FOREST WILDLIFE STEWARDSHIP PLAN

FOR

UPPER IOWA RIVER AREA

LORAS COLLEGE, MALLI, SEEGMILLER, AND WIKAN TRACTS

A plan that will increase the diversity of forest wildlife and prioritize species of greatest conservation need.

Developed by

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District Forester

And

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Wildlife Biologist

TABLE OF CONTENTS

HOW THE FOREST WILDLIFE STEWARDSHIP PLAN WAS DEVELOPED

The Wildlife Biologist is the manager of the area and determines the objectives for each wildlife area. Objectives address the habitat needs of Species of Greatest Conservation Need determined by the wildlife action plan and the woodland condition of each area. Seventy five per cent of the total area managed by the Wildlife Bureau in northeast Iowa is woodland. Managing woodland is essential to improve the areas for wildlife and recreation.

Management of wildlife areas is a cooperative effort by the wildlife and forestry bureaus to enhance state owned areas for a diversity of wildlife species. The property is walked by the biologist and forester. Stands are identified by tree species, tree size, topography, and management system. The biologist and forester discuss the options for each stand and how management of that stand will fit into the overall management for the area. Forester recommendations are designed to manage the stand to reach the goals and objectives of the biologist.

The Wildlife Biologist is the manager of the wildlife area. Foresters are assisting the Wildlife Bureau to implement woodland management practices.

One of four management systems are 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 **-**

Areas are clearcut every 15 years to maintain young, high stem density habitat. These areas are generally on the woodland edges to feather the edge.

Even Age **-**

Shade intolerant species such as oak, shagbark hickory, 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. Clearcutting also creates early successional habitat for the first 15 years.

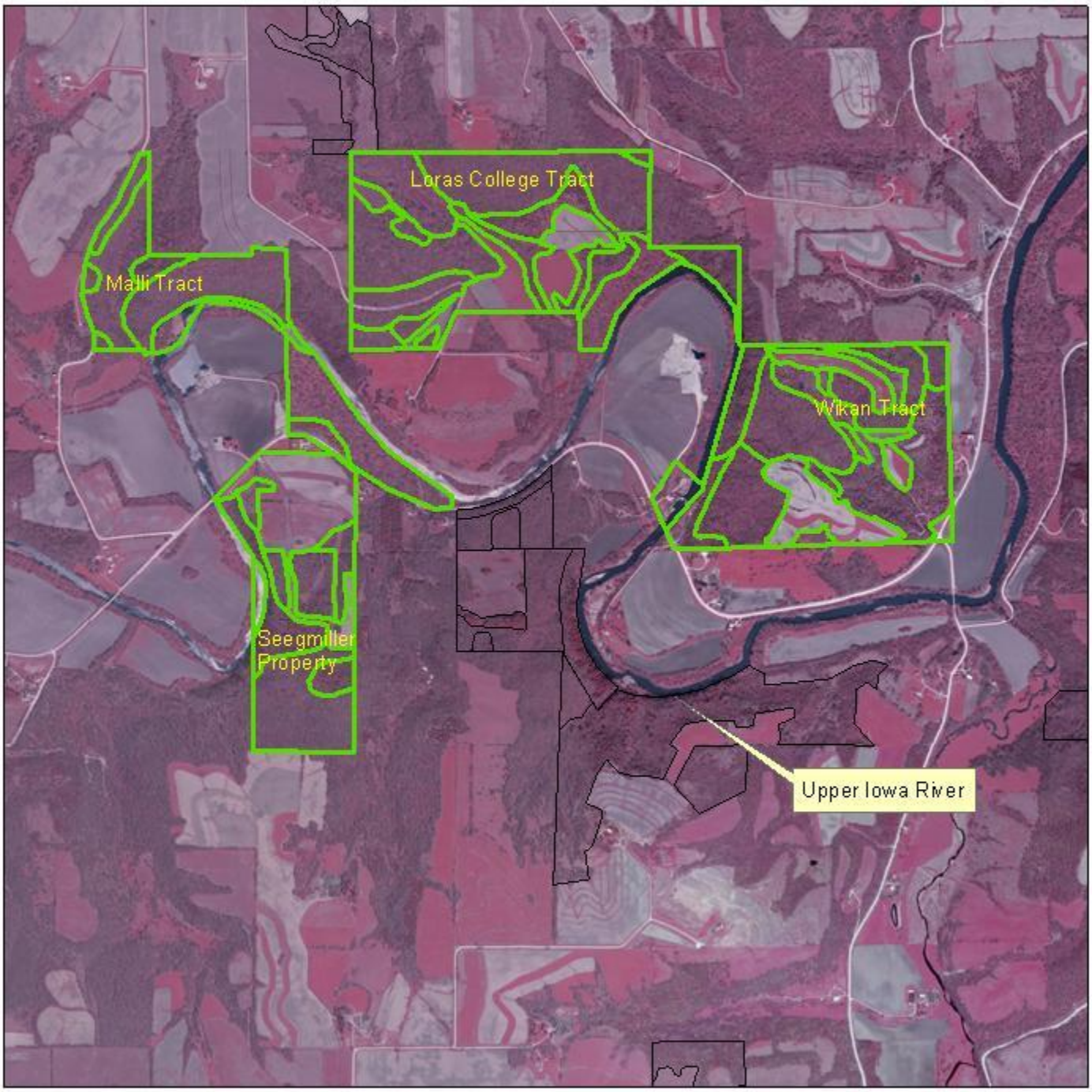
Uneven Age **-**

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.

Viewshed **-**

These are steep slopes and buffers along the streams and rivers where management will be minimal.

FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA RIVER WILDLIFE AREA



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T98N-R7W, Winneshiek Co.

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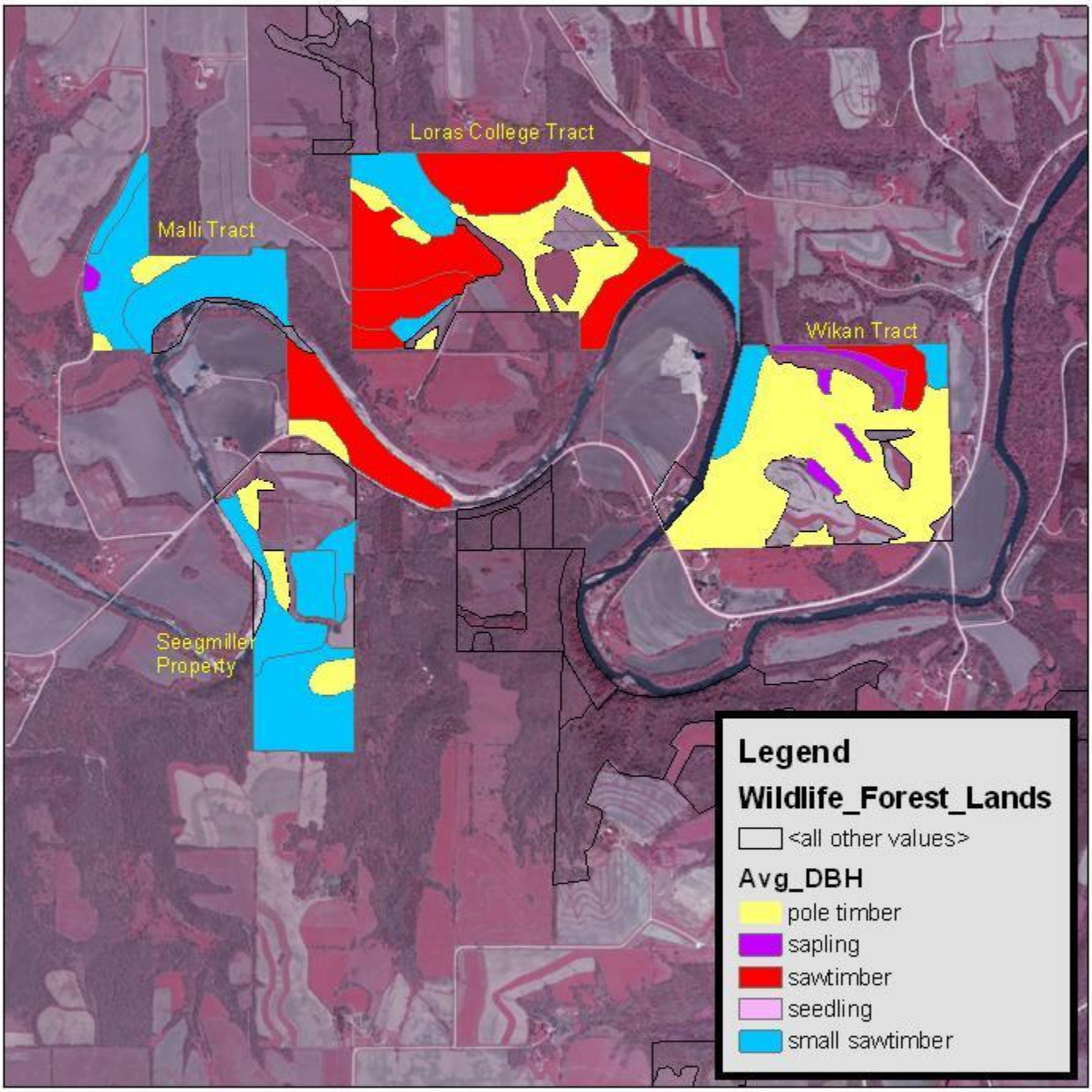
FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA RIVER WILDLIFE
AVERAGE TREE SIZE



