FOREST WILDLIFE STEWARDSHIP PLAN

FOR

BARBER CREEK
WILDLIFE MANAGEMENT AREA

A plan that will increase the diversity of forest habitats and wildlife

Developed by:

Dave Bridges, District Forester
Trent Stuchel, Forestry/Wildlife Tech 2
Curt Kemmerer, Wildlife Biologist

Plan Completion Date: 5/26/23

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FOR
BARBER CREEK
WILDLIFE MANAGEMENT AREA

MANAGER: Wildlife Biologist
Maquoketa Wildlife Unit
18670 63rd St
Maquoketa, IA 52060
563-357-2035

LOCATION: Sec. 3, 4, 5, T80N-R3E and Sec. 32, 33, 34, T81N-R3E (Orange Township), Clinton County

TOTAL FORESTED ACRES: 658

INTRODUCTION

The Iowa Department of Natural Resources (DNR) is the state government agency whose vision is to lead Iowans in caring for their natural resources. Conservation and enhancement of natural resources to ensure a legacy for future generations is part of the DNR's mission. Within the DNR, the Wildlife Bureau manages more than 390,000 acres of land as wildlife management areas (WMAs) for a variety of public users. Many of these WMAs are partially or mostly forest covered. These forests, if properly managed, provide a unique opportunity for the DNR to carry out its mission by publicly demonstrating sustainable forest management and the enhancement of these valuable resources for wildlife.

The DNR is also the agency responsible for the stewardship of indigenous and migratory wildlife species found in the state. Many of these species live near and in WMA forests. The DNR recognizes the need for forest wildlife stewardship plans (FWSPs) to properly manage the forest resources. Forests are not static systems, even though changes occur relatively slowly over a long period of time. A hands-off or "preservation" philosophy will ensure that the forest of 100 years from now will be much different and likely less diverse than the forest of today. These changes will negatively impact wildlife species. Some forest stands may take more than 120 years to mature, a time span that may extend through the careers of several managers. This slow but constant change requires managers to plan over the long term and leave a written record of these plans and management activities in the form of FWSPs. This process will help ensure the wise management of our WMA forests and will aid future managers with decision making.

There is no single type of forest stand that can provide all of the requirements for all forest wildlife species. Different species require different (and sometimes quite specific) forest types and age classes. Some generalist wildlife species use all of the forest age classes, while some specialist species have such specific requirements that only one or two particular forest types are needed to survive.

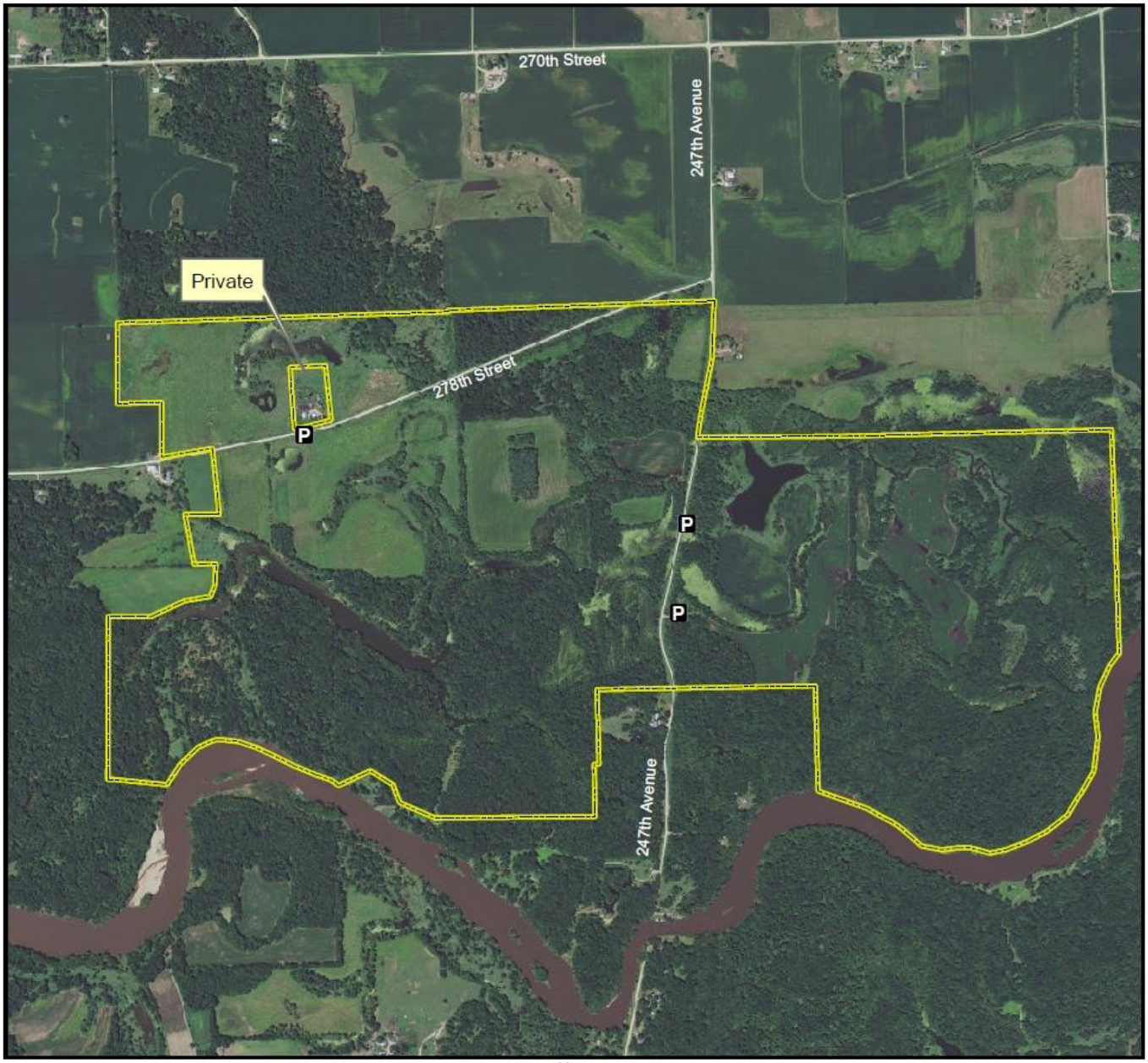
Oak forests are indisputably important in Iowa. The pre-settlement forests across the state were dominated by a mixture of oak species. Wildlife species adapted to the oak forests and thrived amidst their diversity. Today, the forests of Iowa are changing at alarming rates. It is estimated that Iowa loses approximately 5,800 acres of oak dominated forest each year. These losses are due to several factors, including both natural and human controlled. This pronounced loss of oak leads to a reduction in the quality of habitat and food sources available to wildlife, as well as the economic value and quality of the forest. The importance of managing forests for oak cannot be overstated, and the Iowa DNR has made this a priority across much of the state.

