Forest Wildlife Stewardship Plan

Sunken Grove
Wildlife Management Area

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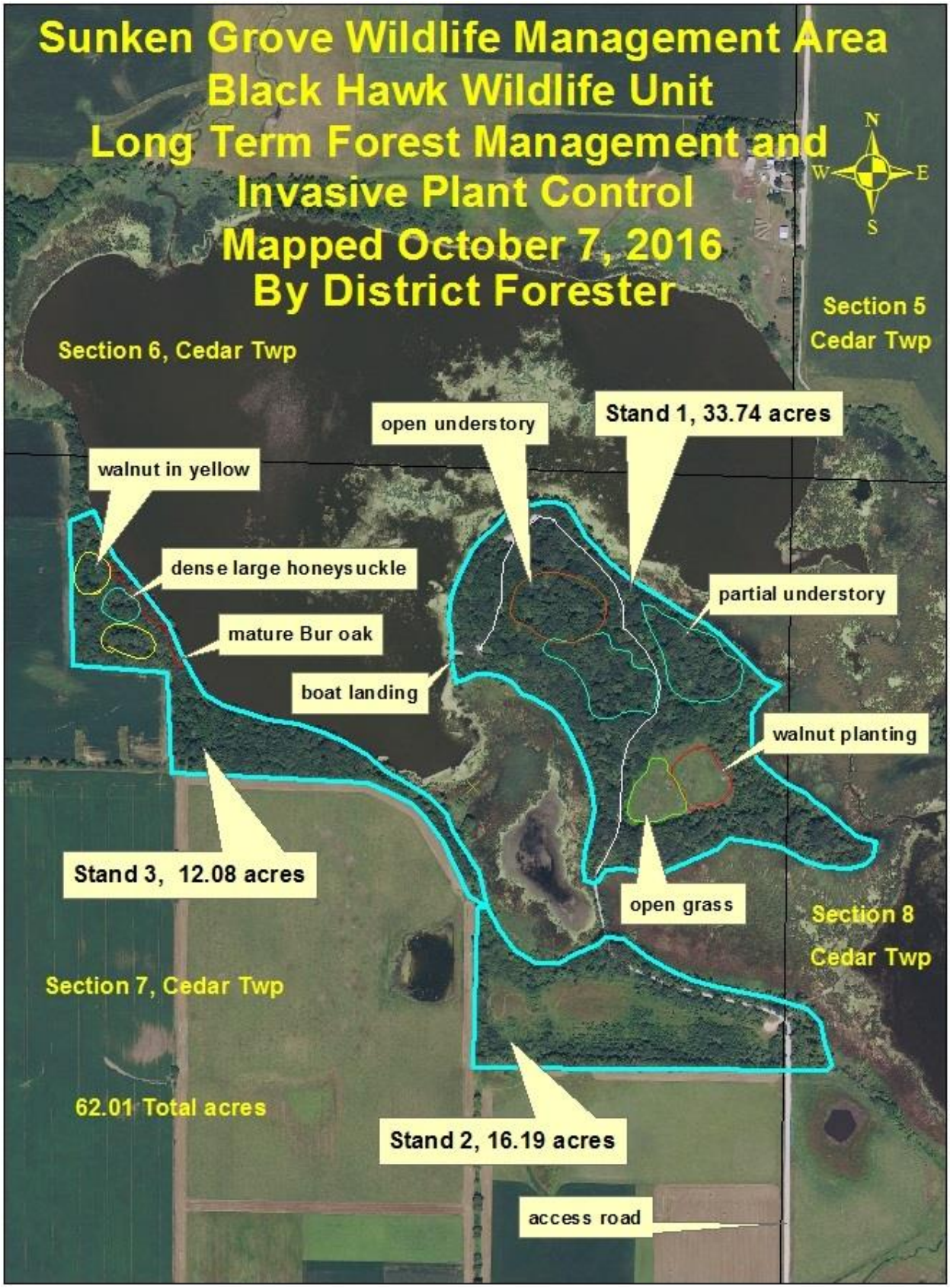
Date of Original Plan Completion: October 10, 2016
Revision date(s): 2021
Tree Farm history:
Re-inspection:
Recertified:

NRCS Natural Resources Conservation Service


Sunken Grove Wildlife Management Area
Black Hawk Wildlife Unit
Long Term Forest Management and
Invasive Plant Control
Mapped October 7, 2016
By District Forester
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E
S
Section 5
Cedar Twp
Section 6, Cedar Twp
open understory
Stand 1, 33.74 acres
walnut in yellow
dense large honeysuckle
partial understory
mature Bur oak
boat landing
walnut planting
Stand 3, 12.08 acres
open grass
Section 8
Cedar Twp
Section 7, Cedar Twp
62.01 Total acres
Stand 2, 16.19 acres
access road

LEGAL LOCATION: About 58 acres lie in Section 7 of Cedar Township with 4 acres in Section 8 of Cedar Township, Pocahontas County. T90N, R34W.