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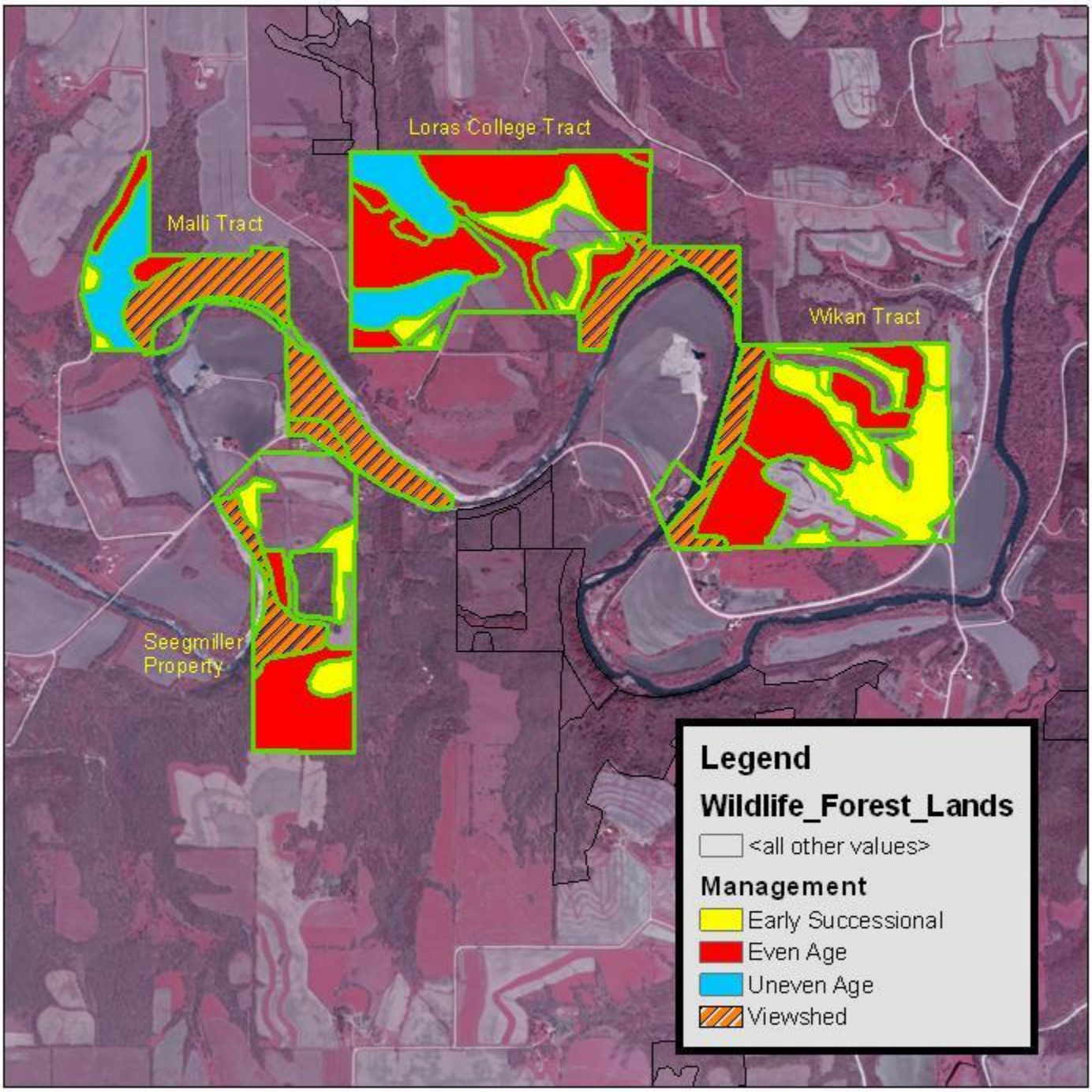
FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA WILDLIFE AREA
MANAGEMENT SYSTEMS



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T98N-R7W, Winneshiek Co.

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DATE: 12/15/08

FOREST WILDLIFE STEWARDSHIP PLAN FOR UPPER IOWA RIVER AREA

MANAGER:

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Decorah, Iowa 52101

TELEPHONE: 563/382-4895

LOCATION: Sec. 5,7,8, and 9 Glenwood Twsp., T98N-R7W, Winneshiek Co.

TOTAL ACRES: 523.5

INTRODUCTION

In Iowa, the Department of Natural Resources (IDNR) is the government agency responsible for the stewardship of indigenous and migratory wildlife species found in the state. Many of these species live near and in IDNR Wildlife Management Area (WMA) forests. Forests are a relatively slow-changing landscape with some stands reaching maturity after a period of 100 years. This time span may extend through the careers of several wildlife managers. The longevity factor emphasizes the need for a Forest Wildlife Stewardship Plans (FWSP) in order to wisely manage our WMA forests.

The forest can be managed to improve the forest ecosystem for wildlife species. The method in which the forest is managed effects what wildlife species will use a particular area at any point in time as the forest changes. Forests on state land are also a renewable resource that are owned by the public. Properly managed, these forests can provide multiple benefits such as wildlife habitat, water quality, air quality, recreation, and are a good investment for the people of Iowa.

There are 3 primary factors emphasizing the need for FWSP's for WMA's:

1) The continued succession of many forest stands past the oak-hickory stage to the shade tolerant stands of maple and basswood.
2) The loss of early successional forest stands and associated wildlife species.
3) The lack of proper management to secure mature forest stands with proper overstory and understory tree species for associated forest-interior wildlife species.

Some wildlife species use all of the forest age classes but others have very specific needs where one or two of particular forest age classes are needed to survive. Although the over-all change in forest succession is relatively slow, changes in the early stages of forest succession occur relatively fast. For example, some populations of indigenous and migratory bird species, dependent on these short-lived forest age classes, are experiencing dramatic declines.

In Iowa, they include the ruffed grouse and the American woodcock. Nation-wide declines of both species have been detected. Many migratory non-game birds including the gold-winged warbler, blue-winged warbler, black-billed cuckoo, yellow-billed cuckoo and eastern towhee are also dependent on this early stage of forest growth. Each of these species is showing populations declines.

Conversely, some species of Neotropical migratory birds are dependent upon mature, undisturbed woodlands. The Acadian flycatcher, Cerulean warbler, and the veery are some examples of bird species needing mature forests. Management objectives will attempt to either protect these types of sites or include needed management to secure these necessary habitats for the future.

The IDNR Wildlife Bureau's Wildlife Action Plan, identifies all of the above species and others as species of greatest conservation needs. (Appendix – Tables 1-6).

Generally, the Wildlife Bureau manages state-owned forest for the greatest diversity of forest wildlife and esthetic value. The IDNR Wildlife Bureau's FWSP will prioritize the species of greatest conservation needs, and the habitat needs of these wildlife species will be guiding factors to forest management decisions. Evaluations will be conducted to monitor the success of these management decisions. Wildlife inventories will be conducted on each WMA and the information will be entered into a database. This database along with the "FWSP Definitions and Guiding Factors"(Appendix) will be used to make forest management decisions on the WMA's now and in the future. The Forest Wildlife Stewardship Plan is dynamic and will change and be updated as new information and techniques become available. The primary goal will be to maintain or increase populations of wildlife species of greatest conservation needs.

DESCRIPTION OF AREA

This plan addresses four tracts in the Upper Iowa River Area. The areas in this plan are –

Loras College Tract – 187 acres woodland
Malli Tract – 102.5 acres woodland
Seegmiller – 81 acres woodland
Wikan Tract – 153 acres woodland

The areas are all within 1 1/2 miles of each other and have the Upper Iowa River bordering each tract. The properties have steep slopes along the river and gentle sloping uplands with a mixture of woodland, grassland, and cropland. Due to the close proximity of the areas, they will be managed as a complex. It will be critical for management on private land to complement the management of the state wildlife properties.

The areas are readily accessible from gravel roads and used extensively by hunters, hikers, and folks simply enjoying the outdoors.

Objectives -

The primary objectives for the area are improving wildlife habitat for a variety of wildlife species, recreation, water quality, and protecting endangered species. This Forest Wildlife Stewardship Plan strives to develop a forest ecosystem that has a diversity of tree sizes and species. Developing a diverse forest will benefit the widest variety of wildlife species. Wildlife species have diverse habitat requirements. Even on a Wildlife Management Area, what is productive habitat for one species may be unproductive for another.

Ruffed grouse, woodcock, and Eastern Towhee populations in northeast Iowa are declining due to a lack of early successional growth. Neotropical migratory birds dependent on early successional growth are also declining. The Loras College Tract, Seegmiller Property, and Wikan Tract have many field edges and ridge tops conducive to intensive management that will be managed for early successional habitat, and even aged management to regenerate oak. There are not large blocks of woodland present that would provide suitable habitat for interior migratory bird species. Therefore, the major emphasis on the area is for early successional species and to maintain a good oak component on the landscape.

The Malli Tract is very steep and will be managed mainly as viewshed and uneven age management to maintain a larger block of older trees.

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, and cut the early successional cuts. Harvesting is a very minimal portion of this plan. The majority of work recommended is to thin young stands so that the oak is not shaded out by other trees, remove undesirable species to encourage natural regeneration of desirable trees, complete the early successional work, and tree planting.

Current Distribution of Tree Size on the Area -

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

Tree Size	**Acres**	**% of Total Area**
Sapling (<4" dbh)	12.5	2
Pole size (5-12" dbh.)	178	34
Medium Size (14-18" dbh.)	176	34
Large (>20" dbh)	157	30
Totals	523.5	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, improve water quality in the Upper Iowa River, and increase the acres of early successional growth.

Based on my recommendations for the Upper Iowa River Area, the acres under each management system are as follows -

Management System	**Acres**	**% of Total Area**
Early Successional	101.5	20
Even Age	222	42
Uneven Age	58	11
Viewshed	131	25
Total	523.5	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.

