

FOREST WILDLIFE STEWARDSHIP PLAN FOR SELMA AND VAN BUREN WILDLIFE MANAGEMENT AREAS



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TABLE OF CONTENTS

| | |
|---|----|
| Introduction and Objectives..... | 3 |
| Management Considerations and Strategies | 4 |
| Selma Wildlife Management Area..... | 7 |
| Description of Selma WMA and Work Plan..... | 7 |
| Selma Stand Map..... | 11 |
| Description and Recommendations for Stands..... | 12 |
| Summary of Stands..... | 15 |
| Selma WMA High Priority Projects..... | 15 |
| Van Buren Wildlife Management Area..... | 16 |
| Description of Van Buren WMA and Work Plan..... | 17 |
| Van Buren Stand Map..... | 19 |
| Description and Recommendations for Stands..... | 20 |
| Summary of Stands..... | 28 |
| Van Buren WMA High Priority Projects..... | 29 |
| Appendix..... | 30 |
| Selma WMA Size Class Map..... | 30 |
| Selma WMA Mgt System Map..... | 31 |
| Van Buren WMA Size Class Map..... | 32 |
| Van Buren WMA Mgt System Map..... | 34 |
| Species of Greatest Conservation Need..... | 35 |
| Indiana and Northern Long Eared Bat Guidelines..... | 37 |
| Explanation of Timber Mgt Practices..... | 38 |

Introduction

A responsibility of the Iowa Department of Natural Resources (IDNR) is to assist Iowans in the guidance of habitat management for game and nongame species of animals which live within or migrate through this beautiful land we call Iowa. State-owned lands which are administered by the Iowa DNR receive direct management efforts for wildlife, wood production, recreation, soil conservation, and plant and animal species of special concern. The land management section of the DNR Wildlife Bureau is divided into 16 geographic units. Within a wildlife unit, the wildlife management biologist and technicians are responsible for the maintenance and operation of the Wildlife Management Areas (WMA). The vegetative composition and geography of a WMA can vary greatly. Most contain some row crop, some forestland and some areas of non-native grasses and forbs. Many also have creeks or rivers, natural or artificial wetlands, or native prairie grasses and forbs.

In recent years, the wildlife bureau has recognized and acted on the need for forest wildlife stewardship plans (FWSPs) to guide the proper management of their forest resources. Forests are not static systems, even though changes occur 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 lower quality than the forest of today. 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 relentless change requires managers to plan over the long term and leave a written record of these plans in the form of FWSPs. Since Iowa has no old growth forests remaining this component should be considered in some areas whenever possible. Old growth forest is known to support unique species that are not supported by younger forests and can increase the diversity of the forest that is part of the focus of these FWSPs.

Objectives

Because the Selma and Van Buren WMAs are **wildlife management areas (WMA)**, the primary focus of the FWSP will be to provide habitat for a wide variety of forest wildlife species. Unfortunately, there is no one type of forest stand that can provide all of the requirements for all forest wildlife species. Wildlife species require different (and sometimes quite specific) forest types and ages classes. For example, some wildlife species require an abundance of forest edge while others need relatively large blocks of unfragmented forest.

Funding for the acquisition and management of the Selma and Van Buren WMA's has been almost exclusively hunter generated monies, i.e. license fees and excise taxes on sporting equipment. Consequently, a primary objective for management of the area is to improve habitat for hunted species such as deer, turkey, squirrels, and bobwhite quail. On the other hand, the IDNR is obligated to consider the effects of its management actions on non-hunted species as well, particularly those that are threatened, endangered, or species of special concern. The Iowa Wildlife Action Plan identifies those species it considers in "greatest conservation need" (refer to page 35). Recognizing that it is difficult if not impossible to manage for all of these species at the same time and on one tract, this list does provide an important guideline by which management strategies and decisions will be made.