TOTAL ACRES OF PLAN: 62.01
TOTAL FORESTED ACRES: approximately 65
TOTAL ACRES OF OWNERSHIP (optional): Sunken Grove Island 35, Sunken Grove Wildlife Management Area 513 acres.

Which watershed is the property located in: Little Cedar Creek

OBJECTIVES

FIRST PRIORITY: Initiate long-term forest management options to benefit the bur oak stand growing from the time of Iowa's settlement and survey. A 'grove' is noted in this location on the Pocahontas County in the "Maps of Iowa 1832-1859 Vegetation Book".

SECOND PRIORITY: Removal of invasive plants - buckthorn, honeysuckle, multiflora rose, and autumn olive from the wildlife area woodlands and tree plantings.

THIRD PRIORITY: Maintenance of these areas. This can be achieved through various management techniques; mechanical, chemical, and prescribed fire**.**

DESCRIPTION OF WOODLAND, LAND FEATURES, AND RARE, THREATENED & ENDANGERED SPECIES

SOIL TYPES

The soil types in the WMA are prairie-formed top soils over wind-blown Loess and a glacial till. The prairie soil components are Clarion loam, 138 soil series which is most of Stand 1, one-third of Stand 2, and the high ground of Stand 3. Clarion loam is very high quality and will grow any tree or shrub species that can withstand our local climate. The largest area of Webster clay loam, number 107, is found in Stand 1 on the northeast shore (where the Stand 1 arrow is pointed in the attached map, the ground is very steep). In Stand 2, Webster clay loam takes up about 1/3 of the area; and about 1 acre in Stand 3. Stand 2 has two remaining soil types: 55 Nicollet loam and 507 Canisteo silty clay loam. The Nicollet loam is found in the low spots of Stand 2, and the east end. The Canisteo loam is confined to a narrow strip on the northwest edge where cattail rushes merge with the land. In Stand 3, the Clarion loam is found on the high ground. It supports small groups of black walnut up to 16 inches in diameter, and a very dense stand of invasive honeysuckle with stems up to 12 inches in diameter. You will also find small, dense groups of buckthorn and the preferred shrub, chokecherry. Because Clarion loam, 138 series, is the predominated soil type, a site index is set for it. For bur oak (with ample sunlight), the index is 55 feet of tree height at 50 years of age. For all other hardwood tree species, the index is 65 to 70 feet of height at 50 years of age. No site index has been set for native cottonwood.

Stand 1 - 33.74 ac

Stand 1 was fairly protected from prairie fires during and slightly before Iowa's settlement time. The largest bur oak trunk diameters are 37 to 40 inches at chest height. It has four main species: Bur oak, black walnut, green ash, and hackberry. Understory tree species are hackberry, red elm, American elm, basswood, bitternut hickory, and green ash. Brush species are native chokecherry, American plum, invasive buckthorn, and invasive honeysuckles-Amur (China) and Tartarian (Siberia). On the aerial photo the open grass area (about 5 acres) was native prairie and has been invaded by smooth brome grass and reed canarygrass (RCG). RCG is the dominant grass. Young black walnut trees dominate the farthest east portion of the grass area. The walnut trees are fair quality but sod bound. Semi-regular grass control is recommended if the trees are to be maintained. If not, the trees will become weakened and therefore susceptible to insect and disease damage and finally mortality. Two areas are outlined in green in the stand map and labeled 'partial understory.' The main oak/hackberry/ash canopy has an understory of buckthorn, chokecherry, honeysuckle and some forbs. Another area, outlined in orange and labeled 'open understory' has almost no brush and no understory hardwood trees. The area has ample understory sunlight for ash/elm/hackberry/mulberry natural reproduction but there aren't any trees. This is very unusual. From one point of view, this area could be in a 'climax stage' based on their size but the bur oaks are only half grown based on estimated age.