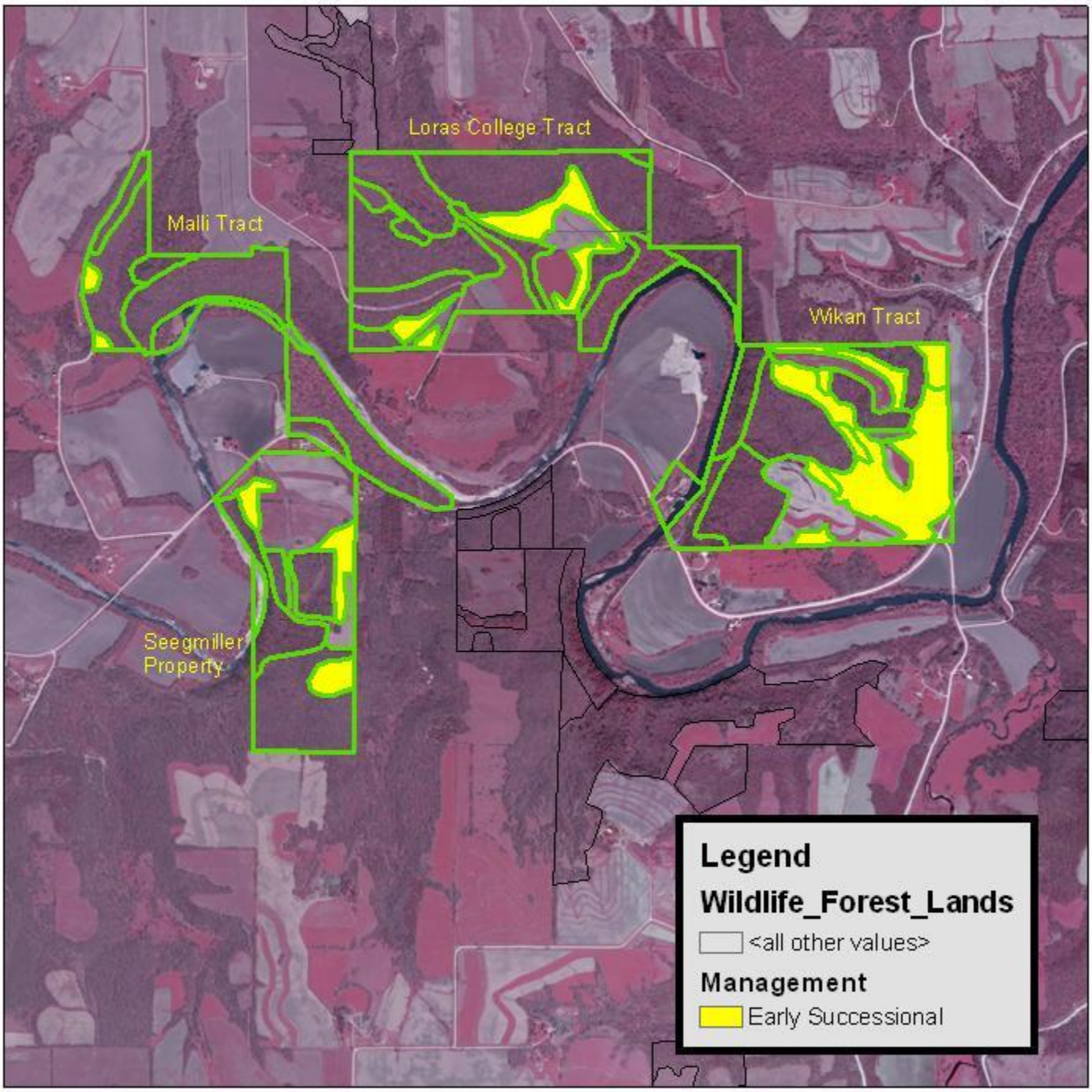
The majority of early successional management is on the woodland edges and aspen stands. This work will "feather" the edges and make a gradual transition from the field edges to the larger trees. Feathering or softening the edges results in less nest parasitism of interior forest bird species by brown-headed 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. Big tooth aspen will grow to 16-20" in diameter, but small tooth aspen generally begins to die at 14-16" in diameter. Ideally, 1/3 of the aspen would be 1-2 inches in diameter, 1/3 of the trees 3-4 inches in diameter and 1/3 of the aspen 5-8 inches in diameter.

The early successional management areas will be managed on a 15 year rotation. In other words, every 15 years the area will be cut to rejuvenate the aspen and create areas with high stem density.

The Upper Iowa River Area has 101.5 acres scheduled for early successional management. Applying sustainable forestry guidelines, 34 acres could be cut every 5 years to maximize the diversity of tree sizes.

FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA RIVER WILDLIFE AREA
EARLY SUCCESSIONAL MANAGEMENT - 101.5 AC.



Sec. 5, 7, 8, & 9 Glenwood Twsp.,
T98N-R7W, Winneshiek Co.

0 900 1,800 3,600 5,400 7,200 Feet

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Even Age Management -

Even age management is essential for wildlife species depending on oak/hickory forests. Oak acorns (mast) are at the top of the food list for many species of wildlife. In the absence of even age management techniques, the oak forests in Iowa will eventually be lost. 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 (1-15 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 woody debris on the forest floor provides habitat for amphibians and reptiles. Clearcutting 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 clearcuttting and planting, clearcutting with regeneration already established, or a shelterwood system to develop desirable seedlings on the ground.

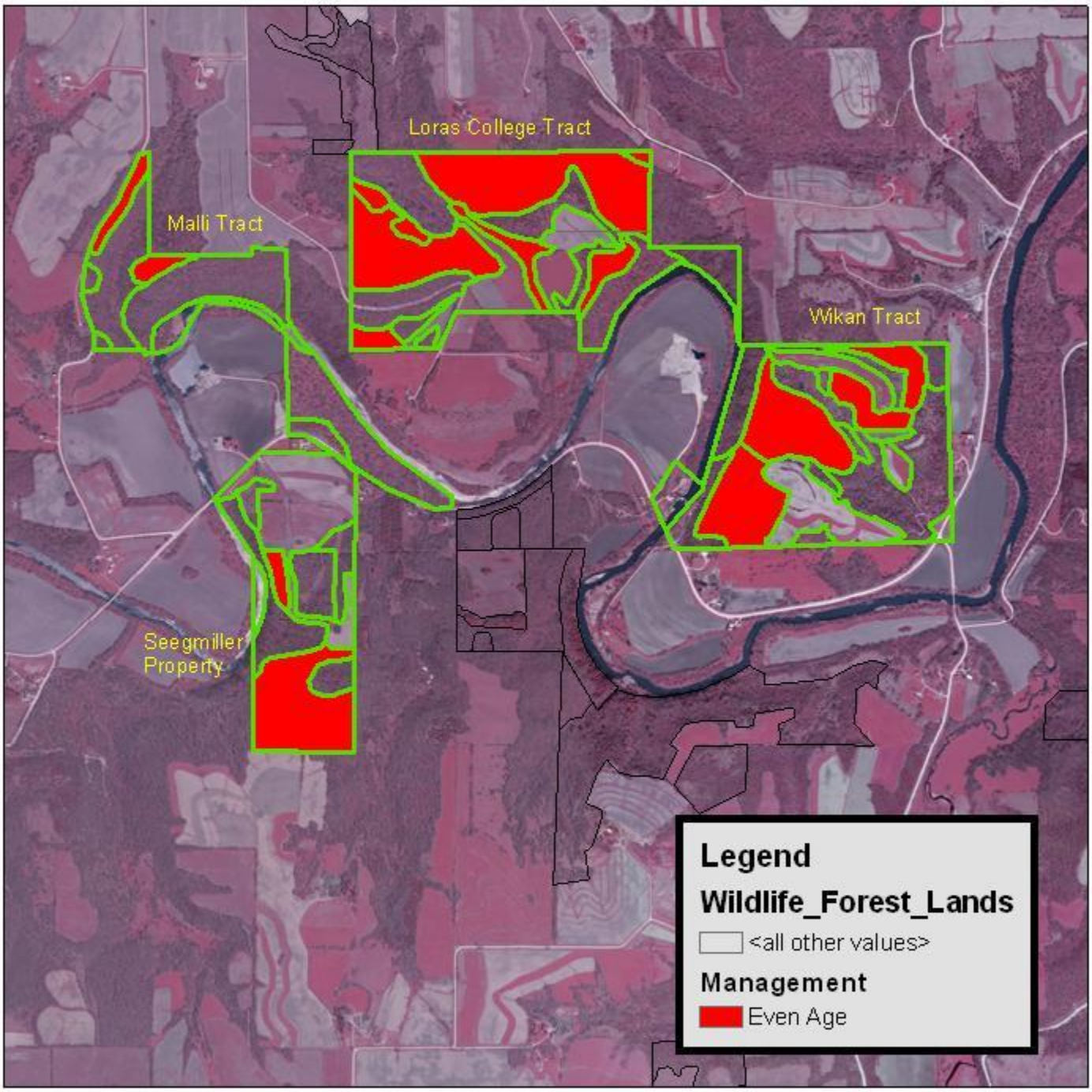
Shelterwood is a form of even-age management. The final cut is a clearcut, but several thinnings are done prior to the final cut. The large, healthy trees are left to provide seed for naturally reseeding the stand, and to create partial shade to inhibit the growth of weeds and brush until the desirable 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 stands 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 222 acres of even aged management planned for the Upper Iowa River Area, or 42% of the wooded area.

FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA RIVER WILDLIFE AREA
EVEN AGE MANAGEMENT - 222 AC.



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Uneven Age Management -

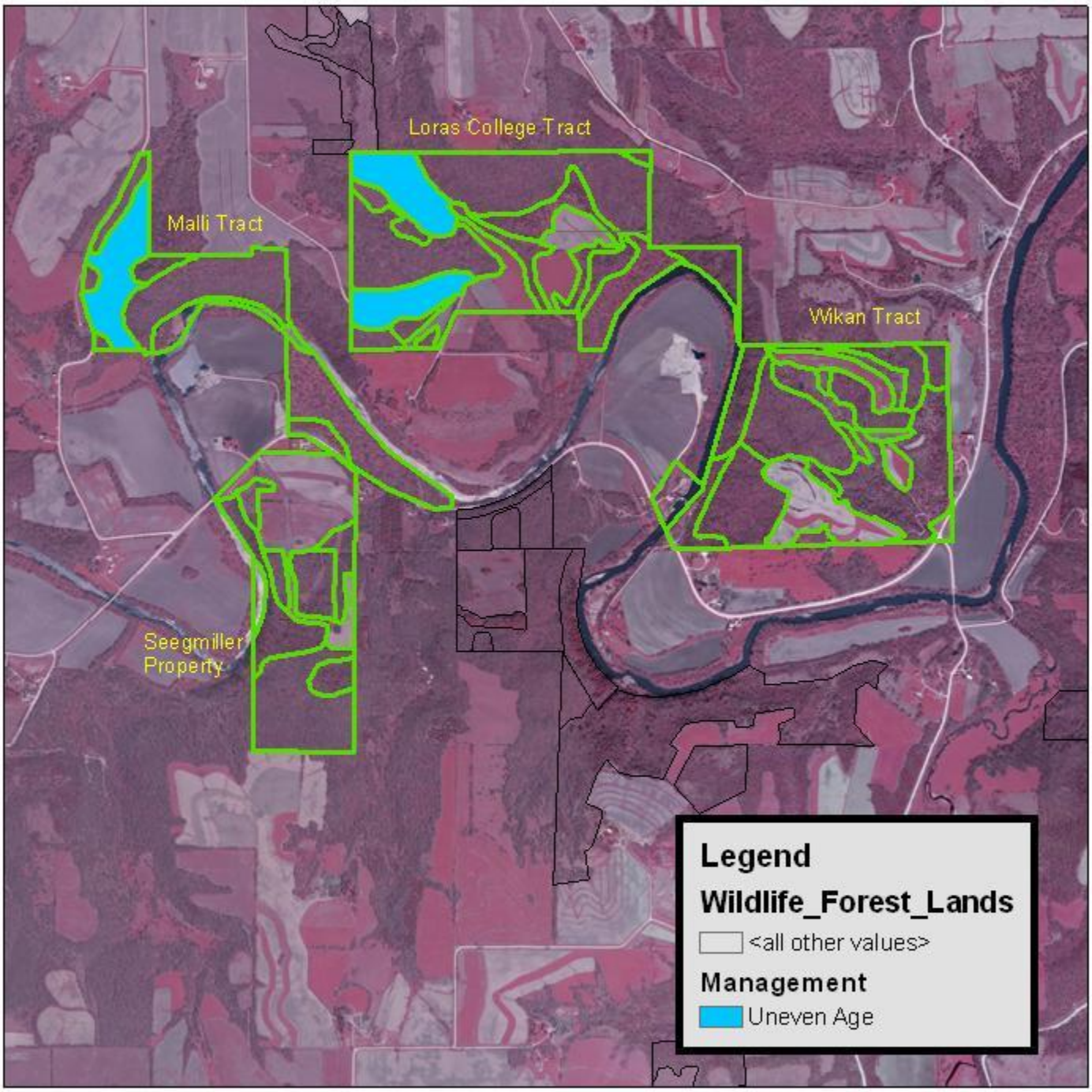
Uneven age management develops a stand of trees with all tree sizes represented. The stand structure is developed by selectively harvesting mature and defective trees, and removing unwanted small trees that are damaged or defective. Because uneven age stands always have large trees present, this system 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 infrequent 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. Large oaks that are healthy will be left to provide acorns for many wildlife species. Timber stand improvement and selective harvesting will create woody debris on the forest floor for reptiles and amphibians.