The Wildlife Bureau manages forests for the greatest diversity of forest wildlife. The FWSP will be the guiding document that prioritizes management activities to meet the needs of forest wildlife species. The DNR's comprehensive Iowa Wildlife Action Plan identifies wildlife "species of greatest conservation need" (SGCN). Habitat needs of these wildlife species will be considered when determining forest management decisions. The primary goal will be to maintain quality habitat that will support abundant and diverse wildlife populations.

DESCRIPTION OF AREA

Barber Creek WMA is located approximately 3 miles southeast of Grand Mound, or approximately 15 miles north of Davenport. The vast majority of the WMA is within the floodplain of the Wapsipinicon (Wapsi) River, with the river itself making up much of the south boundary of the WMA. Barber Creek is a major tributary of the Wapsi and cuts through the WMA on a generally southeasterly running course. The topography of the WMA is generally very flat, with minor swales, backwater depressions and oxbows that are typical of large river floodplains. This riparian forest habitat supports unique Iowa SGCN such as yellow-throated warbler, red-shouldered hawk, Louisiana waterthrush, prothonotary warbler, Indiana bat, northern long-eared bat, evening bat, silver-haired bat, swamp darner, midland clubtail, Blanchard's cricket frog, pickerel frog, spiny softshell turtle, Graham's crayfish snake, western ribbon snake, tadpole madtom; mud, blacknose, banded, and blackside darters; and mucket, pink papershell, and fatmucket mussels. The WMA is 926 total acres in size. With 658 acres in some form of woodland habitat, Barber Creek WMA is 71% forested. The 658 forested acres addressed in this plan are divided into 36 different stands. Stands were delineated based on a combination of species composition, size class, topography, and management recommendations. Each stand is outlined in detail in this plan with forest management recommendations provided.

Barber Creek Wildlife Management Area



Legend

State Areas open to hunting
WMA Boundary
P Parking Lot
2011 Aerial Photography

Map Creation Date: 6/2013

N
Miles
0 0.1 0.2

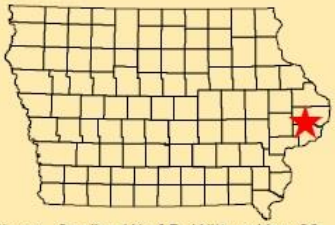
Acres: 926

Habitat: 3/4 Timber, 1/4 Upland

Species: Deer, Turkey, Squirrel
Waterfowl, Dove

Contact: Curt Kemmerer
Maquoketa Wildlife Unit
563-357-2035

Clinton County, Iowa
T-80N, R-03E, Sections 3-5, 32-34



Directions: 2 miles W of DeWitt on Hwy 30,
1.5 miles S on 260th Ave,
0.5 mile W on 255th St,
1 mile S on 252nd Ave,
0.5 mile W on 270th St,
1 mile S on 247th Ave.

Every effort has been made to accurately depict the boundaries on this map. However, users should rely on boundary signs actually located in this area to ensure they do not trespass on private property.

Barber Creek WMA
Stand Map

Sec 3,4,5,34,33,32 Orange Twsp.,
T-80N R-3E
Clinton County

0 0.225 0.45 0.9 Miles

N

HOW THE FOREST WILDLIFE STEWARDSHIP PLAN WAS DEVELOPED

The wildlife biologist and the wildlife unit team are the managers of the WMA and determine the objectives for the area. Objectives address the habitat needs of a diverse array of wildlife species and the woodland condition of each area. Approximately one-third of the total land area managed by the Wildlife Bureau across the state is classified as forest. Forest management is essential to the long-term conservation of the native plant communities occurring on these areas. Actively managing the forest is also critical to improving these areas for wildlife and wildlife-related recreation.

Management of forested wildlife areas is a cooperative effort between the wildlife unit and foresters. All forested land on the WMA 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 WMA. Forester recommendations are designed to manage the stand to reach the goals and objectives determined by the biologist, while utilizing strategic and sound forest management practices.

FOREST MANAGEMENT OBJECTIVES

The primary objective for the wildlife area is:

- Maintaining diverse, high quality forest habitats for the benefit of diverse wildlife populations
    - Emphasis on oak management
    - Emphasis on diversity of age classes and forest structure
    - Emphasis on promoting SGCN habitats
    - Emphasis on promoting forest health

Funding for forest management administration and procurement, as well as a portion of the land acquisition costs of the WMA addressed in this plan can be attributed almost exclusively to hunter-generated monies via license fees and excise taxes on sporting equipment. Consequently, a primary objective for management of the area is to improve habitat for game species such as deer, turkey, rabbit and squirrel. The DNR considers the effects of management actions on nongame species as well, particularly those that are threatened, endangered, or species of greatest conservation need. The DNR recognizes that it is difficult, if not impossible, to manage for all species at the same time on any given tract or WMA. However, this plan operates under the assumption that creating and maintaining diverse forest habitats will benefit the most wildlife species possible, regardless of their protective status. In other words, game and nongame species alike will benefit from good forest habitat management practices.

OAK MANAGEMENT

As stated in the introduction, oaks are a critical component to Iowa's forests. Iowa's wildlife species adapted, coexisted, and eventually became dependent on the benefits that oaks provided. The acorns of the oak provide a high level of fat and protein to wildlife at a time of year that food resources are low and high quality nutrients are critical. While the mast that oaks provide are a staple food source for many wildlife species, other characteristics of the oak are extremely beneficial as well. Some of those characteristics include deeply furrowed bark that host insects and other invertebrates, creating foraging opportunities for insect eating birds, reptiles, and mammals. The rigor and architecture of the branches provide structure for nesting, roosting, and perching. The leaves provide an important food source for the caterpillars of many species of moths and butterflies, with oaks supporting higher diversity and richness of species than any other native tree family (Narango et al. 2020). Pollinators also benefit from the food resources and overwintering habitat provided by the oak. Due to the critical role that oak trees play in the ecosystem, they are emphasized heavily in this forest wildlife stewardship plan.

Iowa's oak forests are faced with many threats. There are a variety of factors that contribute to the decline of oak forests. Native and non-native pests, pathogens, and diseases contribute to the mortality of oak. The succession of shade-tolerant species creates a shaded forest floor that is not conducive to the regeneration of shade intolerant oak seedlings. Fragmentation of the landscape and invasive species also play a role in the degradation of our oak forest. In order to combat these circumstances, active forest management is essential.

The even aged management of oak described in this plan is used to promote the ecological niche in which oaks thrive. Oaks use a specific strategy to regenerate that requires full sunlight. Harvest techniques that provide high levels of sunlight to the forest floor such as shelterwoods or clearcuts are used to promote the successful regeneration of oak. These harvest techniques simulate disturbances that occurred on the landscape historically such as fire and windstorms.

HARVESTS

Harvesting is conducted primarily to regenerate stands of desirable species, thin stands to a more desirable stocking, or to achieve a diversity of tree size classes. Harvests are an essential tool for simulating natural disturbances and creating suitable growing conditions for desirable shade intolerant tree species. Harvests are scheduled based on an individual stand's rotation age. The rotation age is determined based on a variety of factors.