Stand 2 - 16.19 ac
Stand 2 is a very large tree planting. The upper ridges are rich Clarion loam and the lower dips are Nicollet loam (much heavier with clay). If you look carefully at the stand map, a tan color can be observed, indicating tall grass prairie mixed with other grasses, weeds, volunteer trees and shrubs. Green ash and eastern red cedar are the most common trees. Invasive plants include multiflora rose, buckthorn, honeysuckle, autumn olive, sumac, and Siberian elm. Labor and costs to remove or reduce the invasive plants will be high. A combination of mechanical removal, chemical and fire should be used. Grinding and fire can be used to top kill/remove the weakest plants, and stimulate the prairie grasses if burned in appropriate time periods. A decision will need to be made after the invasives are under control whether the area will continue to support trees or if it's more practical to manage as prairie.

Stand 3 - 12.08 ac
Stand 3 can be divided into two sections. The east section is more like Stand 1 with fewer oaks and more ash, mulberry, and hackberry. The south edge, open to full sunlight, is very dense buckthorn brush. The northwest section is significantly different. The lake shoreline becomes very steep and high above the water level. The bank is lined with medium size Bur oak trees. The soil type under the oaks is named Storden loam, the 62 series. Storden loam is a glacial till (rocks, stones, silt, clay, sand) and might have a thin cap layer of prairie-formed loam (in this case Clarion loam 138). The brush layer, beneath the oak canopy, is thinner than on level ground. Any Timber Stand Improvement (TSI) work on this slope will be done by hand. On the level ground, the south and west edges receive full sunlight and are dense brush. Inside, are two open areas with black walnut trees of various trunk diameters and heights (which are in need of management for mast and wood production). Separating the walnut areas is a 2-acre stand of huge honeysuckle bushes. The overhead canopy is complete and on a sunny day the understory is very dim. This area does not have a herbaceous layer. Along the field edges, rocks and boulders picked up by farming were dumped on state land. But the really impressive rocks are the large glacial erratic's.

ENDANGERED SPECIES
Surveys for threatened and endangered plants and animals have not been completed for the Sunken Grove Unit to date. From the Iowa DNR's Natural Areas Inventory and the U.S. Fish and Wildlife Service (FWS) Information for Planning and Consultation (IPaC) databases, the following list of protected species are known to occur in Pocahontas County (Table 1). Three species have been observed at the Sunken Grove Unit. Others could occur on the unit in areas of suitable habitat if present. The process described below will minimize the potential for impacts should T/E species be present but undetected.

While habitat management activities have an overall conservation benefit, at times these activities may have unintended consequences for a variety of species. For this reason, prior to implementation, forest management activities described here will be reviewed internally to assess potential impacts to both state and federal species of concern. Site records from the DNR's Natural Areas Inventory Program (NAI) and access to the online database are provided to management biologists for use in project activity planning. When protected species are known to occur in the management area or if suitable habitat for these species is present, management biologists implement conservation measures as described in the Operation & Maintenance Plan for Wildlife Management Areas in the State along with recommendations from NAI staff. Management activities are not initiated until this review has been completed and T/E comments/concerns have been addressed.

Table 1. Summary of DNR and FWS data for threatened (T) and endangered (E) species known to occur in Pocahontas County. Species of special concern (SC) and under review (UR) for federal protection under the Endangered Species Act (ESA) are also included. Species known to occur in the Sunken Grove Unit are highlighted in yellow. NAI and FWS IPaC online databases accessed 24 August 2021.

Common Name	Scientific Name	State Status	Federal Status
Barn Owl	Tyto alba	E	
Northern Harrier	Circus cyaneus	E	
Topeka shiner	Notropis topeka	T	E
Western Prairie Fringed Orchid	Platanthera praeclara	T	T
Prairie Bush-clover	Lespedeza leptostachya	T	T

Common Name	Scientific Name	State Status	Federal Status
Henslow's Sparrow	Ammodramus henslowii	T	
Creeper	Strophitus undulatus	T	
Cylindrical Papershell	Anodontoides ferussacianus	T	
Silvery Blue	Glaucopsyche lygdamus	T	
Fragrant False Indigo	Amorpha nana	T	
Monarch Butterfly	Danaus plexippus		C
Northern Long-eared Bat	Myotis septentrionalis		T
Little Brown Bat	Myotis lucifugus		UR
Tri-colored bat	Perimyotis subflavus		UR
Bald Eagle	Haliaeetus leucocephalus	S	BGEA*
Olympia Marble	Euchloe olympia	S	
Regal Fritillary	Speyeria idalia	S	UR
Dion Skipper	Euphyes dion	S	
Two-spotted Skipper	Euphyes bimacula	S	
Smooth Green Snake	Liochlorophis vernalis	S	
Earleaf Foxglove	Tomanthera auriculata	S	
Frost Grape	Vitis vulpina	S	
Great Plains Ladies'-tresses	Spiranthes magnicamporum	S	

