oak, hard maple, walnut, cherry, elm, basswood, honey locust, ash and hackberry. The understory is hard maple, basswood, Kentucky coffee tree, bitternut hickory, hackberry, elm and a few oak.

### ***Management Recommendations – Uneven age (“Big tree” management)***

-Selectively cut the declining and storm damaged trees. Only trees that will not make it another 5 to 10 years should be harvested. The goal for this stand is to leave the big trees on the site as long as possible.

-After the harvest, the elm, ironwood, and boxelder could be killed now to encourage the development of young hard maple and basswood. Treat the stumps of the undesirable species with Pathfinder II to prevent sprouting. In addition, poor formed and damaged trees should be felled. Do not treat the stumps of desirable species with herbicide. If at all possible, it would help esthetically to clean up the harvest tops and weed tree stems with firewood permits.



## **Stand 11: 4.3 acres**

### ***Site Description –***

Upland Flagler soil

### ***Woodland Description -***

Large sized (20" + dia.) Bur oak, elm and hackberry.

### ***Management Recommendations – Viewshed***

-This area is listed as viewshed, but could be managed as a small savanna. I suggest that you start this process by burning the area for 4 to 5 years. You may need to remove some of the larger undesirable trees by felling them. All felled material should be removed from the site.

## **Stand 12: 18.1 acres**

### ***Site Description –***

Second floodplain bench with Du Page soil. This area is very near the main recreational area.

### ***Woodland Description -***

Large sized (20" + dia.) Walnut, honey locust, Kentucky coffee tree and elm. The understory is basswood, Kentucky coffee tree, bitternut hickory, hackberry and elm.

### ***Management Recommendations – Uneven age (“Big tree” management)***

-Selectively cut the declining and storm damaged trees. Only trees that will not make it another 5 to 10 years should be harvested. The goal for this stand is to leave the big trees on the site as long as possible.

-After the harvest, the elm, ironwood, and boxelder could be killed now to encourage the development of young hard maple and basswood. Treat the stumps of the undesirable species with Pathfinder II to prevent sprouting. In addition, poor formed and damaged trees should be felled. Do not treat the stumps of desirable species with herbicide. If at all possible it would help esthetically to clean up the harvest tops and weed tree stems with firewood permits.



### **Stand 13: 8.2 acre**

#### ***Site Description -***

Bottomland along the river.

#### ***Woodland Description -***

Medium sized (12-18" dia.) walnut. The understory is walnut and Kentucky coffee tree.

#### ***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

### **Stand 14: 7.9 acre**

#### ***Site Description -***

Second bench floodplain.

#### ***Woodland Description-***

Medium sized (12-18" dia.) Walnut, honey locust and Kentucky coffee tree. The understory is elm, hackberry, Kentucky coffee tree, walnut, boxelder and honey locust. There is also some scattered mature honey locust, walnut, elm and ash.

#### ***Management Recommendations – Even age***

-Harvest scattered overstory to turn area into true even age stand.

-The areas need thinning now to provide more growing space for the desirable trees. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, hackberry, silver maple and cottonwood.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

### **Stand 15: 6.7 acres**

***Site Description*** –

Bottomland along the river.

***Woodland Description*** –

Medium sized (12-18" dia.) Walnut, hackberry, silver maple, ash and cottonwood. The understory is walnut, hackberry, boxelder, ash, bitternut hickory and a few hard maple. Some of the cottonwood, ash and silver maple are in the large size class.

***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

### **Stand 16: 5.5 acre**

***Site Description*** –

Bottomland along the river.

***Woodland Description*** –

Large sized (20" + dia.) Silver maple, ash, hackberry, walnut bur oak, boxelder and cottonwood. The understory is hackberry, boxelder, mulberry, and a few silver maple.

***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

### **Stand 17: 2.6 acres**

***Site Description*** –

Bottomland

***Woodland Description*** -

Large sized (20" + dia.) Silver maple, cottonwood and elm. The understory is hackberry, boxelder, silver maple and elm.