The forest type that is present influences the rotation age of the stand. There are a variety of forest types on any given WMA, with each forest type reaching biological maturity at different times. Biological maturity is the point at which a stand's volume reaches a plateau or starts to decline based on natural factors such as mortality, breakage or rotting. A species such as bigtooth aspen will reach biological maturity many years before a species such as white oak.

Along with forest type, site productivity influences the point of biological maturity. High site productivity will increase the growth rate, vigor, and health of the stand. This will likely extend the biological maturity of the stand.

Forest health can influence the point at which a stand is harvested. Insects, disease, and pathogens can infect a stand unexpectedly. An event like this can alter the rotation age of the stand.

Landscape level considerations also influence rotation age. WMA objectives may require certain age structures in targeted locations across the area due to how the stand fits in among the broader landscape. This may either increase or decrease the rotation age of the stand.

A variety of regeneration techniques will be used in this forest stewardship plan. Each has been selected to achieve a targeted outcome. The timing of and results of these techniques will influence the point at which a stand is harvested.

Economics and logistics can alter the timing, scope, and size of a harvest. A harvest is implemented based on a silvicultural prescription designed to reach a wildlife management or forest health objective. Any financial return is purely a byproduct of proper forest habitat management and not a driving factor. Income from harvests will be reinvested into the WMA to complete the recommended projects within the plan. Those projects include: tree planting, thinning young stands, removing undesirable and invasive species, converting areas to more desirable species, and completing early successional cuts.

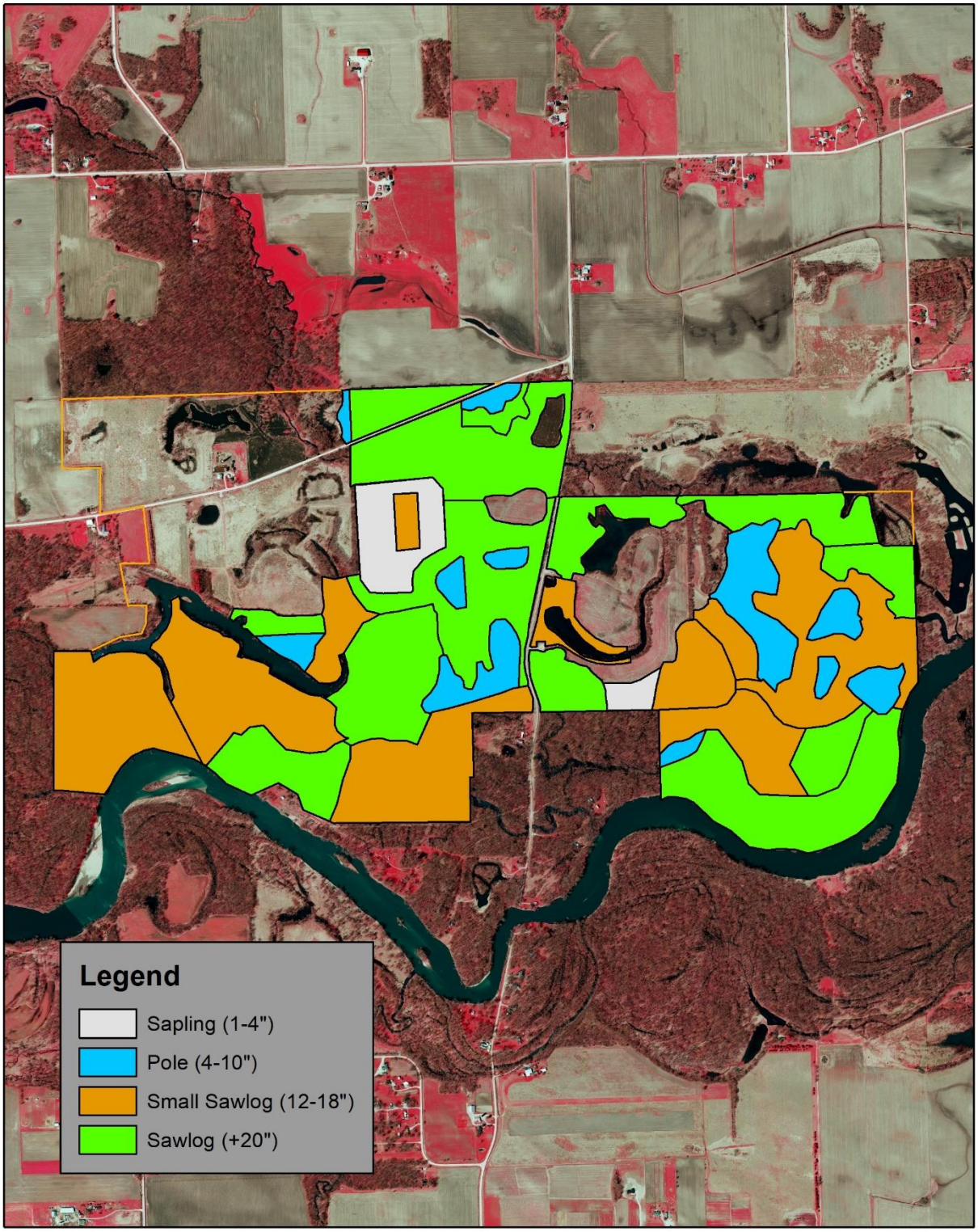
Sustainable forestry aims to manage a forest for maximum distribution of age and size classes and gives an indication of the amount of acreage or volume that can be harvested from a given geographical area periodically, without ever running out of volume or growing stock. Generally speaking, with even aged management the sustainable harvest is the total acreage of the forest divided by the rotation age (the period over which trees grow to maturity). Rotation ages for stands vary by the dominant species in each stand, but are generally set at the point of biological maturity. The majority of actively managed even aged stands use a 120-year rotation, on average. The rotation age calculations reflect only the annual allowable harvest. In practice, these figures will fluctuate over and under the allowable harvest periodically.

Current Distribution of Tree Size on the WMA

***dbh = diameter at breast height**

Tree Size	Forested Acres	% of Forested Acres
Sapling (<4" dbh)	27.9	4.3%
Pole (4-10" dbh.)	66.6	10.1%
Small Sawlog (12-18" dbh.)	261.8	39.8%
Sawlog (>20" dbh)	301.5	45.8%
Totals	657.8	100%

Barber Creek WMA
Diameter Distribution



Sec 3,4,5,34,33,32 Orange Twsp.,
T-80N R-3E
Clinton County

0 0.225 0.45 0.9 Miles

N

PROPOSED MANAGEMENT SYSTEMS FOR THE AREA

Recommendations for each stand were based on whether the area will be managed to create early successional growth, an even aged system, an uneven aged system, or viewshed. The decision on which management system would be used was based on the objectives for the area to create a certain structural cover, maintain an oak component where feasible, develop a diverse woodland landscape, protect fragile sites, and increase the acres of early successional growth.