*Bald and Golden Eagle Protection Act

OTHER CONSIDERATIONS

When conducting woodland activities, be aware of any creeks or streams cutting across your work area. Be selective when choosing a creek crossing for heavy equipment. If at all possible, construct a rock or bridge crossing, to reduce down-stream sedimentation. Ground disturbance can be minimized during tree planting, TSI work, or timber harvesting by timing the work when the ground is dry, firm, or frozen. Further improvement is seen in locating vehicle roads or trails along ridge tops, or following the contours of the slopes.

If human remains are uncovered while moving dirt, call the county sheriff. You may have uncovered an old family burial plot, pioneer cemetery, or pre-settlement burial ground. Be respectful of these areas.

ENHANCEMENT AND PROTECTION

Special site: Adjacent stand or ownerships: The Sunken Grove WMA extends to the south and east of this area. Extensive wetlands and restored tall grass prairies provide excellent habitats and hunting areas.

Access: County road access is open from all directions and most easily from county blacktop N28 from the east.

Soil protection: If long-term management is fully implemented in the next 10 years including the use of annual fire, the Clarion loam soil type should not erode.

Streams, wetlands, ponds, and lakeshore: This glacial area was noted in Iowa's 1832 to 1859 land survey as a wetland with a grove of trees. The island area is well protected on every side by open water or cattail wetlands. Rolling prairie fires could have entered the Bur oak stand by crossing the cattail wetlands and burned out the understory vegetation. The narrow land isthmus also could have allowed fire to enter the Bur oak stand.

Fish and wildlife: Animal species seen were a few songbirds, one owl, a few hawks, a few vultures, and well-used deer trails.

Protection from pests: None noticed.

Prescribed Fire/Burns: Regular prescribed fire must be used to help control invasive plants.

Plan implementation constraints: Available time and money.

SITE/STAND DESCRIPTIONS AND WORK PLAN

Stand One: 33.74 Acres
Objective: Invasive tree/shrub removal or reduction and oak regeneration.
Current conditions: A fairly mature bur oak overstory with other mixed hardwood tree species. Portions of the stand are quite open in the understory while other portions have very dense brush consisting of buckthorn, chokecherry, and honeysuckle. Where the brush is dense, the ground is bare of herbaceous vegetation. The absence of this herbaceous layer affects wildlife use and limits fire as a management tool. Gravel roads and mown trails divide the stand into smaller components for easier management.

Management Activities:
1. Using a forestry mower or grinder, destroy the invasive layer where honeysuckle and buckthorn are most common. Try to avoid grinding native desirable species. Fall burning should be implemented soon after mechanical removal to further reduce sprouting brush after the initial grinding. In addition to fall fire, a foliar application of a brush killing herbicide in July to September will further reduce the unwanted shrub component and will be necessary in conjunction with prescribed fire.
2. Decide if the walnuts will be managed for mast production and eventually provide a few trees for harvesting. Start reducing the invasive brush component by applying fire in the late fall after the bur oak trees have dropped their leaves. The road through Stand 1 can be used to split the area into separate burn units if so desired. Use fire and/or chemical application for several years to see if the herbaceous layer is improved. The goal is some control on the invasive brush, regeneration of burr oaks, and an increase in the herbaceous layer.
3. The northeast and northwest edges of the stand has steep slopes down to the water's edge. Brush and poor quality trees are still present. Any work along the shoreline will be done by hand to diminish soil erosion and promote worker safety. The focus in these areas is again, to improve the herbaceous layer and lessen the density of invasive shrubs.

Stand Two: 16.19 Acres
Objective: Tree/shrub removal or reduction and management of native prairie.
Current conditions: Invasive species include buckthorn, multiflora rose, honeysuckle, Siberian elm, and autumn olive. Cedars and other trees can be added to the control list if the current population is not desired. Tallgrass prairie is still present in pockets.

Management Activities:
1. A forestry mower or grinder should be used to remove invasive honeysuckle, buckthorn, etc. Many of the stumps will sprout new trees from the roots. The amount of new sprouting may be less if the grinding is done at the end of July or early August when reserves are at their lowest.
2. Follow up work can be prescribed fire and the use of brush killing herbicides to stump sprouts.
3. If open timber and/or prairie is the desired outcome, many of the less desirable deciduous trees could begin to be removed. Species including green ash, cedar, cottonwood and mulberry.