***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

## **Stand 18: 8.5 acres**

### ***Site Description -***

Upland on Lawler soil.

### ***Woodland Description -***

Medium sized (12-18" dia.) Bitternut hickory, black oak, red oak, honey locust, bur oak basswood, basswood, ash and aspen. The understory is honey locust, bitternut hickory, basswood, black oak, walnut, ironwood, elm, and cherry.

### ***Management Recommendations – Viewshed***

-If you want to improve this area you could go through and release the best trees throughout the stand. This practice is very low impact and should not change the way the stand looks.

This area could be thinning to provide more growing space for the desirable trees. Emphasis should be on providing optimum growing space for the young oak. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Species to favor as crop trees are oak, black walnut, cherry, hackberry, basswood and hard maple.

The trees to be removed can be felled or double girdled. No herbicide is necessary.

## **Stand 19: 5.9 acres**

### ***Site Description -***

Upland on Wapsie soil.

### ***Woodland Description –***

Medium sized (12-18" dia.) bitternut hickory with some ash and black oak. The understory consists of bitternut hickory, ash, ironwood and a few cherry. Since this stand is in a high use recreation area, any type of intensive management is not going to be acceptable.

### ***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

## **Stand 20: 1.7 acres**

### ***Site Description -***

Upland on Lawler soil

### ***Woodland Description -***

Large (20" + dia) scattered bur oak, black oak and white oak. The understory is elm, bitternut hickory, ironwood, basswood and ash. This stand is also in a high use recreation area.

One management option for this area is to weed out the undesirable species in the understory to make room for newly planted oak seedlings. This will be very visible to the public. If this option is chosen, I suggest that you use this site for forestry management programs.

***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

**Stand 21: 6.5 acres**

***Site Description -***

Upland on Riceville soil

***Woodland Description -***

Large (20" + dia.) Bur oak, black oak, ash, honey locust, Kentucky coffee tree, hackberry, cherry and aspen. The understory is elm, bitternut hickory, boxelder, ironwood, hackberry, Kentucky coffee tree and basswood. This stand is also in a high use recreation area.

***Management Recommendations – Viewshed***

-Since this stand is in a high use area and so visible, no management activities are recommended.

## **SUSTAINABLE FORESTRY GUIDELINES**

Sustainable forestry is managing a forest to maximize the distribution of age classes on the property, and insure there is a balanced distribution of tree sizes. With even age management, the acres of even age management divided by the rotation age is the allowable cut per year. The target rotation age for the area is 125 years. This insures that large oaks will always be present on the area.

***Even Age Management Area –***

There are 86.6 acres under even age management. Dividing 86.6 acres by 125 years, yields an allowable cut of 0.7 acres per year, or **3.5 acres every 5 years**.

***Uneven Age Management Area –***

Stands can be selectively harvested every 20 years to remove mature and defective trees. There are 62.6 acres under uneven age management. The allowable harvest is **5.6 acres of selective harvest every 5 years**.

## HIGH PRIORITY PROJECTS

### *Timber Stand Improvement – Crop Tree Release*

<u>Stand #</u>	<u>Acres</u>
1	26.8
3	5.6
4	10.3
6	2.5
7	8.4
14	7.9
Total	61.5

### *Timber Stand Improvement – Weed Tree Removal*

<u>Stand #</u>	<u>Acres</u>
10	44.5
Total	44.5

### *Even Age Overstory removal – 125 yr. rotation*

<u>Stand #</u>	<u>Acres</u>	<u>Prescription</u>
1	26.8	Sell merchantable trees to create an even aged, pole sized stand
3	5.6	“
4	10.3	“
6	2.5	“
7	8.4	“
14	7.9	“
9	3.8	Clearcut and plant
Total	65.3	

### *Selective Harvest – 20 yr. cycle*

<u>Stand #</u>	<u>Acres</u>	<u>Prescription</u>
10	44.5	Selectively harvest only the storm damaged and declining trees.