Based on forester recommendations for Barber Creek WMA, the acres under each management system are as follows:

Management System	Acres	% of Total Area
Early Successional	5.8	0.9%
Even aged	652	99.1%
Uneven aged	0	0%
Viewshed	0	0%
Total	657.8	100%

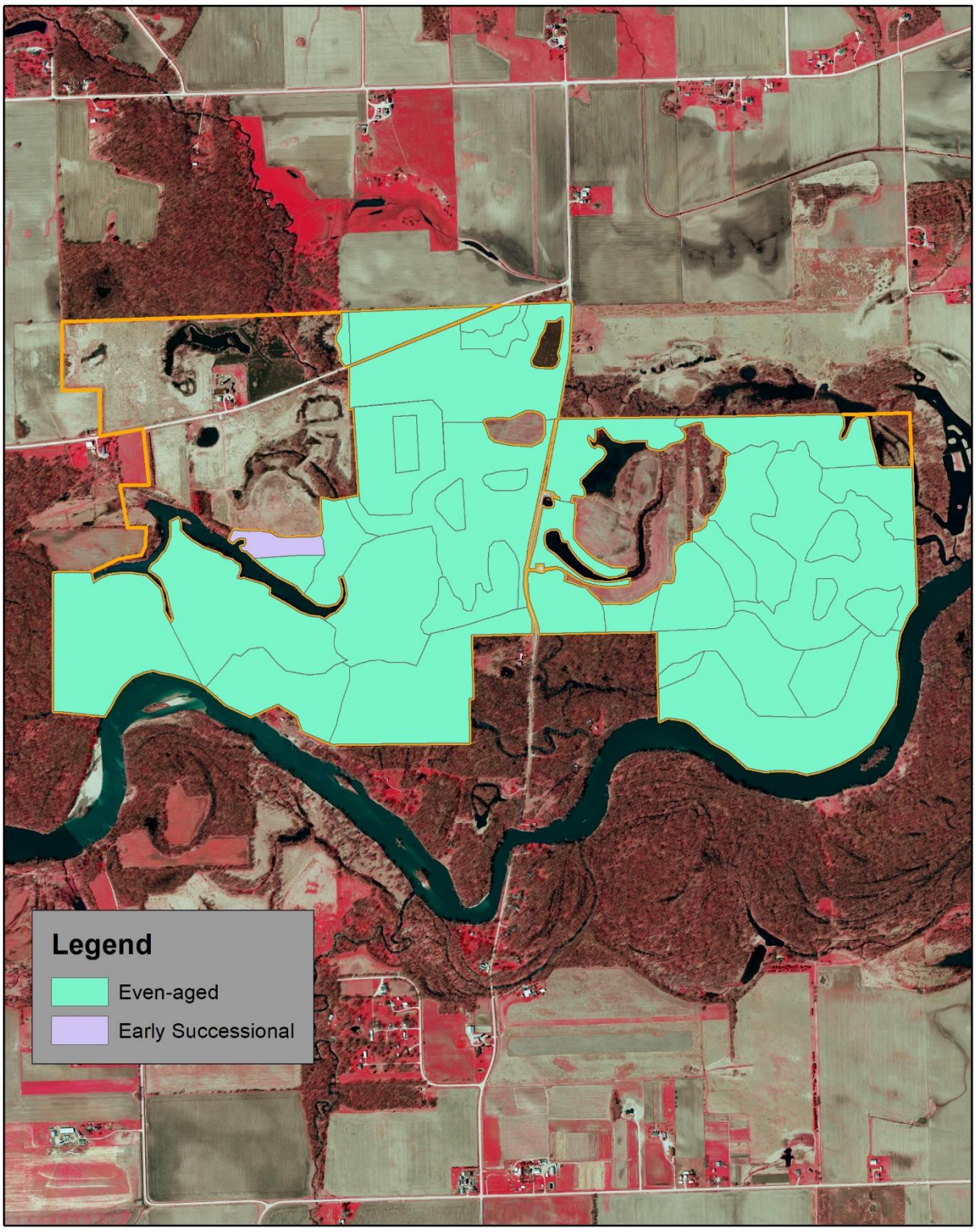
LANDSCAPE CONSIDERATIONS

Forest wildlife management plans should take into consideration factors beyond the target property. Wildlife do not recognize property lines, and move freely to satisfy their life cycle needs. Land managers need to think on a broader scale to maximize benefits to local wildlife populations. Current and future conditions on surrounding properties may directly affect the planning and effective results of management actions carried out on the WMA.

The cumulative effect of periodic regeneration management (clearcuts) in stands managed as even aged will create and maintain an ever-shifting patchwork of young forest that varies spatially and temporally. This mosaic will provide critically important habitat to a vast array of wildlife that depend on or prefer early successional forest types. Young forest is a habitat type that is often considered a limiting factor in forested landscapes in Iowa.

While uneven aged management and viewshed management systems are not being utilized on this WMA, it is important to note that the larger landscape around the WMA was taken into consideration regarding these decisions. Both up and downriver from the WMA is a large expanse of forested floodplain made up of predominantly mature forest habitat. Much of this forested corridor is passively managed by private landowners, which will result in habitats that vary from the WMA over the long term, and will continue to provide abundant habitat for wildlife that depend on or prefer forest interior or large expanses of mature forest habitat.

Barber Creek WMA
Management Systems



Sec 3,4,5,34,33,32 Orange Twsp.,
T-80N R-3E
Clinton County

0 0.225 0.45 0.9
Miles

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EARLY SUCCESSIONAL MANAGEMENT

Many species of birds such as American woodcock, blue-winged warbler, black-billed cuckoo, yellow-billed cuckoo, and eastern towhee are dependent on the early stages of woody growth for breeding. Many mature-forest birds also use early successional forests during the post-fledging and migratory periods. The high stem density of both trees and shrubs provides suitable foraging and/or nesting habitat, and protection from predators. The increased sunlight in young stands also promotes flowering plants which support pollinator and other insect species, and provide foraging habitat for species such as bobcat, bats, and reptiles, and small mammals. One way that this habitat can be created is by cutting a stand and allowing all of the desirable species to re-sprout. Many species of trees and shrubs stump sprout vigorously after being cut, especially when cut at a younger stand age.

In general, the majority of early successional management is recommended for the woodland edges adjacent to open habitats. Keeping the woody species growth "low and dense" in these areas will create more attractive habitat for shrubland and "edge" wildlife species. This will "feather" the edges and make a gradual transition from the grassland/agricultural field edges to the larger trees. Feathering or softening the woodland edges creates attractive cover for many species and often results in less nest parasitism of interior forest bird species by brown-headed cowbirds.

The early successional management areas will be managed on a 10-15-year rotation. In other words, every 10-15 years the area will be cut to rejuvenate the desirable species and create areas with high stem density.

Barber Creek has 5.8 acres (0.9% of all woodland acres) scheduled for early successional management, all falling within one stand. This stand can be cut every 15 years.