There are 58 acres scheduled for uneven age management on the steep slopes and along gravel roads and around parking lots.

FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA RIVER WILDLIFE AREA
UNEVEN AGE MANAGEMENT - 58 AC.



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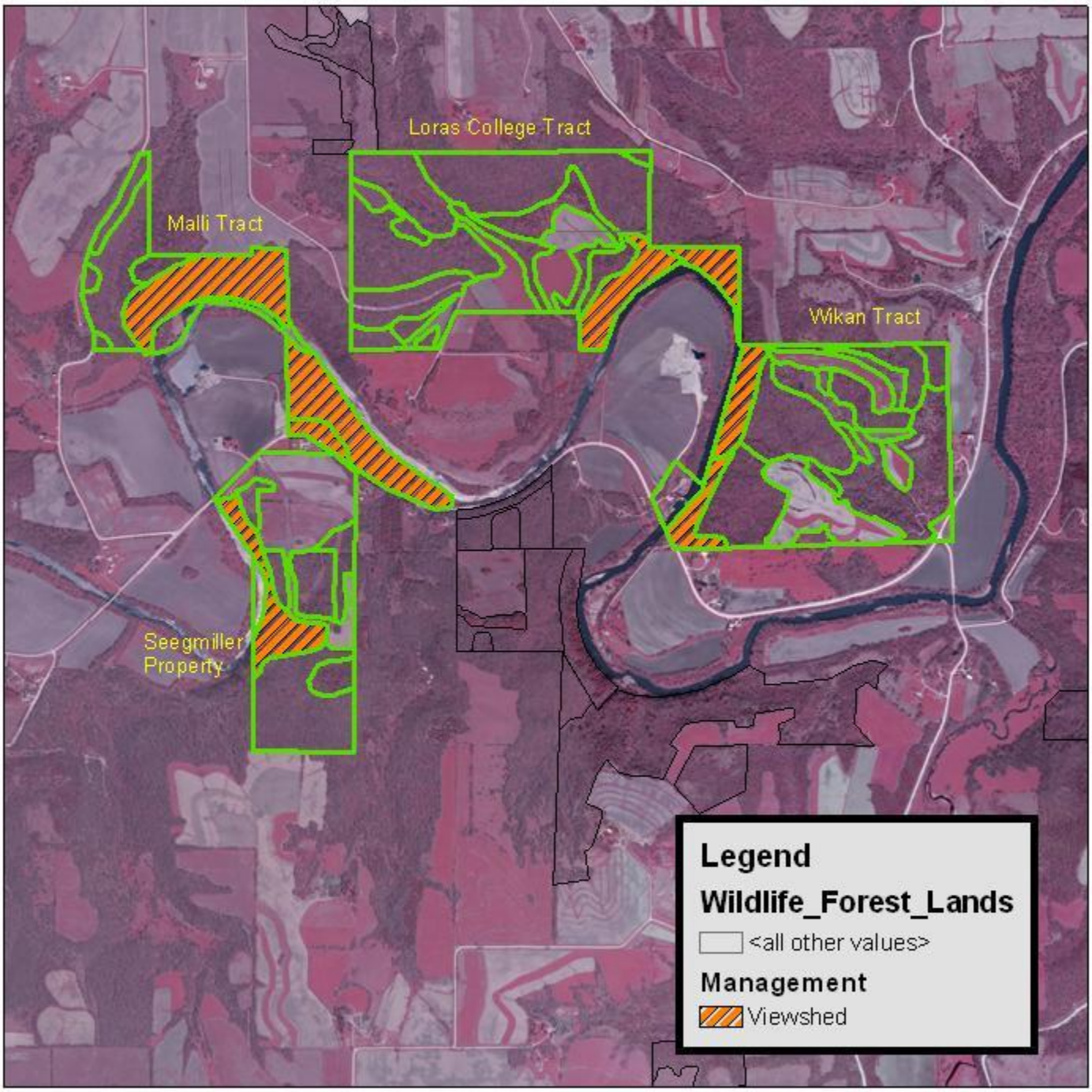
Viewshed Management -

Viewshed areas are typically steep slopes 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 to improve the health and species composition of the forest, and to enhance the area for endangered species, but the major objective is to have minor disturbance.

Many neotropical birds will benefit greatly from the areas designated as viewshed. Algific slopes and maderate slopes will be under viewshed management which will protect 8 species of land snails listed as species of greatest conservation need.

There are 131 acres of viewshed management on the area, or 25% of the wooded areas. Viewshed management is recommended to protect the fragile slopes and floodplain along the Upper Iowa River.

FOREST WILDLIFE STEWARDSHIP PLAN
FOR UPPER IOWA WILDLIFE AREA
VIEWSHED MANAGEMENT - 131 AC.



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SOILS

The steep slopes have shallow soils over limestone. There are limestone outcrops on the steep slopes along the river.

The gentle slopes and ridge tops have Fayette, Palsgrove, and Dubuque silt loams. These soils are well drained, fertile loams. These are good sites for upland hardwood trees such as red oak, white oak, bur oak, walnut, hard maple, basswood, and cherry.

The bottomland has Caneek and Dorchester silt loams. These soils are somewhat poorly drained and subject to frequent flooding. The Upper Iowa did extreme damage to bottomland areas that were not wooded in 2008. Maintaining a good tree buffer along the Upper Iowa River is important to control erosion along the river.

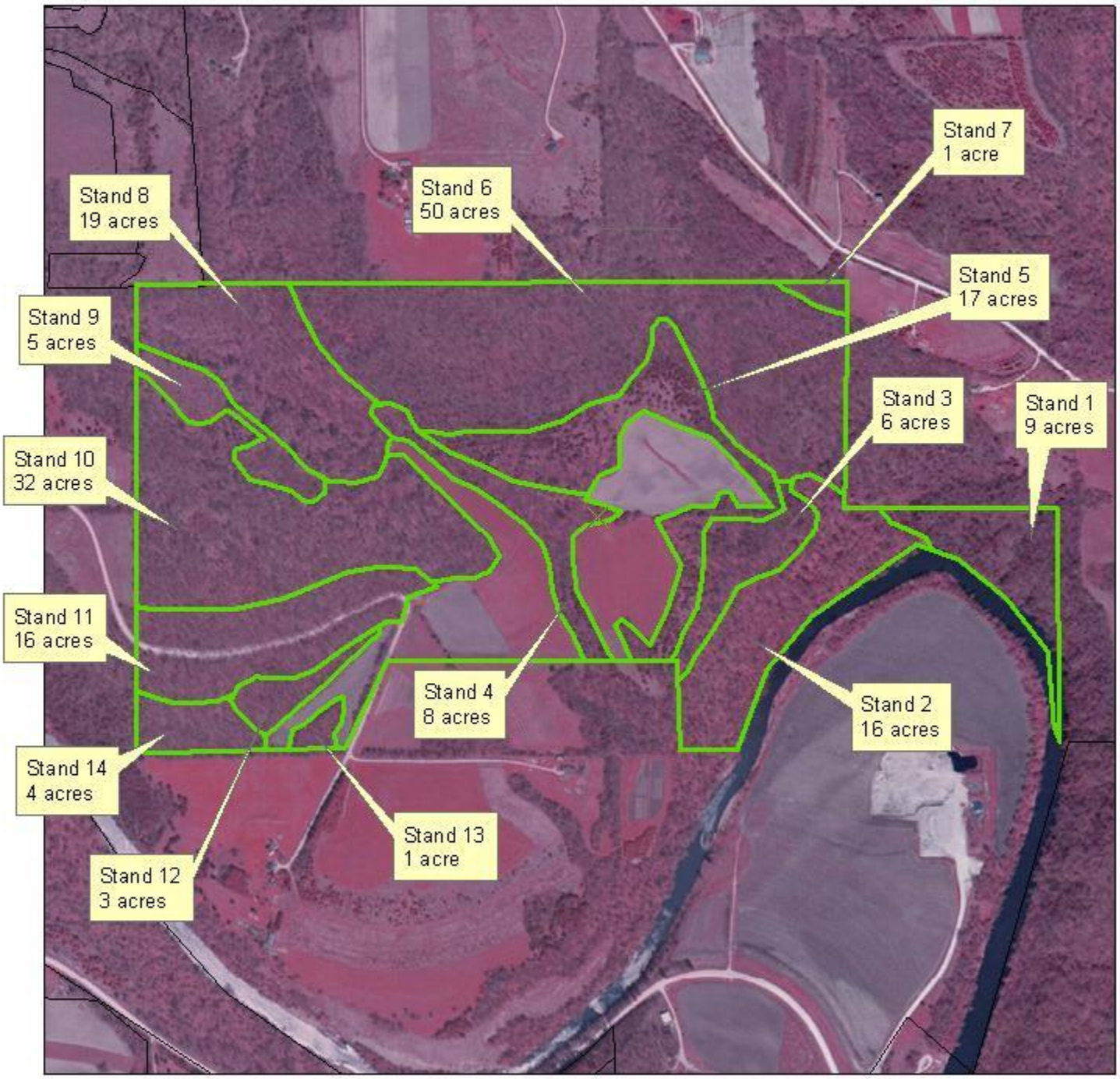
WORK PLAN

FOR

UPPER IOWA RIVER WILDLIFE AREA

This is the "working plan" for the Upper Iowa River Wildlife Area. The plan 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.