# APPENDIX

## Heery Woods State Park

### SUMMARY OF WOODLAND STANDS

No.	Acres	Timber Type	Tree Size	Mngt. System	Prescription	Priority	Year to Complete	Comments
1	26.8	Walnut Hackberry Locust	Pole	Even age	Remove overstory and CTR	High	2013	Commercial Sale
2	48.4	Silver maple Cottonwood Ash	Large	Viewshed				
3	5.6	Walnut Hackberry Oak	Pole	Even age	Remove overstory and CTR	High	2013	Commercial Sale
4	10.3	Walnut Hackberry Locust	Pole	Even age	Remove overstory and CTR	High	2008	Commercial Sale
5	1117	Silver maple Cottonwood Ash	Medium	Even age	Remove overstory and CTR	Low		
6	2.5	Walnut Hackberry Kentucky coffee	Pole	Even age	Remove overstory and CTR	High	2008	Commercial Sale
7	8.4	Walnut Hackberry Kentucky coffee	Pole	Even age	Remove overstory and CTR	High	2008	Commercial Sale
8	9.5	Silver maple Cottonwood Ash	Medium	Even age	Remove overstory and CTR	Low		
9	3.8	Red oak Bur oak Hackberry	Large	Even age	Clearcut	High	2008	Commercial Sale
10	44.5	Red Oak Walnut Hard maple	Large	Un even age	Selectively harvest	High	2013	Commercial Sale
11	4.3	Bur Oak	Large	Viewshed		Low		Could manage as a savanna
12	18.1	Walnut Locust Elm	Large	Un even age	Selectively harvest	Medium	2013	Commercial Sale

No.	Acres	Timber Type	Tree Size	Mngt. System	Prescription	Priority	Year Complete	Comments
13	8.2	Walnut	Medium	Viewshed				
14	7.9	Walnut Locust Coffee tree	Medium	Even age	Remove overstory and CTR	Medium		
15	6.7	Silver maple Cottonwood Ash	Large	Viewshed				
16	5.5	Silver maple Cottonwood Ash	Large	Viewshed				
17	2.6	Silver maple Cottonwood Ash	Large	Viewshed				
18	8.5	B. Hickory Black oak Locust	Medium	Viewshed				Could CTR
19	5.9	B. Hickory	Medium	Viewshed				Could create holes and plant
20	1.7	White Oak Black Oak Bur Oak	Large	Viewshed				Could weed and shelterwood
21	6.5	Bur Oak Black oak Ash	Large	Viewshed				Could burn and shelterwood

**Table 1. Forest Breeding Birds of Greatest Conservation Need in NE Iowa**

<b>Common Name</b>	<b>Scientific Name</b>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Peregrine falcon	<i>Falco peregrinus</i>
Ruffed grouse	<i>Bonasa umbellus</i>
American woodcock	<i>Scolopax minor</i>
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Long-eared owl	<i>Asio otus</i>
Whip-poor-will	<i>Caprimulgus vociferus</i>
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
Acadian flycatcher	<i>Empidonax virescens</i>
Willow flycatcher	<i>Empidonax traillii</i>
Least flycatcher	<i>Empidonax minimus</i>
Brown creeper	<i>Certhia americana</i>
Veery	<i>Catharus fuscescens</i>
Wood thrush	<i>Hylocichla mustelina</i>
Blue-winged warbler	<i>Vermivora pinus</i>
Cerulean warbler	<i>Dendroica cerulea</i>
Black-and-white warbler	<i>Mniotilta varia</i>
Prothonotary warbler	<i>Protonotaria citrea</i>
Worm-eating warbler	<i>Helmitheros vermivorus</i>
Louisiana waterthrush	<i>Seiurus motacilla</i>
Kentucky warbler	<i>Oporornis formosus</i>
Hooded warbler	<i>Wilsonia citrina</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>

**Table 2. Forest Migratory Birds of Greatest Conservation Need in NE Iowa**

<b>Common Name</b>	<b>Scientific Name</b>
Golden-winged warbler	<i>Vermivora chrysoptera</i>
Canada warbler	<i>Wilsonia canadensis</i>