EVEN AGED MANAGEMENT

Even aged management is essential for wildlife species dependent on oak/hickory forests. Even though large blocks of forest are needed on some WMAs for some wildlife species, each stage of an even aged stand provides habitat for wildlife. For example, regenerating stands (1-10 years old) benefit the same species of birds as does early successional stands, such as the blue-winged warbler, black-billed cuckoo, yellow-billed cuckoo, eastern towhee and American woodcock.

Sapling to small pole-sized stands between 10 and 20 years old, may be used by species such as the Kentucky warbler. From age 20-60 years, pole to medium-sized trees tend to be used by canopy nesters such as the scarlet tanager and ground nesters such as the ovenbird. Mature stands of 60 to 125 years of age are used by birds such as the wood thrush, Acadian flycatcher, ovenbird and scarlet tanagers. All size classes are important for many game species such as bobcat, deer, squirrel, and wild turkey.

As forest stands age, they constantly lose trees to shading, insects, disease and other factors. The dead and dying trees provide habitat for cavity nesters such as wood ducks, woodpeckers, nuthatches and titmice. Over 30 species of Iowa nesting birds nest in the cavities of trees. Iowa's seven species of woodpeckers (including two SGCN) are the primary cavity builders and nesters, and these woodpeckers are the keystone species that provide the cavities for so many other secondary nesting birds, as well as providing homes for flying squirrels, gray and fox squirrels, bats, and a host of other species. In northeast Iowa, federally endangered northern long-eared bats use loose-barked, live trees such as shagbark hickory as well as the sloughing bark from dying trees for their maternity colonies.

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

Common forms of even aged management in Iowa include 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 aged management. The final cut is a clearcut, but several thinnings are done prior to the final cut. In the initial 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. In some cases, a low density of shelterwood trees may be left in perpetuity to provide additional structural diversity and future large snags in the stand.

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 such as sugar maple and basswood. 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 (4-10" dia.) stand of trees.

Prescribed fire is an important tool in managing oak stands. Frequent burning of the leaf layer in the woodland 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 an adequate number of oak seedlings are present, the over story will need to be removed or the young oak will die from lack of sunlight.

Fire is also an important tool in promoting a more diverse herbaceous plant community on the forest floor. The conditions that favor oak regeneration also favor many native plants that thrive on periodic disturbance. Fire will combat invasive species such as garlic mustard and multiflora rose that crowd out desirable native plants. Periodic fire, coupled with the practices to provide more sunlight through the canopy, will set the stage for more diversity across even aged stands. It has become apparent that fire is not used frequently enough in many upland forests. It seems to be a novelty practice that is used more as a singular event or for promotional status than as a routine part of forest management. Fire should be used, if feasible, wherever invasive species occur in significant number and roughly every five years throughout the even aged stands.

Barber Creek has 652 acres (99.1% of all woodland acres) that will be managed as even aged forest to regenerate oak and associated species. Applying sustainable forestry guidelines, approximately 27 acres could be clearcut every 5 years assuming a 120-year rotation age.

UNEVEN AGED MANAGEMENT

Uneven aged management develops a stand of trees with multiple tree ages and 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 aged stands always have large trees present, this system favors species that will grow in shade such as maple and basswood.

Uneven aged management is not being prescribed on Barber Creek WMA at this time. This type of forest management is expected to be well represented on many of the forested lands in the vicinity of the WMA. Frequent flooding events, storm events, aging out and selective harvest will all contribute to the proliferation of uneven aged forests in the Wapsi corridor.

VIEWSHED MANAGEMENT

Viewshed areas are typically steep slopes, areas along streams which are fragile and are best left to naturally progress through succession, or other particularly sensitive sites (ecologically or socially). Areas where endangered plant or animal species exist may also be under the viewshed system of management. Management can take place on these areas where desirable, but the primary objective is to have very minor disturbance if any. Such management typically includes lower impact practices such as prescribed fire and invasive species control. Like uneven aged forest

management, viewshed areas provide an important core area of relatively stable natural habitat. Many Neotropical migratory birds benefit from the areas designated as viewshed.

Viewshed management is not being prescribed on Barber Creek WMA. Similar to uneven aged forests, there are many areas along the Wapsi that receive little or no management. These areas will provide abundant habitat for wildlife species that prefer late-succession or climax forest communities. Barber Creek WMA represents a great opportunity for active management, so a strictly passive approach is not warranted or desirable.

SOILS

Soil is the medium for plant growth and can dictate current and future forest composition. Soil type is a variable that is considered for all forest management decisions. The predominant soil type found in this forest management plan is the Fluvents-Ambraw series.

The Fluvents-Ambraw series consists of soil formed recently (less than 500 years ago) in the floodplains by water-deposited sediments. There are generally stratified layers of sand, silt and clay. The landform is nearly level and has a range of excessively drained to poorly drained areas depending on the proportion of sand, silt and clay.

Other soils types found to a much lesser extent and scattered across the forested portion of the WMA include Shaffton loam, Ambraw silty clay loam, Finchford loamy sand, Wapsie variant loam, Granby fine sand and ponded Aquolls. All of these are typical of a forested floodplain. Elevation changes are very slight on this WMA, but a combination of a two-foot elevation change and a change from a clay soil to a sandy soil often creates significant differences in vegetation.