FOREST WILDLIFE STEWARDSHIP PLAN
LORAS COLLEGE TRACT



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DESCRIPTION AND RECOMMENDATIONS FOR INDIVIDUAL STANDS

LORAS COLLEGE TRACT – 187 ACRES

Stand 1: 9 acres

Site Description -

Steep southwest facing slope along the Upper Iowa River.

Woodland Description-

The area is medium sized (12-18" dia.) red cedar, bur oak, black oak, and red oak.

Management Recommendations – Viewshed

This area should be left as is to control erosion on the steep slope along the Upper Iowa River.

Stand 2: 16 acres

Site Description –

Bottomland, floodplain along the Upper Iowa River.

Woodland Descripton -

Large cottonwood, silver maple, and elm. The understory is mainly boxelder.

Management Recommendations – Viewshed

This area floods frequently and should be left as is to control erosion along the river.

Stand 3: 6 acres

Site Description –

Upland bench along the river.

Woodland Description -

The area is pole sized (5-10" dia.) black oak, walnut, and elm. The understory consists of honeysuckle and prickly ash. There are scattered low to fair quality, large walnut.

Management Recommendations – Even Age

The stand can be managed as an even aged, pole sized stand to maintain a component of young oak on the site. The first step is to harvest the scattered, larger walnut. This will provide more growing space for the young oak. After the walnut are harvested, the stand could be thinned to provide optimum growing space for the oak and younger walnut.

Harvest -

The scattered, large walnut could be harvested to develop an even aged stand of pole sized trees.

Timber Stand Improvement (Crop Tree Release) -

Select your best tree every 30 ft. apart, or 50 trees per acre. The selected tree is your "crop" tree and can be selected for any objective that you have. Remove trees with crowns that are touching or overtopping the crowns of the crop tree. To maximize wildlife benefits, oak should be favored as crop trees over other species, but a good diversity of species is best to protect against oak wilt disease.

The trees to remove can be felled or double girdled. There is no need to use herbicide on the stumps or girdle.

Stand 4: 8 acres

Site Description –

Drainage with intermittent water flow and side slopes.

Woodland Description -

Pole sized (5-10" dia.) walnut, black oak, and elm. There are scattered, large walnut.

Management Recommendations – Even Age

Stand 4 can be managed the same as Stand 3. The larger walnut could be harvested to create an even aged stand of pole sized trees. Following the harvest, the stand could thinned to provide more growing space for the young oak and good quality walnut.

Stand 5: 17 acres

Site Description -

Mainly south facing slopes.

Woodland Description -

Pole sized red cedar, black walnut, black oak, bur oak, bitternut hickory, and a few aspen. This area was once open and has been naturally reseeding over the past 40 years.

Management Recommendations – Early Successional

Clearcut 1/3 of the area every 5 years to create dense, sapling growth. The stumps of elm, boxelder, ironwood, and bitternut hickory should be treated with Pathfinder II to prevent sprouting. This will allow the aspen to expand throughout the stand. Clumps of red cedar will be retained to provide winter cover.

Aspen is lacking over much of the area. Open areas could be planted with aspen seedlings. Plant large aspen seedlings 20 ft. apart in the open areas, or 100 trees per acre. Protect each seedling with a vented tree shelter. Spot spray around the tree with Roundup and Pendulum herbicides to control the competing vegetation.

In 15 years, when the area is cut again, the planted aspen will expand through root suckering.

Loras College Tract -

Stand 6: 50 acres

Site Description -

South facing slopes with Fayette silt loam soils and shallow soils over limestone.

Woodland Description –

Large (20" and larger in diameter) white oak, black oak, walnut, bur oak, elm, red oak, and shagbark hickory. The understory is bitternut hickory, elm, ironwood, hard maple, basswood, and hackberry.

Management Recommendations – Even Age

Stand 6 can be managed on a "Shelterwood" system to encourage the natural regeneration of oak. The south exposures will favor the development of young oak. The undesirable species should be killed to allow more sunlight to reach the ground. Areas with adequate oak regeneration can be clearcut in 10 years.

Stand 7: 1 acre

Site Description -

Gentle south slope with Fayette silt loam soils.

Woodland Description –

Pole sized (5-10" dia.) walnut, elm, and bitternut hickory. The area is predominantly walnut.

Management Recommendations – Even Age

Stand 7 could be thinned to provide more growing space for the best trees.

Timber Stand Improvement (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. 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 meets 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, basswood, cherry, and hard maple.

Trees to be removed can be felled or double girdled. No herbicide is necessary on the stumps.

Loras College Tract -

Stand 8: 19 acres

Site Description -

Ravine with north and south facing slopes, and shallow soils.

Woodland Description –

Medium sized (12-18" dia.) red oak, hard maple, basswood, and walnut. The walnut is concentrated in the valley. The understory is hard maple, ironwood, and basswood.

Management Recommendations – Uneven Age

In approximately 15 years, the area could be selectively harvested to remove the mature and damaged trees. Following the harvest, the undesirable species and damaged trees should be removed so the openings are filled with desirable trees. The work will develop better ground cover and vertical structure in the stand.

Stand 9: 5 acres

Site Description –

North facing slope with Dubuque silt loam soils.

Woodland Description -

The area was clearcut in 1995 to salvage trees damaged by the tornado. The area was then planted with walnut and red oak. Today the area is pole sized (5-10" dia.) walnut, red oak, ash, bitternut hickory, hard maple, and basswood. The majority of oak are on the west ½ of the area.

Management Recommendations – Even Age

The stand could be thinned to provide more growing space for the oak and walnut. If the stand is not thinned, some of the oak and walnut will be crowded out by other species.

Timber Stand Improvement (Crop Tree Release) -

Select your best tree every 30 ft. apart, or 50 trees per acre. The selected tree is your "crop" tree and can be selected for any objective that you have. Remove trees with crowns that are touching or overtopping the crowns of the crop tree. Oak should be favored as a crop tree to maximize future mast production on the area.

The trees to remove can be felled or double girdled. There is no need to use herbicide on the stumps or girdle.

Loras College Tract -

Stand 10: 32 acres

Site Description –

Ridge top and north facing slopes with Dubuque and Fayette silt loam.

Woodland Description -

Large (20" and larger in dia.) red oak, white ash, walnut, hard maple, and basswood. The understory is hard maple, ironwood, elm, and bitternut hickory.

Management Recommendations – Even Age

Areas 5-6 acres in size can be clearcut and planted with oak and walnut. All trees 14 inches and larger can be sold. Following the harvest, fell all trees 1 inch and larger in diameter. Treat the stumps of unwanted species with Pathfinder II to prevent sprouting. Plant the area with 50 walnut and 50 oak seedlings per acre. Protect each oak seedling with a 4 ft. tall, vented tree shelter.

Stand 11: 16 acres

Site Description –

South facing slope bordering the gravel road.

Woodland Description -

Large red oak, white ash, elm, and white oak. The understory is hard maple, bitternut hickory, ironwood, and elm.

Management Recommendations – Uneven Age

The timber provides a scenic buffer along the gravel road. The stand could be managed on an uneven age system to maintain large trees along the road. In 15 years, the stand could be selectively harvested to remove the damaged and poor quality trees. Following the harvest, the undesirable species and damaged trees should be removed.

Loras College Tract -

Stand 12: 3 acres

Site Description -

Gentle slopes along the edge of a crop field.

Woodland Description –

Medium sized (12-18" dia.) red oak, aspen, and walnut. The understory is ironwood, elm, and bitternut hickory.

Management Recommendations – Early Successional

Clearcut the area to feather the edge and develop young, high density growth. There is a good stocking of aspen that will overtake the area with root sprouts. This will be a commercial sale of red oak, aspen, and walnut.

Stand 13: 1 acre

Site Description -

Small drainage on south end of crop field.

Woodland Description -

Pole sized elm, boxelder, and a few walnut. There are 3 large cottonwood.

Management Recommendations – Early Successional

In 10 years, clearcut the area to create dense habitat. The cottonwood can be left to provide cavities.

Stand 14: 4 acres

Site Description -

South facing slope with Fayette silt loam soils.