**Table 3. Forest Mammals of Greatest Conservation Need in NE Iowa**

<b>Common Name</b>	<b>Scientific Name</b>
Northern myotis	<i>Myotis septentrionalis</i>
Red squirrel	<i>Tamiasciurus hudsonicus</i>
Woodland vole	<i>Microtus pinetorum</i>
Spotted skunk	<i>Spilogale putorius</i>
Southern Flying Squirrel	<i>Glaucomys volans</i>

**Table 4. Forest Reptiles and Amphibians of Greatest Conservation Need in NE Iowa**

<b>Common Name</b>	<b>Scientific Name</b>
Cricket Frog	<i>Acris crepitans</i>
Northern Prairie Skink	<i>Eumeces septentrionalis</i>
Bullsnake	<i>Pituophis catenifer sayi</i>
Timber Rattlesnake	<i>Crotalus horridus</i>

**Table 6. Forest Butterflies of Greatest Conservation Need in NE Iowa**

<b>Common Name</b>	<b>Scientific Name</b>
Pepper and Salt Skipper	<i>Amblyscirtes hegon</i>
Sleepy Duskywing	<i>Erynnis brizo</i>
Dreamy Duskywing	<i>Erynnis icelus</i>
Columbine Duskywing	<i>Erynnis lucilius</i>
Silvery Blue	<i>Glaucopsyche lygdamus</i>
Hickory Hairstreak	<i>Satyrium caryaevorum</i>
Edward's Hairstreak	<i>Satyrium edwardsii</i>
Striped Hairstreak	<i>Satyrium liparops</i>

## FWSP DEFINITIONS AND GUIDING FACTORS

***Upland Forest Wildlife*** – Representative tree species include oak, hickory, hard maple, cherry, elm, walnut, ash, and red cedar. This habitat factor will provide habitat for wildlife such as ruffed grouse, woodcock, songbirds and woodpeckers, deer, turkey, raptors, owls, squirrels, and associated furbearing predators.

***Floodplain Forest Wildlife*** –Characterized by species such as silver maple, cottonwood, walnut, green ash, elm, hackberry and willows. This habitat factor will benefit wildlife such as songbirds and woodpeckers, furbearers, raptors, reptiles and amphibians on relatively level areas inundated by water from time to time.

***Woodland Edge*** – An area of habitat transition that consists of vegetation (herbaceous and woody) of different heights and densities. This habitat factor will favor early successional vegetation for wildlife benefiting from edge cover.

***Conifer/Wildlife Plantation*** – A conifer or tree/shrub planting designed for wildlife habitat. This habitat factor will provide nesting sites, food and cover for wildlife. Conifers are also important to wildlife during the winter providing thermal benefits and areas of decreased snow depths.

***Restoration*** – A new planting of seedlings, direct seeding, or regeneration of roots. This habitat factor will create new forest habitat that will be of higher quality for wildlife.

***Conversion*** – An existing shade tolerant forest stand converted to nut and fruit bearing species of trees and shrubs to provide more food and cover. This habitat factor is a timber stand improvement increasing the forest quality. It will begin forest succession from early stages to old growth.

***Riparian Buffer*** – Woodland next to streams, lakes, and wetlands that is managed to enhance and protect aquatic resources from adjacent fields. This habitat factor will provide a woody cover buffer to enhance soil and water conservation while providing wildlife habitat.

***Old Growth*** – Natural forests that have developed over a long period of time, generally at least 120 years, without experiencing severe, stand-replacing disturbance---a fire, windstorm, or logging. This habitat factor will provide necessary wildlife habitat for species requiring mature woodlands.

***Viewshed*** – A physiographic area composed of land, water, biotic, and cultural elements which may be viewed from one or more viewpoints and which has inherent scenic qualities and/or aesthetic values as determined by those who view it. Viewshed is a habitat factor that will be primarily a “hands-off” area for aesthetics, proper soil and water conservation, along with providing special wildlife habitats.

***Unique Natural Sites*** – Sites that contain unusual or rare natural components that should be preserved for their unique characteristics, such as algal slopes. This habitat factor will identify these uncommon sites for management considerations.