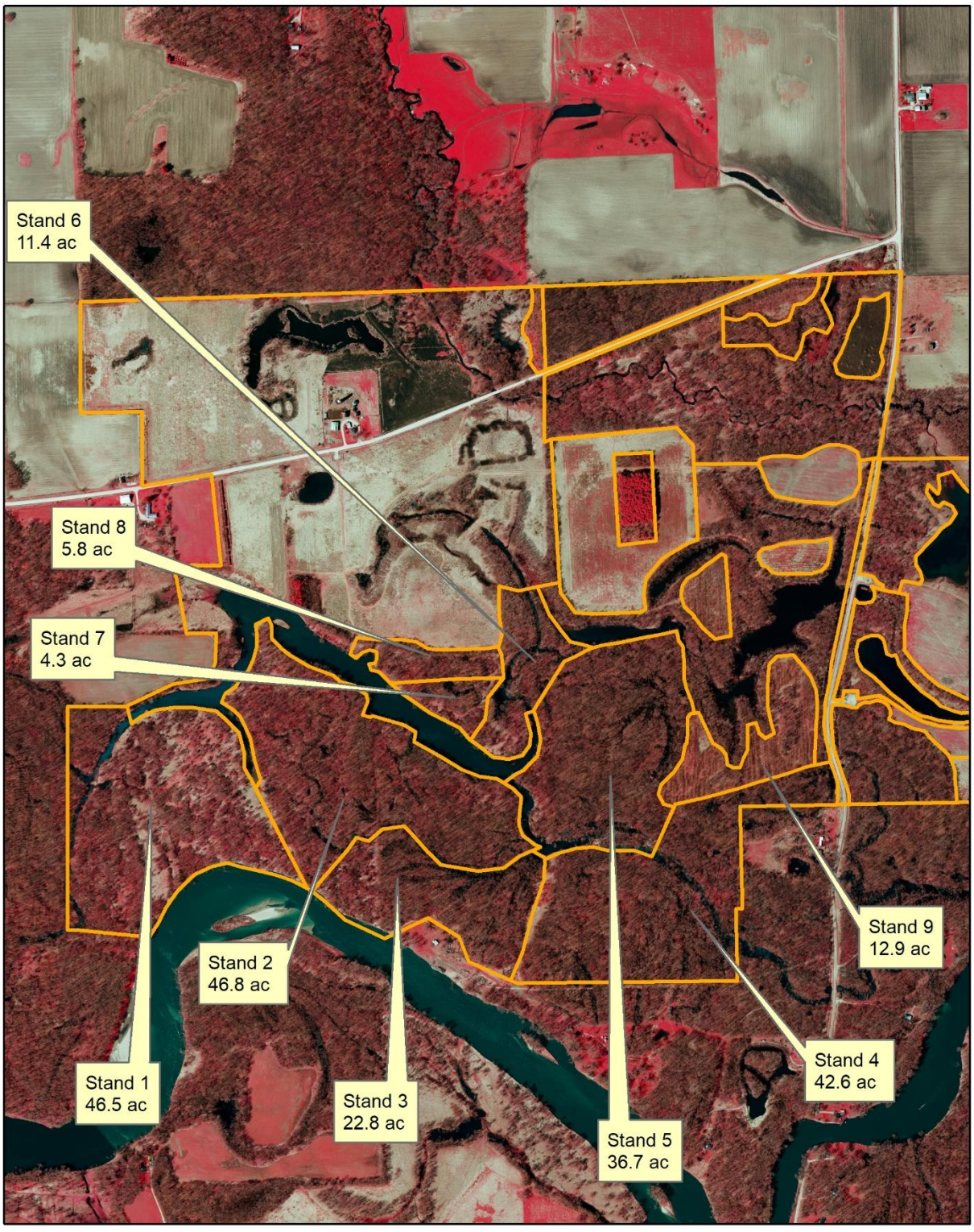
All of the soils covered in this plan are subject to frequent flooding, have a relatively high seasonal water table and are irregular in shape.

WORK PLAN FOR BARBER CREEK WMA

This is the “working plan” for the Barber Creek Wildlife Management Area 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.

Before implementation of any prescribed harvests, the project plan will be reviewed internally to determine potential impacts to both state and federal threatened or endangered species. Harvests will not be initiated until this review has been completed and all T/E comments/concerns have been addressed.