Stand Three: 12.08 Acres
Objective: Invasive tree/shrub removal or reduction and oak regeneration. Management of existing black walnut mast/harvest trees.
Current conditions: The southeast portion is essentially like Stand 1 with fewer bur oaks and many more green ash, hackberry, and mulberry. The northwest portion has mature bur oak along the lake shore on a steep slope. The upper flat area has two groups of black walnut trees of various ages and sizes including young seedlings and large saplings (4 inches in diameter). Separating the walnut groups is a dense stand of large honeysuckle bushes with an average stem diameter of three to four inches and up to 14 feet tall. One exceptional honeysuckle was found with a diameter of 12 inches. Large glacial erratic boulders are scattered along the crest of slope and projecting from the soil surface.

Management Activities:
1. Using a forestry mower or grinder, grind an access path from the restored prairie to the south, northward into this area for future maintenance.

2. Release the walnut trees from competition from surrounding mulberry trees, green ash trees, and brush.
3. Prune any high-quality black walnut saplings and small diameter pole trees up to 8 inches in diameter. These younger trees will replace the older and larger Walnut trees as they die or are harvested. Carefully follow walnut pruning rules to ensure quality trees.
4. Using your preferred removal method, remove the dense honeysuckle stand and expose bare soil. Stumps may need to be treated with herbicide such as Tordon RTU to prevent re-sprouting. Follow up weed control may be needed after honeysuckle is removed.
5. Mechanically remove the invasive brush understory beneath the bur oak canopy to restore/promote a new herbaceous layer followed by fire and/or foliar application of herbicide.

FIRE PROTECTION

The danger from fire is always present. Around the perimeter of open plantings, a 25-foot wide strip of ground cover is not planted with trees and required unless noted below. This barrier is your primary firebreak and must be kept free of volunteer trees. It also provides room for vehicle access and tractor use. The barrier can be mowed periodically if fire prevention can be enhanced.

CHEMICAL USE

It is a violation of Federal Law to use any pesticide in a manner inconsistent with its labeling, insure the label is understood before use.

ANIMAL PROTECTION

In addition to fire protection, protection from livestock grazing is required when state or federal costshare funds are used and is a best practice for areas being reforested. Grazing livestock trample and eat the desirable seedlings and damage older trees. The soils upper-most duff layer is removed speeding soil erosion and sedimentation in lower areas. Soil compaction is increased which restricts the movement of water into and through the soil profile. The upper root systems of all trees are crushed under the weight of the animals. All stresses make the trees more susceptible to insect and disease attacks.

ADDITIONAL MANAGEMENT CONSIDERATIONS

HISTORICAL/CULTURAL

Historical and cultural sites such as old home sites or old cemeteries are a look into the past and can give insight to past management of the land. These areas should be identified so that they can be protected with management activities. There are no known unique archeological sites on the property. If any unique archeological, cultural, or historical sites are found, current or proposed management practices may need to be altered.

RECREATION & AESTHETICS

Woodlands such as this have a natural and appealing look. Woodland management can decrease the short term recreational and aesthetic values of the property. Harvesting large trees will leave tops on the area and remove large trees that may have more aesthetic value. Additionally, TSI work that removes undesirable trees allows more sunlight to reach the ground. Increased sunlight to the ground results in more weeds and brushy species until young trees grow up and shade out the brush.

WATER QUALITY/WETLANDS

Woodlands and tree plantings can aid in improving water quality by reducing erosion and filtering silt and chemicals from the water entering streams. Maintaining a good tree buffer along a stream and planting trees in select areas can reduce soil erosion and benefit water quality. Trees can be harvested in buffers along rivers and streams, but it should be a selective harvest that maintains good tree cover and ample ground cover. The necessary reduction in the invasive woody understory should allow for a natural herbaceous layer to establish over time and further reduce erosion potential.

Wetlands are excellent filtering systems that are important to maintaining good water quality. Wetlands also provide good habitat for a variety of wildlife species. If possible, do not route roads through wetlands and maintain a good buffer of trees and grasses around the wetland area.