***Preserve Status*** – An area of land or water formally dedicated for maintenance as nearly as possible in its natural condition though it need not be completely primeval in character at the time of dedication or an area which has floral, fauna, geological, archeological, scenic, or historic features of scientific or educational value. This habitat factor will recognize the quality of preserve sites and apply proper maintenance to protect its integrity.

***Recreation*** – Leisure activities involving the enjoyment and use of natural resources. This habitat factor will favor hunting activities while taking into consideration secondary activities such as wildlife watching, mushroom picking, photography, and hiking.

***Special Restrictions*** – Certain limitations or conditions on the use or enjoyment of a natural resource area. This habitat factor will take into consideration these limitations or conditions to select proper management.

## **EXPLANATION OF TIMBER MANAGEMENT PRACTICES:**

### **Timber Stand Improvement:**

Timber stand improvement (TSI) is the removal of undesirable or low value trees. Removing these unwanted trees will provide more space and sunlight for desirable trees to grow. Timber stand improvement is a “weeding” to increase the growth of your forest.

### ***Weed Tree Removal-***

In older timber, the undesirable species can be killed to encourage the natural reseeding of desirable species. The removal of the “weed” trees allows sunlight to reach the ground so that seedlings can become established. The undesirable species can be killed standing by cutting flaps in the trunk and applying Tordon RTU or Pathway into the cuts. The cuts must be in a circle around the trunk and overlapping. The trees can also be cut off and the stumps treated with Tordon RTU or Pathway to prevent resprouting. Wet the outer rim of freshly cut stumps. The work can be done anytime except spring during heavy sap flow.

Desirable trees that are poor formed or damaged should also be removed. These trees should not be treated with herbicide. The stumps will resprout and produce another tree. Cut the stumps close to the ground so that the sprout will originate near the ground.

### ***Crop-Tree Release-***

In pole-sized stands (4-10” dia.), potential crop trees can be selected and released. At maturity, there is room for 35-50 trees per acre. Now you can select the trees you want to comprise your future stand of mature trees and thin around them to give them more growing space. Select a crop tree every 30-35 ft. apart. Remove trees with crowns that are touching or overtopping the crowns of your crop trees. Crop trees can be selected based on criteria that meet your objectives. Normally, the crop trees will be a desirable species, show good form without large side limbs, and be free of major defects. Species normally favored are black walnut, red oak, white oak, white ash, basswood, cherry, and hard maple.

### ***Walnut Pruning-***

Walnut trees that are 2-12” in diameter can be pruned to promote veneer quality trees. You should prune during the dormant season. Limbs less than 1 inch in diameter are providing foliage which produces food for the tree and should be left. When the limbs approach 1 1/2 to 2” in diameter, they should be removed. Do not remove over 1/3 of the live crown in any one year. At least 50% of the total height of the tree should be maintained in live crown.

## **Harvest:**

### ***Uneven-Age Management:***

Uneven-age management can be implemented to manage shade tolerant species. The timber is selectively harvested to remove mature, damaged, and defective trees. Because large trees are always present in the timber, only species that can grow in the shade can reproduce. Hard maple and basswood can be managed on an uneven-age system of management. Uneven-age management involves maintaining a good distribution of all tree sizes in your timber. It is critical that following a selective harvest, the smaller trees are thinned to remove the trees damaged by logging, poor formed trees, and low value species. The thinning following the harvest insures that you have high quality trees ready to replace the older trees as they are harvested.

### ***Even-Age Management:***

Even-age management involves a clearcut at some point in the stands rotation. Clearcutting creates full sunlight to the ground. All trees 2" and larger in diameter are felled. Oak, ash, hickory, and walnut require full sunlight to grow. Even-age management must be applied to successively manage these species. Clearcutting creates stands of trees all the same age. The trees compete equally for sunlight and are forced to grow straight and tall, resulting in high quality timber. Clearcutting also provides excellent browse and cover for wildlife.