Barber Creek WMA
Stands 1-9

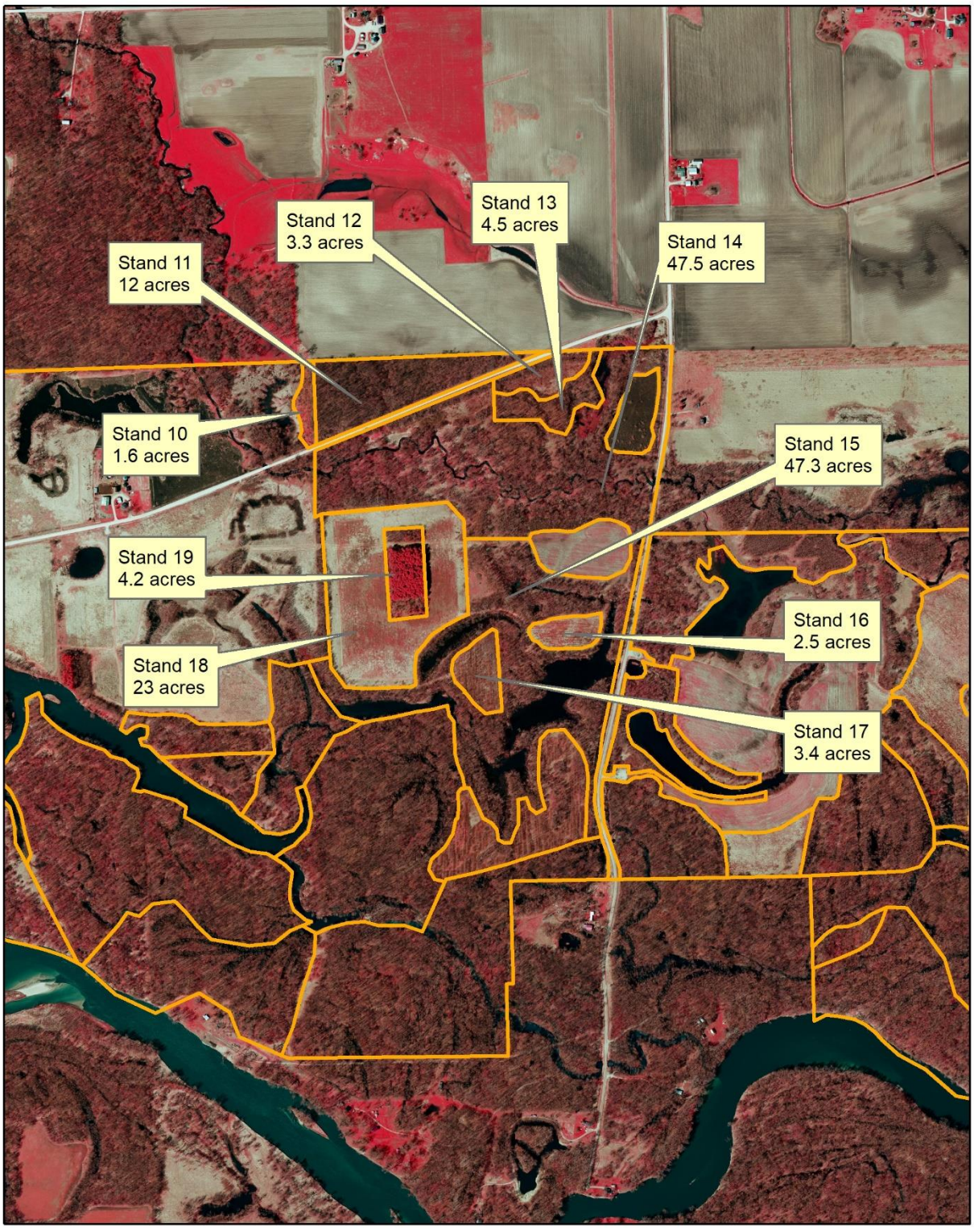


Sec 3,4,5,34,33,32 Orange Twsp.,
T-80N R-3E
Clinton County

0 0.125 0.25 0.5 Miles

N

Barber Creek WMA
Stands 10-19

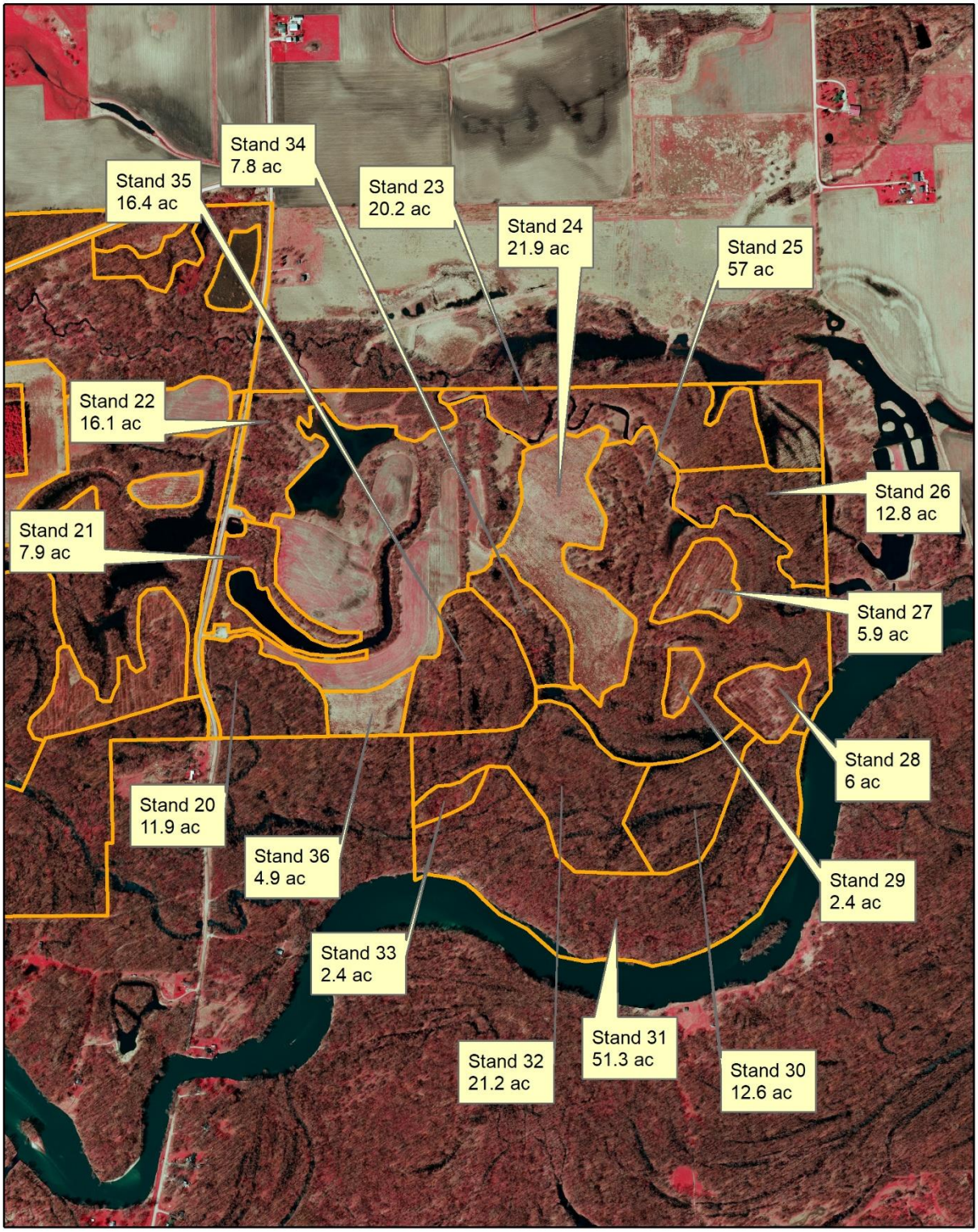


Sec 3,4,5,34,33,32 Orange Twsp.,
T-80N R-3E
Clinton County

0 0.125 0.25 0.5 Miles

N

Barber Creek WMA
Stands 20-36



Sec 3,4,5,34,33,32 Orange Twsp.,
T-80N R-3E
Clinton County

0 0.125 0.25 0.5 Miles

N

STAND SUMMARIES & RECOMMENDATIONS

Stand	Acres	Overstory	Intermediate/ Understory	Size Class	Management System	Prescription	Priority	Year	Stand Comments
1	46.5	Honey locust, swamp white oak, bur oak, pin oak, ash, willow, few sycamore	Hawthorn, advanced oak regeneration (scattered), reed canary grass	Small Sawlog	Even aged	Prescribed fire	High	2023	Oak regeneration present where canary grass is sparse. May need to reduce basal area in southern part of stand if natural oak regeneration doesn't occur
2	46.8	Black oak, bur oak, swamp white oak, shagbark hickory, bitternut hickory, elm, hackberry, silver maple	Fairly open. Some oak regeneration is present.	Small Sawlog	Even aged	Prescribed Fire Basal Area Reduction	High High	2024 2028	
3	22.8	Silver maple, swamp white oak, bur oak, pin oak, basswood, elm, white pine		Sawlog	Even aged	Prescribed Fire Basal Area Reduction	High High	2024 2028	More silver maple than Stand 2
4	42.6	Pin oak, bur oak, swamp white oak, hackberry, shagbark hickory, elm	Oak seedlings and bitternut hickory	Small Sawlog	Even aged	Basal Area Reduction	High	2029	A fair amount of storm damage is present in the southern portion of the stand
5	36.7	Swamp white oak, bur oak, pin oak, hackberry, elm, bitternut hickory, silver maple, shagbark hickory, honey locust	Hackberry, bitternut hickory, some oak seedlings in spots	Sawlog	Even aged	Weed Tree Removal	High	2027	Complete the WTR in blocks over time to evaluate success
6	11.4	Pin oak, river birch, silver maple, bitternut hickory, cottonwood, honey locust		Small Sawlog	Even aged	Basal Area Reduction	Med	2033	
7	4.3	River birch, pin oak	Hawthorn	Pole	Even aged	Crop tree release	High	2024	Could be done by DNR staff
8	5.8	Pin oak, silver maple, honey locust	Hawthorn, pin oak	Sawlog	Early successional	Remove all species except for oak Prescribed fire	High High	2025 2026	
9	12.9	Swamp white oak, pin oak, bur oak, river birch		Pole	Even aged	Crop tree release	High	2023	1999 tree planting
10	1.6	Pin oak, swamp white oak		Pole	Even aged	Crop tree release	High	2023	2002 tree planting
11	12	Shagbark hickory, cottonwood, basswood, hackberry, scattered pin oak	Hackberry, elm, shagbark hickory, honeysuckle	Sawlog	Even aged	Remove invasive honeysuckle Prescribed Fire Weed tree removal	High High High	2024 2025 2030	Honeysuckle should be removed before other management takes place
12	3.3	Cherry, pin oak, boxelder		Pole	Even aged	Crop tree release	Med	2029	Release cherry and oak