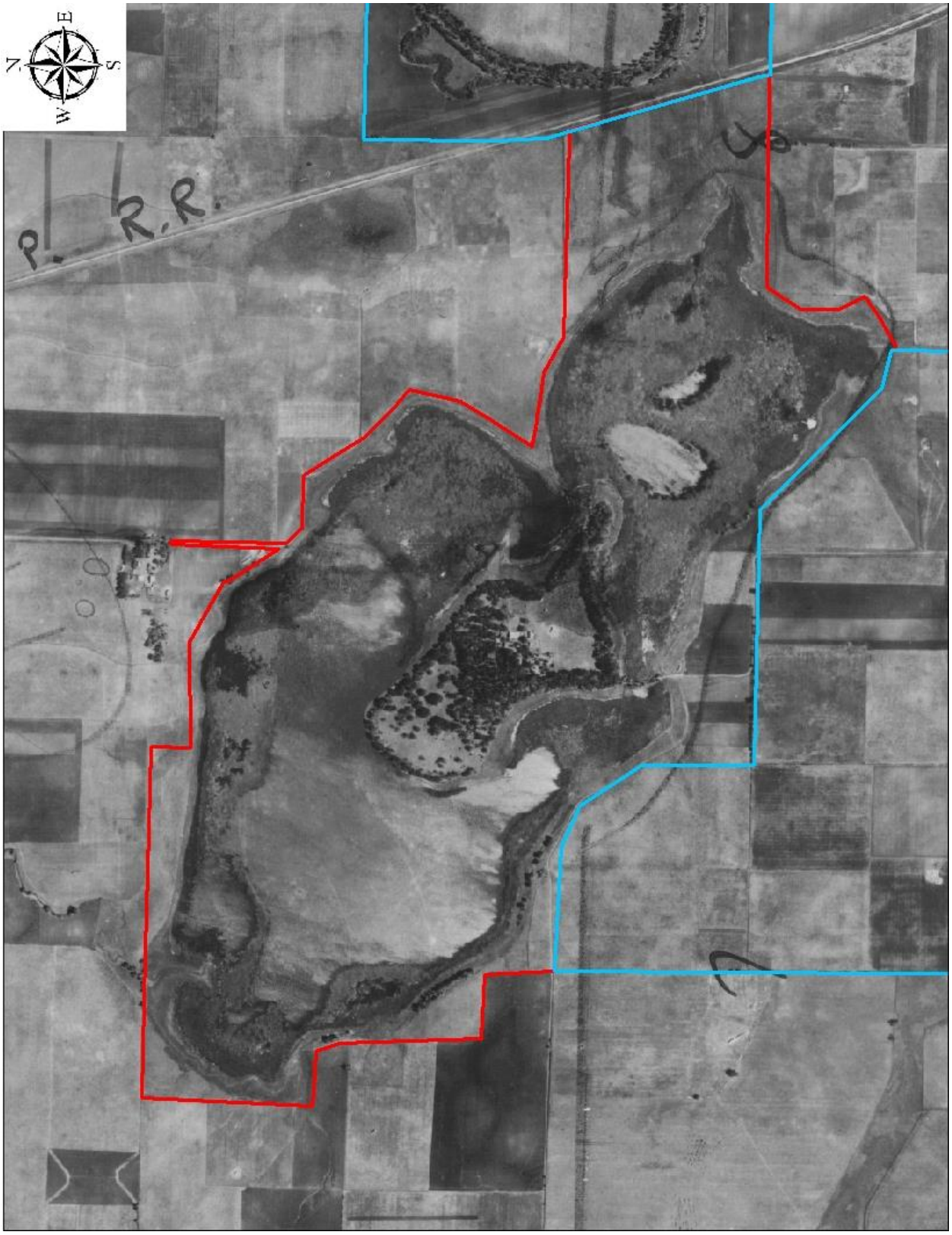
FISH AND WILDLIFE CONSIDERATIONS

The woodland does not contain any perennial streams or ponds that are deep enough to support a native fish population, but is home to deer, turkeys and many other species of game and nongame wildlife. As such, the management recommendations to improve the woodland for deer and turkey habitat will also impact other wildlife in the area. Tree cutting, such as thinning, should be geared to maintaining tree species diversity as well as maintaining homes, such as den and nesting trees, including some dead standing trees, for other wildlife species. Thinning around some trees will let more light into the woodland understory to enhance the growth of lower and mid-sized woody vegetation. This vegetation will provide added cover and food for all wildlife species.

ENDANGERED SPECIES CONSIDERATIONS

Threatened and endangered plant and animal species and their habitats should be protected when conducting woodland management activities. A visual reconnaissance of the woodland area was completed before writing the management plan to find out if any threatened or endangered species are present and if they would be adversely affected by woodland management activities.

There are no known threatened or endangered species on the property. If any threatened or endangered species should be found on the property, their needs should be considered with respect to the current management practices.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