### ***Shelterwood:***

Shelterwood is a form of even-age management. The final cut is a clearcut, but several thinnings are done prior to the final cut. The large, healthy trees are left to provide seed for naturally reseeding the stand, and to create partial shade to inhibit the growth of weeds and brush until the desirable seedlings are well established. The final cut or clearcut is normally done when there are a sufficient number of desirable trees that are 3-5 ft. tall.

The first thinning can be a killing of the undesirable species such as ironwood, elm, bitternut hickory, and boxelder. This removes the seed source for the undesirable species and opens up the ground to sunlight.

The mature and defective trees can be harvested if additional sunlight is needed for the development of desirable seedlings. The harvest should be light, removing the trees that are deteriorating and leaving the high quality trees for seed.

The shelterwood system can take many years to develop a good stocking of desirable young trees. You may have to kill the undesirable species several times to favor the species you want. The final clearcut should not be made until you are satisfied with the stocking of desirable young trees.

**MANAGEMENT AGREEMENT**  
Heery Woods State Park  
Butler County

THIS AGREEMENT made and entered into this 3 day of March, 1988, by and between the State Department of Natural Resources, Party of the First Part, and the Board of Supervisors of Butler County, Iowa, Party of the Second Part.

WHEREAS, the State Department of Natural Resources and Butler County have jointly determined that it is in the public interest to transfer the care and maintenance of certain lands in Butler County, Iowa, locally known as Heery Woods State Park, containing 394.23 acres, more or less and more particularly described to-wit:

Land situated in Sections 18 and 19, Township 92 North, Range 15 West of the 5th P.M., and Sections 13 and 24, Township 92 North, Range 16 West of the 5th P.M., Butler County, Iowa, described by sections as follows:

Section 19-92-15

The Northwest Quarter of the Northwest Quarter (NW 1/4 NW 1/4) and the Northeast Quarter of the Northwest Quarter (NE 1/4 SW 1/4), lying west of State Highway 188, the South Half of the Northwest Quarter (S 1/2 NW 1/4), the West Half of the Southeast Quarter of the Northeast Quarter (W 1/2 SE 1/4 NE 1/4) and the Southwest Quarter of the Northeast Quarter (SW 1/4 NE 1/4) south of the north bank of the Shell Rock River, the Northwest Quarter of the Southwest Quarter (NW 1/4 SW 1/4) and the Northeast Quarter of the Southwest Quarter (NE 1/4 SW 1/4) north of the south line of road.

Section 18-92-15

The Southwest Quarter of the Southwest Quarter (SW 1/4 SW 1/4) lying south and west of the railroad right-of-way, except the north 1100.00 feet of the west 110.00 feet.

Section 13-92-16

Lots 1 and 2 of the Northwest Quarter of the Southeast Quarter (NW 1/4 SE 1/4), Lots 1, 2, 3, 4, 5 and 6 of the Northeast Quarter of the Southwest Quarter (NE 1/4 SW 1/4), the Southwest Quarter of the Southeast Quarter (SW 1/4 SE 1/4), the Southeast Quarter of the Southeast Quarter (SW 1/4 SE 1/4), except the north 1100.00 feet of the east 720.00 feet.

Section 24-92-16

The Northwest Quarter of the Northeast Quarter (NW 1/4 NE 1/4) lying north of the Shell Rock River, the East Half of the Northeast Quarter (E 1/2 NE 1/4), except the west 10 acres of the Shell Rock River.

The above-described property contains 394.23 acres, more or less.

WHEREAS, this agreement is being entered into by both parties under the joint authorities of 111.27 and 111A.7 of the 1987 Code of Iowa.

WHEREAS, both of the parties hereto believe that it would be to the best interest of the people of the State of Iowa and of Butler County that the care and maintenance of said property be transferred by the State Department of Natural Resources to Butler County.