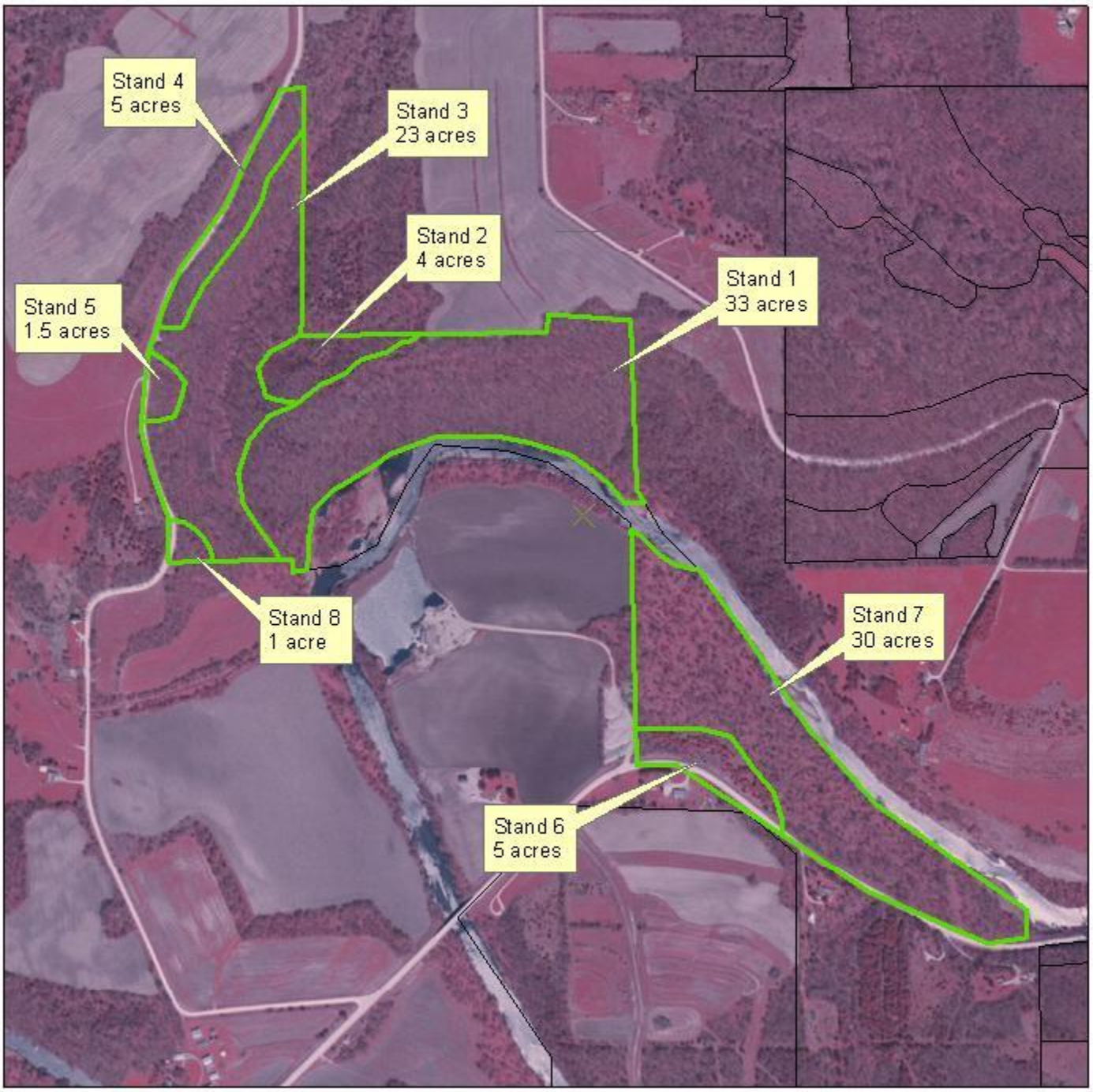
Woodland Description -

Large (20"+ dia.) red oak, white ash, walnut, elm, and white oak. There are nice quality walnut which are 20-26" in diameter. The understory consists of elm, bitternut hickory, ash, and ironwood.

Management Description – Even Age

Clearcut the stand in 5-10 years. Plant the area with 50 large oak seedlings per acre. Protect each tree with a 4 ft. tall, vented tree shelter.

FOREST WILDLIFE STEWARDSHIP PLAN
MALLI TRACT



Sec. 5, 7, 8, & 9 Glenwood Twsp.,
T98N-R7W, Winneshiek Co.

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MALLI TRACT – 102.5 ACRES

Stand 1: 33 acres

Site Description –

Steep, south facing slope above the Upper Iowa River. There are limestone bluffs and rock outcrops.

Woodland Description –

Medium sized (12-18" dia.) bur oak, shagbark hickory, black oak, basswood, red oak, and walnut. There is a good stocking of walnut 16-22 inches in diameter. The understory is ironwood, red cedar, basswood, hackberry, and bladdernut.

Management Recommendations – Viewshed

The area is very steep and is best left as is to provide a good buffer along the Upper Iowa River. The large walnut could be harvested as they mature.

Stand 2: 4 acres

Site Description -

Ridge top with Palsgrove silt loam soils.

Woodland Description -

Pole sized (5-10" dia.) bitternut hickory, basswood, walnut, hackberry, and a few red cedar.

Management Recommendations – Even Age

The majority of the Malli Tract is steep and will eventually be dominated by hard maple and basswood. Stand 2 is an area that could be clearcut and planted with oak to maintain some oak on the area in the future. This would be a noncommercial cut.

Site Preparation & Planting -

Fell all trees 1 inch and larger in diameter. Treat the stumps of bitternut hickory, basswood, and hackberry with Pathfinder II to prevent sprouting. Plant the area with large red and white oak seedlings. Plant the trees 30 ft. apart or 50 trees per acre. Protect each tree with a 4 ft. tall, vented tree shelter.

Malli Tract -

Stand 3: 23 acres

Site Description –

Valley with steep, east and west facing slopes.

Woodland Description -

Medium sized (12-18" dia.) red oak, basswood, hard maple, and walnut. There are several nice walnut 18-24" in diameter. The understory is hard maple, basswood, elm, and bitternut hickory.

Management Recommendations – Uneven Age

The area could be selectively harvested in 10-15 years. Following the harvest, the damaged trees and undesirable species should be killed so that hard maple and basswood can fill in the openings created by the harvest.

Stand 4: 5 acres

Site Description -

East facing slope and bench along the gravel road.

Woodland Description –

Medium sized (12-18" dia.) red oak, black oak, white oak, walnut, and a few aspen along the road. The understory is elm, ironwood, ash, basswood, and hazel.

Management Recommendations – Even Age

In 10-15 years, the area could be clearcut and planted with oak to maintain a component of oak on the area.

Stand 5: 1.5 acres

Site Description –

East facing slope along the gravel road.

Woodland Description -

The area was clearcut in 1995 as part of a salvage harvest following a tornado. The stand is sapling to pole sized (2-6" dia.) basswood, hard maple, cherry, aspen, and elm. There are a few red oak from stump sprouts.

Management Recommendations – Early Successional

This area could be clearcut again in 5 years to maintain dense, young growth. This will provide some diversity of tree size on the Malli Tract.

Malli Tract -

Stand 6: 5 acres

Site Description –

Bench on the bottomland along the Upper Iowa River. Stand 6 borders the gravel road. The soils are Bixby loam, which is a sandy loam and somewhat drought.

Woodland Description -

The area was planted with alternating white pine and walnut 20 years ago. The trees are 5-8 inches in diameter.

Management Recommendations – Viewshed

The walnut will eventually kill the white pine by secreting Juglans from the roots. Because of this, the walnut will be removed so that there is a nice stand of white pine along the road. This will provide winter color and habitat. Cut the walnut and treat the stumps with Roundup or Pathfinder II to prevent sprouting.

Stand 7: 30 acres

Site Description -

Bottomland, floodplain along the Upper Iowa River.

Woodland Description -

Large cottonwood, silver maple, and boxelder. The understory is elm and boxelder.

Management Recommendations – Viewshed

Stand 7 is critical to control erosion along the Upper Iowa River. This past spring, areas without trees were severely scoured by flood waters. This area should be left as it is to provide eagle nesting sites and provide a buffer along the river.

Stand 8: 1 acre

Site Description -

East facing slope with shallow soils.

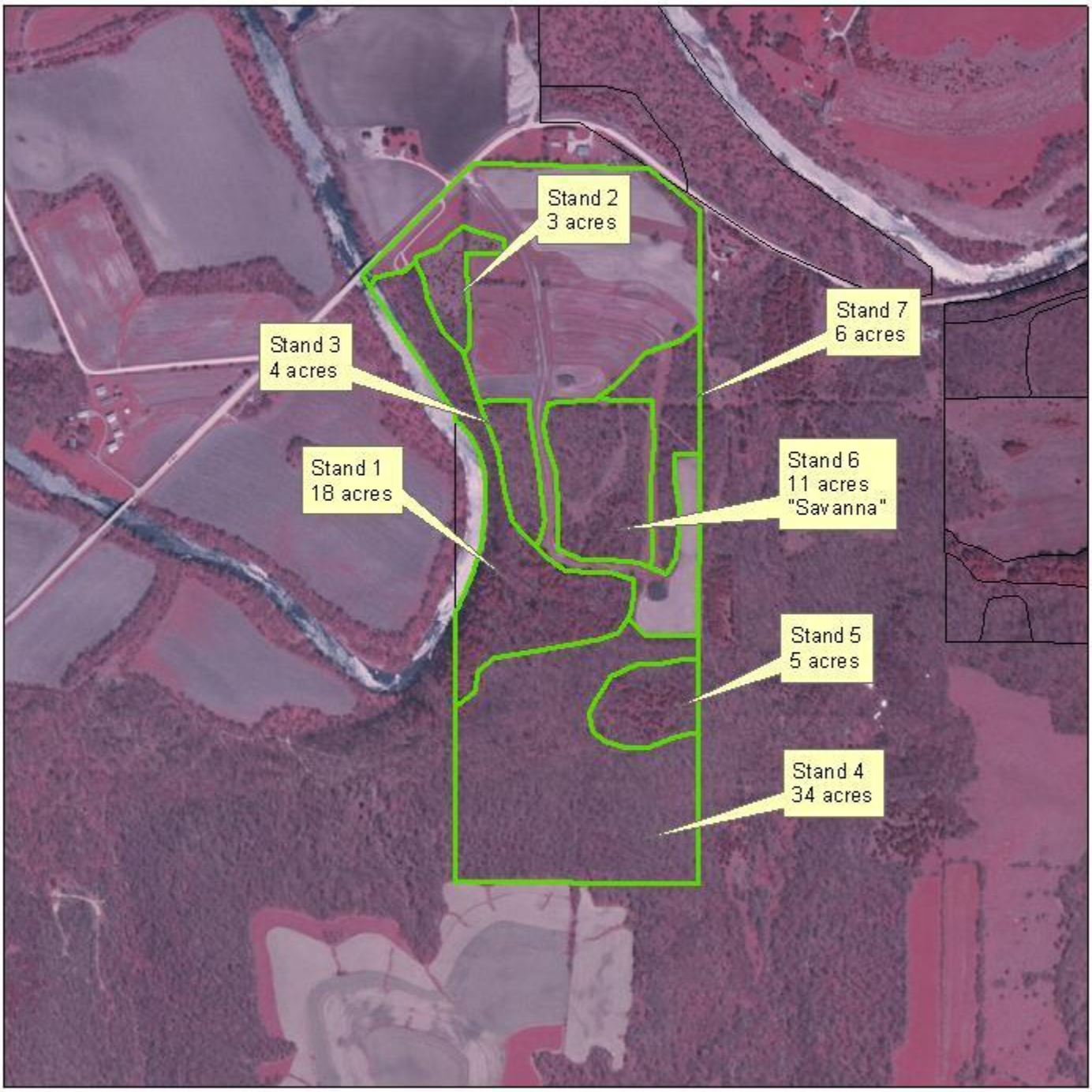
Woodland Description -

Pole sized (5-10” dia.) walnut, aspen, elm, and black oak.

Management Recommendations – Early Successional

Clearcut the area to create high density, sapling growth. This would be a non commercial cut.

FOREST WILDLIFE STEWARDSHIP PLAN
SEEGMILLER TRACT



Sec. 5, 7, 8, & 9 Glenwood Twsp.,
T98N-R7W, Winneshiek Co.

SEEGMILLER TRACT -81 ACRES

Stand 1: 18 acres

Site Description -

Steep, west facing slope along the Upper Iowa River. This area has large white pine and an eagle nest.

Woodland Description -

Medium sized (12-18" dia.) bur oak, black oak, shagbark hickory, and white pine. The understory is red cedar, buckthorn, elm, ironwood, and basswood.