Stand	Acres	Overstory	Intermediate/ Understory	Size Class	Management System	Prescription	Priority	Year	Stand Comments
13	4.5	Pin oak, cherry, river birch, silver maple	Honeysuckle	Sawlog	Even aged	Remove invasive honeysuckle Prescribed Fire	High High	2024 2025	Honeysuckle should be removed before other management takes place
14	47.5	Silver maple, honey locust, river birch, elm, hackberry	Reed canary grass	Sawlog	Even aged	Crop tree release	Low	2037	
15	47.3	Silver maple, honey locust, river birch, elm, hackberry	Reed canary grass	Sawlog	Even aged	Crop tree release	Low	2036	
16	2.5	Swamp white oak, pin oak, bur oak, river birch		Pole	Even aged	Crop tree release	High	2023	2010 tree planting
17	3.4	Swamp white oak, pin oak, bur oak, river birch		Pole	Even aged	Crop tree release	High	2023	2002 tree planting
18	23	Swamp white oak, pin oak, bur oak, river birch		Sapling	Even aged	Crop tree release	High	2027	2010 tree planting
19	4.2	Pine		Small Sawlog	Even aged	Basal Area Reduction	Low	2038	
20	11.9	Shagbark hickory, swamp white oak, pin oak, elm, hackberry	Hackberry, bitternut hickory, scattered oak	Sawlog	Even aged	Weed tree removal - mainly understory	Med	2029	Storm damage has created a BA of around 70-80
21	7.9	Silver maple, honey locust, pin oak		Small Sawlog	Even aged	Crop tree release	Low	2032	Scattered pin oak
22	16.1	Silver maple, honey locust, river birch, elm, hackberry	Reed canary grass	Sawlog	Even aged	Crop tree release	Low	2036	
23	20.2	Silver maple, pin oak	Reed canary grass	Sawlog	Even aged	Crop tree release	Low	2033	Scattered pin oak
24	21.9	Swamp white oak, pin oak, bur oak, river birch, sycamore, silver maple	Reed canary grass	Pole	Even aged	Crop tree release	High	2024	2011 tree planting
25	57	Silver maple, pin oak		Small Sawlog	Even aged	Crop tree release	Med	2030	Pockets of pin oak
26	12.8	Pin oak	Elm, hackberry, bitternut hickory, pin oak	Sawlog	Even aged	Weed tree removal	High	2025	High quality stand
27	5.9	Swamp white oak, pin oak, bur oak, river birch, silver maple		Pole	Even aged	Crop tree release	High	2024	1996 tree planting
28	6	Swamp white oak, pin oak, bur oak, river birch, silver maple		Pole	Even aged	Crop tree release	High	2024	1996 tree planting
29	2.4	Swamp white oak, pin oak, bur oak, river birch, silver maple		Pole	Even aged	Crop tree release	High	2024	2002 tree planting

Stand	Acres	Overstory	Intermediate/ Understory	Size Class	Management System	Prescription	Priority	Year	Stand Comments
30	12.6	Pin oak, swamp white oak, honey locust, silver maple	Pin oak, swamp white oak, ash, hackberry, bitternut hickory	Sawlog	Even aged	Basal Area Reduction	High	2026	Stand is merchantable and high priority for oak regeneration
31	51.3	Silver maple, swamp white oak		Sawlog	Even aged	Basal Area Reduction	Med	2031	
32	21.2	Pin oak, swamp white oak, hackberry, elm, bitternut hickory		Small Sawlog	Even aged	Basal Area Reduction	High	2027	
33	2.4	Swamp white oak, pin oak, bur oak, river birch, silver maple		Pole	Even aged	Crop tree release	High	2024	1996 tree planting
34	7.8	Pin oak, silver maple, black willow, sandbar willow	Reed canary grass, oak seedlings in spots	Small Sawlog	Even aged	Control canary grass	Med	2032	Encourage oak regeneration
35	16.4	Silver maple, river birch, pin oak, elm, honey locust, bitternut hickory	Oak seedlings abundant in spots	Small Sawlog	Even aged	Basal Area Reduction	High	2025	Goal to reduce BA where oak regeneration is present
36	4.9	Swamp white oak, pin oak, bur oak, river birch, silver maple, cottonwood		Sapling	Even aged	Crop tree release - Remove cottonwood	High	2025	2011 tree planting

*Basal Area Reduction - Reduce the basal area by targeting desirable trees for release or targeting non-desirable species to cut to allow enough sunlight for regeneration. Too much sunlight will encourage the growth of reed canary grass that will hinder regeneration. Slight changes in elevation dramatically alter the vegetative response to sunlight. Choose higher sites to promote oak regeneration.

THREATENED AND ENDANGERED SPECIES

The information included here represents the status of listed species at the time this plan was written. Managers understand that these lists continue to change and that updated references must be consulted before undertaking management actions recommended by the plan, in order to avoid and minimize impacts on listed species.

The species listed in the table below have either been documented on the area, or are considered likely to be present in this type of habitat in this geographic region, and therefore warrant appropriate considerations.

Animals:

Common Name	Scientific Name	State Status	Federal Status
Northern long-eared bat	*Myotis septentrionalis*	--	E
Indiana bat	*Myotis sodalis*	E	E
Tricolored bat	*Perimyotis subflavus*	--	Proposed E
Southern flying squirrel	*Glaucomys volans*	Special Concern	--
Red-shouldered hawk	*Buteo lineatus*	E	--
Bald eagle	*Haliaeetus leucocephalus*	Special Concern	--
Blanding's turtle	*Emydoidea blandingii*	T	--
Central newt	*Notophthalmus viridescens*	T	--
Bluntnose darter	*Etheostoma chlorosomum*	E	--
Grass pickerel	*Esox americanus*	T	--
Rusty patched bumble bee	*Bombus affinis*	--	E

BEST MANAGEMENT PRACTICES FOR RIPARIAN AREAS

Active forest management adjacent to rivers, streams, oxbows, wetlands or other aquatic areas is inherent on Barber Creek WMA. Careful planning of forest management activities will greatly reduce threats to these aquatic resources. Forest management is compatible with these areas, and when done responsibly will maintain or enhance the ecological value of the site. The following "best management practices" shall be utilized as applicable for management activities impacting aquatic areas.

- Locate roads and trails away from wetlands and low-lying areas. Use higher elevation and well-drained sites where possible. Limit the number, width and length of trails. Use existing trails as much as possible.
- Limit stream crossings.
- Operate heavy machinery on frozen ground to minimize impacts. Low ground pressure equipment is preferable.
- Locate landings away from wetlands or immediate riparian areas.
- Minimize soil compaction and exposure near wetland or riparian edges. This will help prevent erosion and sedimentation of aquatic areas.
- Avoid harvesting along streambanks, wetland edges or other aquatic/terrestrial transition zones. Leaving an undisturbed buffer zone around aquatic areas may result in multiple benefits to water quality and aquatic habitat. The size of the buffer zone will vary from site to site, but in general will be a minimum of 50 feet in width from the typical saturation zone edge. Benefits include minimizing erosion and sedimentation, reducing the movement of flood debris, maintaining shade to help regulate water temperatures, providing food and habitat for aquatic organisms and providing important loafing, nesting and foraging areas for birds and other terrestrial species of wildlife.

LITERATURE CITED

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