NOW THEREFORE, THIS AGREEMENT,

WITNESSETH:

1. Pursuant to the provisions of Section 111.27 and 111A.7 Code of 1987, it is mutually agreed by the parties hereto that Butler County shall undertake the development, care and maintenance of certain state-owned lands in Butler County described above under the following terms and conditions.
  - (a) This agreement will become effective on the 3 day of March, 1988, and continue in full force and effect to and including the 31st day of December, 2013.
  - (b) Butler County agrees to hold harmless and indemnify the State of Iowa and the State Department of Natural Resources from any and all claims, demands, losses, liabilities or legal expenses which might arise on account of injury to any person or damage to any property occurring in connection with the care and management by Butler County of the above-described premises except Butler County will not assume any responsibility for the acts or omissions of the State of Iowa or its agents.
  - (c) Butler County agrees to develop, care and maintain said property as an access area for the citizens thereof and for the people of the State of Iowa in substantially the same manner as state park areas are developed, cared for, maintained and managed by the State Department of Natural Resources. Any new fences and all fence maintenance shall be the responsibility of Butler County.
  - (d) All laws, rules, and regulations applying to the use of state park areas under the jurisdiction of the State Department of Natural Resources shall apply to this property insofar as possible, taking into account the terms of this agreement.
  - (e) The State Department of Natural Resources reserves the right to enter upon the premises at any time for any purpose in connection with programs of the State Department of Natural Resources and temporarily use the area in such manner as to not materially interfere with the use of the area by Butler County.
  - (f) No trees or other vegetation may be removed or other natural features of the area disturbed without permission of the State Department of Natural Resources.
  - (g) No improvements are to be made to the area until the development plans for such improvements have been submitted to and approved in writing by

the State Department of Natural Resources. All approved development shall be the express responsibility of Butler County.

- (h) No commercial use may be made of the area. Butler County may conduct agricultural operations for the benefit of wildlife, and forest harvest may be conducted with the written approval of the State Department of Natural Resources. Any incidental receipts shall be retained by Butler County.
  - (i) Upon expiration of this agreement, it may be renewed or the property is to be returned to the State Department of Natural Resources in the same general condition as it was at the time of the commencement of this agreement, except for changes caused by an Act of God or by development approved by the State Department of Natural Resources. Any structures or facilities constructed by and paid for by Butler County during the term of this agreement may be removed and retained by the county at the expiration of this agreement.
  - (j) All State Department of Natural Resources signs -- directional, area name, or regulation -- shall remain in place. Butler County may add additional signs as they may deem necessary.
  - (k) All picnic tables, grills, trash receptacles and buildings transferred with the original agreement as well as the tractor and mower originally owned by the state may be renovated or removed from this tract at the discretion of Butler County.
2. Nothing in this agreement shall obligate or bind either party to the expenditure of funds in excess of funds available to each party.
  3. Nothing in this agreement shall deny the right of the public to enter upon and use the area for any lawful purpose whatsoever.
  4. It is agreed that, during the use of Heery Woods State Park, Butler County will not exclude anyone from participation in, deny anyone the benefits of, or otherwise subject anyone to discrimination because of the person's race, color, national origin, age or handicap.
  5. This agreement may be terminated upon 30 days' written notice to either party should it be determined that either party is failing to comply with the terms of the agreement.



This agreement entered into under the authority of a resolution adopted at the regular meeting of the Butler County Conservation Board on the 18<sup>th</sup> day of JANUARY, 1988, all as shown in the minutes thereof.

COUNTY CONSERVATION BOARD  
BUTLER COUNTY, IOWA

By Roy Edeker  
President

This agreement entered into under the authority of a resolution adopted at the regular meeting of the Board of Supervisors of Butler County, Iowa on the 18<sup>th</sup> day of JANUARY, 1988, all as shown in the minutes thereof.

BOARD OF SUPERVISORS  
BUTLER COUNTY, IOWA

By Neal Wedeking  
Chairman

This agreement entered into under the authority of a resolution adopted at the regular meeting of the State Department of Natural Resources on the 3 day of March, 1988, all as shown in the minutes thereof.

STATE DEPARTMENT OF NATURAL RESOURCES

By Larry Johnson  
Director

(31B.CI/sc)