Management Recommendations – Viewshed

The native white pine are unique, and there is an active eagle nest on the slope along the river. This area should be left as it is.

Stand 2: 3 acres

Site Description -

North facing slope above the parking lot to the area.

Woodland Description -

Pole sized (5-10" dia.) red cedar, black oak, elm, and aspen.

Management Recommendations – Early Successional

Fell all trees 1 inch and larger in diameter. Treat the stumps of elm, buckthorn, and boxelder with Pathfinder II to prevent sprouting. Leave the cedars to provide winter cover.

Seegmiller Tract -

Stand 3: 4 acres

Site Description -

Ridge top with Chelsea sand soils. This is a very droughty site.

Woodland Description -

Pole sized basswood, cherry, elm, black oak, and bur oak. There are widely scattered, large black, white, and bur oak. The understory is elm, prickly ash, and a few buckthorn.

Management Recommendations – Even Age

The component of oak could be increased by clearcutting the stand and planting white and bur oak. The scattered, large trees are widely spaced and can be left. Fell all trees 1 inch and larger in diameter. Treat the stumps of elm, ironwood, boxelder, bitternut hickory, and buckthorn with Pathfinder II. Plant the area with white oak and bur oak seedlings. There is oak wilt in the area so do not plant red oak. Plant the trees 30 ft. apart or 50 trees per acre. Protect each tree with a 4 ft. tall, vented shelter.

Stand 4: 34 acres

Site Description -

Ridge top with Whalen and Nordness soils. This area is a good site for oak management.

Woodland Description -

Medium sized (12-18" dia.) black oak, bur oak, shagbark hickory, basswood, cherry, and white oak. The understory is elm, ironwood, basswood, and bitternut hickory. There are scattered, pole sized red oak and shagbark hickory.

Management Recommendations – Even Age

5-6 acres could be clearcut and planted with white oak, red oak, and walnut. Plant 50 trees per acre. Protect the oak with a 4 ft., vented tree shelter. The clearcut will also provide early successional habitat for the first 15 years.

The undesirable species could be killed on the remainder of the area to encourage natural regeneration of oak under a "Shelterwood" system of management. In 10-15 years, another 5-6 acres could be clearcut and regenerated with oak.

Seegmiller Tract -

Stand 5: 5 acres

Site Description -

Ridge top with Chelsea sand soils.

Woodland Description -

Pole sized (5-10" dia.) white pine, red cedar, aspen, and elm. There is buckthorn and honeysuckle in the understory.

Management Recommendations – Early Successional

Clearcut the area to develop dense, young growth. Leave the cedars and white pine for winter cover.

Stand 6: 11 acres

Site Description -

Ridge top with Chelsea sand soils.

Woodland Description -

Medium sized (12-18" dia.) white oak, black oak, and bur oak. These trees are sparsely stocked. The understory is elm, black oak, cherry, white oak, and basswood.

Management Recommendations – Savanna Management

Stand 6 is a droughty site with a semi open overstory. This would be a good site to develop savanna.

All non oak species could be removed. In addition, all oak less than 16 inches in diameter could be removed. The trees could be harvested for firewood to minimize the woody material on the ground.

After the firewood harvest is completed, the area could be burned to encourage prairie and savanna species. The area should be burned every year or every other year for several years. Periodic burning will be required to maintain savanna conditions.

Seegmiller Tract -

Stand 7: 6 acres

Site Description -

Stand 7 is a ridge top and north facing slope with Chelsea sand soils.

Woodland Description -

Medium sized (12-18" dia.) black oak, bur oak, and few aspen. The understory is elm, hackberry, buckthorn, and honeysuckle. There is a dense stocking of buckthorn in the understory.

Management Recommendations – Early Successional

This area could be clearcut to create early successional habitat. This is low priority due to the dense buckthorn. If the area is clearcut, the buckthorn will take over the site. If the aspen are to be expanded in this area, it will take many years of killing the buckthorn to favor the aspen. A combination of felling and treating stumps and basal spraying with Garlon is effective.

FOREST WILDLIFE STEWARDSHIP PLAN
WIKAN TRACT

Sec. 5, 7, 8, & 9 Glenwood Twsp.,
T98N-R7W, Winneshiek Co.

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WIKAN TRACT – 153 ACRES

Stand 1: 47 acres

Site Description –

Narrow drainages and side slopes with Fayette silt loam soils.

Woodland Description –

Pole sized (5-10" dia.) aspen, red cedar, elm, boxelder, black oak, basswood, cherry, and walnut. Much of the area is semi open with wild plum, prickly ash, and honeysuckle.

Management Recommendations – Early Successional

Stand 1 has tremendous components of aspen, cedar, and shrubs. This is an ideal area to manage as early successional habitat. One third of the area should be clearcut every 5 years to maintain dense, young growth for grouse and woodcock. The red cedar should be left to provide good winter habitat.

Stand 2: 4 acres

Site Description –

East facing slope with Fayette silt loam soils.

Woodland Description –

Medium sized (12-18" dia.) bur oak, white oak, and aspen. The understory is elm and cherry.

Management Recommendations – Early Successional

This area could be clearcut to promote aspen sprouting and add more area to the early successional management. This would be a commercial sale of oak and aspen.

Stand 3: 6 acres

Site Description –

Ridge along the crop field with Fayette silt loam soils.

Woodland Description –

Sapling (1-4" dia.) aspen, cherry, and black oak. The site was clearcut to develop early successional habitat 5 years ago. The area has a good component of aspen.

Management Recommendations – Early Successional

Clearcut the area in 10 years to maintain high stem density.

Wikan Tract -

Stand 4: 9 acres

Site Description –

North and east facing slopes with Fayette and Nordness soils.

Woodland Description –

Large (20" and larger in dia.) white oak, bur oak, red oak, basswood, and hard maple. The understory is elm, basswood, hackberry, hard maple, and ironwood.

Management Recommendations – Even Age

Stand 4 could be clearcut along with Stand 2. Following the harvest, fell all trees 1 inch and larger in diameter. Treat the stumps of undesirable species with Pathfinder II to prevent sprouting. Plant the area with 50 large oak seedlings per acre. Protect each tree with 4 ft. tall, vented tree shelter.

Stand 5: 10 acres

Site Description –

South facing slope with Dubuque silt loam soils, and shallow soils over limestone.

Woodland Description –

Mainly pole sized (5-10" dia.) black cherry, elm, aspen, black oak, basswood, ash, red oak, and shagbark hickory. There are scattered, low quality, large basswood, bur oak, black oak, and white oak.

Management Recommendations – Even Age

Stand 5 is a "hodgepodge" stand. The large trees could be left for mast production and cavities. Locate the pole sized oak, shagbark hickory, and cherry, and remove the competing trees. Select crop trees 30 ft. apart and remove trees with crowns that are touching the crowns of the crop trees.

Wikan Tract -

Stand 6: 1 acre

Site Description –

South facing slope adjoining the crop field.

Woodland Description –

Sapling aspen, cherry, and black oak. The area was clearcut 5 years ago to develop early successional habitat.

Management Recommendations – Early Successional

Clearcut the area again in 10 years to maintain dense, young growth with a component of shrubs.

Stand 7: 2 acres

Site Description –

South facing slope along a small drainage.

Woodland Description –

Sapling (1-4" dia.) aspen, elm, cherry, and black oak. The stand was clearcut 5 years ago to develop early successional habitat and expand the aspen.

Management Recommendations – Early Successional

Clearcut the area again in 10 years.

Stand 8: 2 acres

Site Description –

Small drainage bordering the north edge of the crop field.

Woodland Description –

Sapling (1-4" dia.) aspen, walnut, and black oak. The area was clearcut 8-9 years ago to develop dense, young growth and promote the aspen.

Management Recommendations – Early Successional

The stand could be clearcut again in 5 years to maintain early successional habitat.

Wikan Tract -

Stand 9: 27 acres

Site Description –

Ridges and north facing slopes with Fayette soils and steep, sandy soils.

Woodland Description –

Pole sized (5-10" dia.) walnut, red oak, shagbark hickory, elm, black oak, basswood, aspen, bitternut hickory, hackberry, cherry, and birch. There are scattered, large white oak, red oak, and walnut. The majority of larger trees in this area were salvaged following the tornado in 1995.

Management Recommendations – Even Age

The large trees can be left for mast production and den sites. These trees are widely scattered and have little impact on the stand. The area could be thinned to provide more growing space for the young oak, hickory, and walnut.

Timber Stand Improvement (Crop Tree Release) -

Select the best tree every 30 ft. apart, or 50 trees per acre. The selected tree is the "crop" tree and should be selected for wildlife value and tree quality. In this stand, favor the oak and shagbark hickory, and high quality walnut. Remove trees with crowns that are touching or overtopping the crowns of the crop trees.

The trees to remove can be felled or double girdled. There is no need to use herbicide on the stumps or girdle.

Stand 10: 11 acres

Site Description –

Steep, west facing bluff along the Upper Iowa River.

Woodland Description –

Medium sized bur oak, black oak, and red cedar.

Management Recommendations - Viewshed

No management is recommended for this area due to the steep slopes. This area provides a good buffer along the Upper Iowa River.

Wikan Tract -

Stand 11: 23 acres

Site Description –

Ridge tops and gentle slopes with Fayette silt loam soils.

Woodland Description –

Many of the larger trees were damaged by the tornado in 1995. These trees were harvested at that time. The stand is now predominantly pole sized (5-10" dia.) bitternut hickory, hackberry, basswood, cherry, ironwood, elm, and a few red oak. There are scattered medium sized walnut, basswood, and hackberry. The walnut is good quality.

Management Recommendations – Even Age

The stand could be prepared for a future harvest. The walnut needs another 10-15 years to grow, but desirable young trees could be established now so that when the large walnut are harvested, there is a good stocking of young trees.

The following steps are recommended –

1. ***Site Preparation*** -

Kill the elm, ironwood, bitternut hickory, hackberry, and boxelder. Fell all trees 1 inch and larger in diameter. Treat the stumps with Pathfinder II to prevent sprouting. In addition, coppice all desirable species that are poor formed or damaged.

2. ***Tree Planting*** -

Plant openings created with red oak and white oak seedlings. Plant the trees 30 ft. apart or 50 trees per acre. Protect each tree with a 4 ft. tall, vented tree shelter.

3. ***Harvest*** -

Harvest the larger trees to create full sunlight in 10-15 years.

Wikan Tract -

Stand 12: 9 acres

Site Description –

West facing slope along the river and around the parking lot.

Woodland Description –

Pole sized (5-10" dia.) red oak, black oak, black cherry, basswood, and bitternut hickory. The south end has red cedar.

Management Recommendations - Viewshed

This area can be maintained as a buffer around the parking lot and along the river. However, there are several young oak that could be released by thinning. This would improve the species composition and wildlife value of the area. Locate the young red oak and remove trees with crowns that are touching or overtopping the crowns of the red oak. Select red oak to work with that are at least 30 ft. apart.

Stand 13: 2 acres

Site Description –

Gentle south facing slope with Fayette silt loam soils.

Woodland Description –

Pole sized boxelder with honeysuckle and cherry in the understory.

Management Recommendations – Early Successional

Stand 13 could be clearcut to create dense, young growth. Aspen could be planted in the area to add species diversity. Plant aspen 20 ft. apart, or 100 trees per acre. Protect each aspen with a 4 ft. tall, vented tree shelter. Control competing vegetation by spraying a 4 ft. diameter circle around each tree with 2 quarts of Roundup and 4 quarts of Pendulum per acre treated.

The stand will be clearcut again in 15 years. The aspen will then root sucker and expand throughout the area, creating excellent early successional cover.

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.

Early Successional Management – 15 year rotation

The early successional areas will be managed on a 15 year rotation. There are 101.5 acres designated for early successional management. The allowable cut is 6.8 acres per year (101.5 acres divided by 15 yrs.). With a working cycle of 5 years, approximately **34 acres could be cut every 5 years**.

Even Age Management Area – 125 year rotation

There are 222 acres under even age management. Dividing 222 acres by 125 years, yields an allowable cut of 1.8 acres per year, or **9 acres every 5 years**.

Uneven Age Management Area – 20 year cutting cycle

Stands can be selectively harvested every 20 years to remove mature and defective trees. There are 58 acres under uneven age management. The allowable harvest is **14.5 acres of selective harvest every 5 years, or 29 acres every 10 years**.

HIGH PRIORITY PROJECTS
First 5 year work cycle

Timber Stand Improvement –

Stand #	Acres	Comments
Loras – 3	6	Release crop trees after walnut harvest
Loras – 4	8	Release crop trees after walnut harvest
Loras – 6	50	Shelterwood – kill weed trees
Loras – 7	1	Release crop trees
Loras – 9	5	Release crop trees
Wikan – 5	10	Release scattered crop trees
Wikan – 9	27	Release crop trees
Wikan – 12	9	Release oak in viewshed
Total	116	

Early Successional Clearcuts – 15 yr. rotation

Stand #	Acres	Comments
Loras – 5	5	
Loras – 12	3	Commercial sale
Seegmiller – 2	3	
Seegmiller – 5	5	
Wikan – 1	15	
Wikan – 2	4	Commercial sale
Total	35	

Even Age Clearcuts – 125 yr. rotation

Stand #	**Acres**	**Prescription**
Loras – 3	6	Release crop trees after walnut harvest
Loras – 4	8	Release crop trees after walnut harvest
Loras – 10	5	Clearcut and plant oak
Loras – 14	4	Clearcut and plant oak
Seegmiller – 4	5	Clearcut and plant oak
Total	28	

Site Preparation & Tree Planting -

Stand #	**Acres**	**Prescription**
Loras – 5	5	Interplant aspen
Loras – 10	5	Fell all trees and plant oak after clearcut harvest
Loras – 14	4	Fell all trees and plant oak after clearcut harvest
Malli – 2	4	Fell all trees and plant oak. Non commercial cut.
Seegmiller -3	4	Kill undesirable species and interplant oak
Seegmiller -4	5	Fell all trees and plant oak after clearcut harvest
Wikan – 11	23	Kill undesirable species and interplant oak
Total	50	

Savanna Management -

Stand #	**Acres**	**Comments**
Seegmiller – 6	11	Sell all small trees for firewood, then prescribe burn for several years

APPENDIX

UPPER IOWA RIVER WILDLIFE AREA

LORAS COLLEGE TRACT

SUMMARY OF WOODLAND STANDS

No.	Acres	Timber Type	TreeSize	Mngt. System	Prescription	Priority	Year Complete	Comments
1	9	Oak Cedar	Medium	View shed				
2	16	Cotton Wood Silver Maple	Large	Vew Shed				
3	6	Bl. Oak Elm Walnut	Pole	Even Age	Harvest large walnut TSI – Crop Tree Release	High	2009 2010	Commercial Sale
4	8	Walnut Bl. Oak Elm	Pole	Even Age	Harvest large walnut TSI – Crop Tree Release	High	2009 2010	Commercial Sale
5	17	Cedar Oak Walnut	Pole	Early Successional	Clearcut 1/3 of area every 5 years Interplant aspen in openings	High	2009	
6	50	White Oak Bur Oak Walnut	Large	Even Age	Shelterwood – kill undesirable species	High	2009	Clearcut 5-6 acres in 10-15 years.
7	1	Walnut Elm	Pole	Even Age	TSI – Crop Tree Release	High	2009	
8	19	Red Oak H. Maple Basswood	Medium	Uneven Age	Selective harvest TSI – weed tree removal	Medium	2025	
9	5	Hard Maple B. Hickory Walnut	Pole	Even Age	TSI – Crop Tree Release	High	2009	
10	32	Red Oak Walnut H. Maple	Large	Even Age	Clearcut and plant 5 acres	High	2010	
11	16	Red Oak W. Oak Ash	Large	Uneven Age	Selective harvest and kill undesirable species	Medium	2025	

No.	Acres	Timber Type	Tree Size	Mngt. System	Prescription	Priority	Year Complete	Comments
12	3	Red Oak Aspen Walnut	Medium	Early Success	Clearcut	High	2010	Commercial Sale
13	1	Elm Boxelder	Pole	Early Success	Clearcut	Medium	2020	
14	4	Oak Walnut	Large	Even Age	Clearcut and plant	High	2010	

MALLI TRACT

SUMMARY OF WOODLAND STANDS

No.	Acres	Timber Type	TreeSize	Mngt. System	Prescription	Priority	Year Complete	Comments
1	33	Oak Walnut Basswood	Medium	View shed				
2	4	B. Hick Basswood Walnut	Pole	Even Age	Clearcut and plant oak with shelters	Medium	2010	Non Commercial
3	23	Red Oak Basswood Walnut	Medium	Uneven Age	Selective harvest and TSI to kill weed trees	Medium	2020	
4	5	Red Oak W. Oak Walnut	Medium	Even Age	Clearcut and plant	High	2025	
5	1.5	Basswood H. Maple Cherry	Sapling	Early Success	Clearcut	High	2015	Non Commercial
6	5	White Pine Walnut	Pole	View Shed	Remove walnut to favor white pine	Medium	2010	
7	30	Cotton Wood S. Maple	Large	View shed				
8	1	Walnut Aspen Elm	Pole	Early Success	Clearcut	High	2010	Non Commercial

SEEGMILLER TRACT

SUMMARY OF WOODLAND STANDS

No.	Acres	Timber Type	TreeSize	Mngt. System	Prescription	Priority	Year Complete	Comments
1	18	W. Pine Oak	Medium	View shed				
2	3	Bl. Oak Cedar Aspen	Pole	Early Success	Clearcut	High	2010	Non Commercial
3	4	Bass Cherry Elm	Pole	Even Age	Clearcut and plant	Medium	2010	
4	34	Bl. Oak Bur Oak W. Oak	Medium	Even Age	Clearcut and plant 5-6 acres	High	2010	Commercial Sale
5	5	W. Pine Aspen Cedar	Pole	Early Success	Clearcut	High	2010	Non Commercial
6	11	W. Oak Bl. Oak Bur Oak	Medium	Savanna	Remove understory and prescribe burn	High	2010	Firewood Sale
7	6	Bl. Oak Aspen	Medium	Early Success	Clearcut	Low	2020	Buckthorn Understory

WIKAN TRACT

SUMMARY OF WOODLAND STANDS

No.	Acres	Timber Type	TreeSize	Mngt. System	Prescription	Priority	Year Complete	Comments
1	47	Aspen Cedar Elm	Pole	Early Success	Cut 1/3 of area every 5 years	High	2010	Non Commercial
2	4	Bur Oak W. Oak Aspen	Medium	Early Success	Clearcut	High	2010	Commercial Sale
3	6	Aspen Cherry Bl. Oak	Sapling	Early Success	Clearcut	High	2020	
4	9	Oak Maple Bass	Large	Even Age	Clearcut and Plant oak	High	2015	
5	10	Bl. Oak Cherry Bass	Pole	Even Age	TSI – Crop Tree Release	Medium	2010	
6	1	Aspen Cherry	Sapling	Early Success	Clearcut	High	2020	
7	2	Aspen Elm Cherry	Sapling	Early Success	Clearcut	High	2020	
8	2	Aspen Bl. Oak Walnut	Sapling	Early Success	Clearcut	High	2015	
9	27	Red. Oak Bass Walnut	Pole	Even Age	TSI – Crop Tree Release	High	2010	
10	11	Bur Oak Cedar	Medium	View shed				
11	23	B. Hick Hackberry Walnut	Pole	Even Age	Kill undesirable species and interplant oak	High	2010	
12	9	Red Oak Cherry Bass	Pole	View Shed	TSI – Release young oak	Medium	2010	
13	2	Boxelder	Pole	Early Success	Clearcut and plant aspen	Medium	2015	

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

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

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

Common Name	Scientific Name
Golden-winged warbler	*Vermivora chrysoptera*
Canada warbler	*Wilsonia canadensis*

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

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

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

Common Name	Scientific Name
Cricket Frog	*Acris crepitans*
Northern Prairie Skink	*Eumeces septentrionalis*
Bullsnake	*Pituophis catenifer sayi*
Timber Rattlesnake	*Crotalus horridus*

Table 5. Forest Land Snails of Greatest Conservation Need in NE Iowa (Restricted to Algific Talus Slopes and Maderate Slopes)

Common Name	Scientific Name
Iowa Pleistocene Snail	*Discus macclintocki*
Frigid Ambersnail	*Catinella gelida*
Minnesota Pleistocene Succinea	*Novasuccinea n. Sp. Minnesota a*
Iowa Pleistocene Succinea	*Novasuccinea n. Sp. Minnesota b*
Briarton Pleistocene Snail	*Vertigo brierensis*
Hubricht's Vertigo	*Vertigo hubrichti*
Iowa Pleistocene Vertigo	*Vertigo iowaensis*
Bluff Vertigo	*Vertigo occulta*

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

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

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's are 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 algific 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 meets 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.