Management Considerations

There are several considerations that have entered into the formulation of this FWSP for the Selma and Van Buren WMA's:

1. The decline of many forest interior bird species such as Acadian flycatchers, veerys, wood thrushes, cerulean and Kentucky warblers and other neotropical migrants. Forest fragmentation, declining forest health and associated cowbird parasitism are considered among the factors causing declines in some of these species. Iowa is a state with exceptionally fragmented forests where addressing the needs of some of these large-block, interior nesting species is particularly difficult, if not impossible. It is important to consider the habitat components of these smaller fragmented forests when making land management decisions and every attempt should be made to minimize fragmentation of this forest when designing and implementing silvicultural practices.
2. There has been a loss of early succession forest stands and associated wildlife species throughout much of southern Iowa. Many of the disturbance factors such as fire, grazing, and cutting have dramatically decreased over the past 40 years. As a result, much of the upland forest in this vicinity has progressed beyond the early succession stage. While this may have been beneficial to those wildlife species requiring more mature forests, it has probably been a negative for species such as bobwhite quail, woodcock, black-billed and yellow-billed cuckoos, and blue-winged warblers.
3. There has been a steady decline and projected future decline in oak forest throughout Iowa caused by continuous succession of forest stands to the more shade tolerant species such as maple, basswood, ironwood, and bitternut hickory. Oak-hickory forests are extremely important for a wide variety of wildlife species in Iowa. Oak-hickory woodlands also provide critical habitat for canopy-dwelling birds as well as nesting sites for both birds and mammals that occupy cavities. Mast from these species provides an important food resource for many mammal and bird species. The eventual replacement of oak forest with more shade tolerant species such as basswood, elm, hickory or hackberry would undoubtedly have a severe negative effect on a huge variety of wildlife species.

This FWSP starts with the assumption that it is very important to maintain an oak-hickory forest to the extent possible. The maintenance of oak-hickory forest on public land becomes even more important in light of likely future trends on privately held forest. Much of this private forest has been subdivided and sold to sportsmen and small acreage holders, many of whom will probably be resistant to implementing the forestry practices necessary to regenerate oak. If this occurs, much of the forest landscape in Iowa will eventually convert to shade tolerant species at the expense of oak.

Management Strategies

Several management strategies will need to be used to implement the objectives of the plan within the management considerations mentioned above:

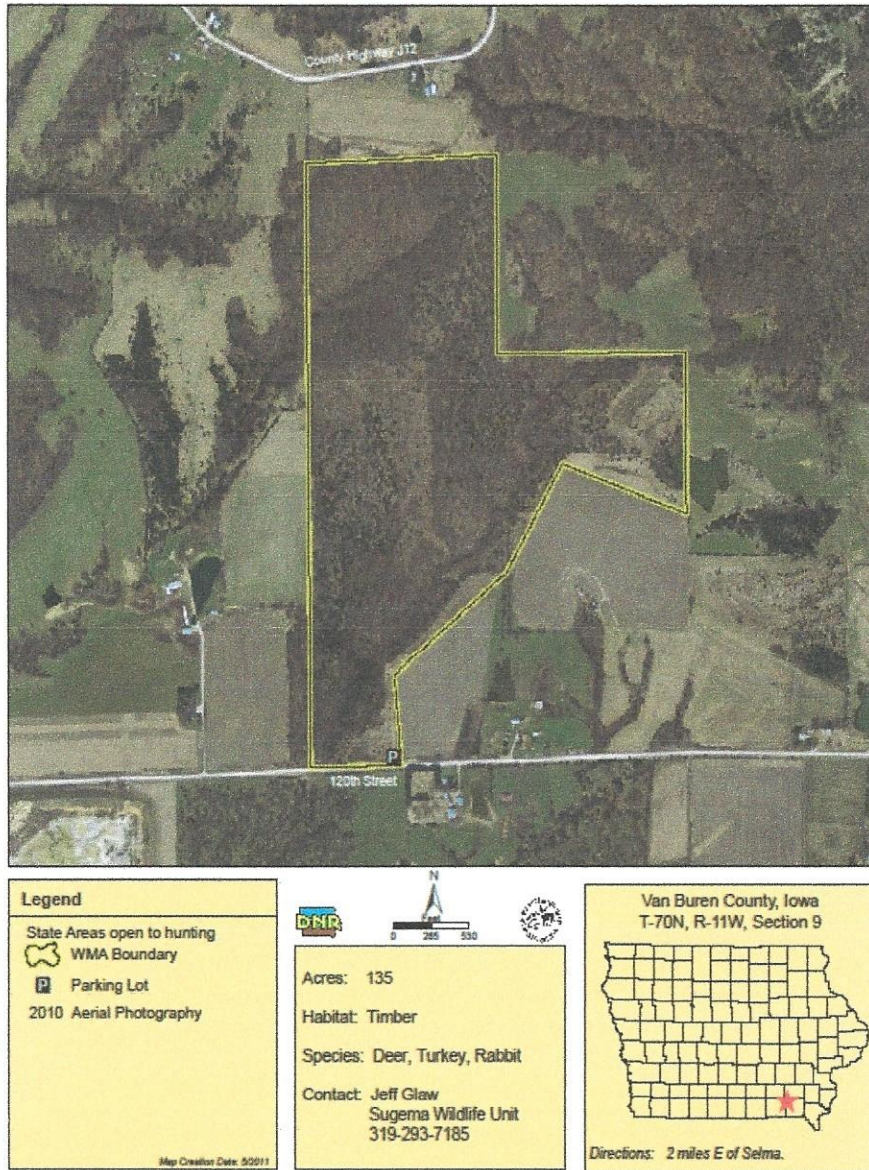
1. Natural oak regeneration requires sunlight to give the oak seedlings a competitive edge over shade tolerant species. Clearcuts and shelterwood cuts (described under Proposed Management Systems) are the typical systems used for regenerating oak. To prevent any potential negative effects on interior nesting species, clear-cuts should be kept as small as possible (3 to 10 acres) while still large enough to achieve oak regeneration and be economically feasible. To achieve economic feasibility with small clear-cuts, sales may need to be piggy-backed with other sales on public land in the vicinity. Subdividing larger stands will be necessary to keep clear-cuts as small as possible.
2. Early succession stages and mature stages of forest both tend to be more productive for a variety of wildlife than the intermediate crowded pole-size stage. Practices such as basal area thinning and crop tree release can be used to minimize the time a stand must spend in this intermediate stage. Basal thinning will result in greater sunlight for the entire forest, including desirable grasses, forbs and sedges. More sunlight to the forest floor especially on the edges will mean more flowering plants which will attract insects for wildlife that favor early successional type areas.
3. While there is no feasible way of extending the early succession stage of a forest stand, the mature stage of succession may be able to be extended significantly beyond the typical 100 or 120 year rotation age. While this may result in some decline in timber quality and economic return, the trade-off value for certain wildlife species may make it worth it. The longer rotation should tend to postpone the amount of fragmentation needed to regenerate the stand. The limiting factor may be how long the rotation can be extended without jeopardizing natural oak regeneration. Natural regeneration is preferred and planting should be avoided if at all possible.
4. Some interior nesting bird species seem to select for large spreading "wolf trees" within a given stand. When clear cuts and shelter-wood cuts are marked, these trees should be left, especially since they typically have little economic value. Many wildlife species require dead or dying trees to provide insects for food and cavities for nesting. When clear cuts and shelter-wood cuts are marked for harvest, provisions should be made to leave 6 -7 cull trees per acre, snags, and cavity trees to provide this component for the future stand.
5. It is probable that Indiana and Northern Long eared bats use this area during the summer, in particular the riparian forest adjacent to Selma and Van Buren WMA's and its tributary creeks. Cutting on any stands described in this FWSP must be done in a manner that does not disturb potential bat maternity trees during the breeding season. (See guidelines for Indiana and Northern long eared bats, page 37)
5. Best Management Practices (BPMs) have been developed by the Iowa DNR for preventing the introduction and spread of invasive species in Iowa's forests. Periodic assessments will be made on DNR managed WMAs to assess forest health and management of invasive species.
6. This FWSP should be updated regularly as more information becomes available on wildlife use and on the efficacy of various silvicultural/management procedures. If funding is available, wildlife surveys should be done to determine species use to help evaluate success of management decisions.

Income from Timber Harvest

It should be emphasized that income generation is not the goal behind FWSP's. Harvesting is conducted to regenerate stands to desirable species and to achieve a desirable diversity of tree sizes and species. However, any income generated from timber harvesting operations should be reinvested into the forest management in

Iowa to thin young stands, convert areas to more desirable species and otherwise manage the forest for wildlife, and invest in surveys and/or research to evaluate success of management decisions and help direct future management. Without this reinvestment, there is little chance that the WMA annual budget will allow the recommendations in this plan to be implemented. Harvesting is a very minimal portion of this plan. The majority of work recommended is directed at thinning or burning young stands so the oak is not shaded by other trees and at removing undesirable species to encourage regeneration of desirable trees.

Selma Wildlife Management Area



DESCRIPTION OF SELMA WMA

The Selma WMA is located 2 miles east of Selma on 120th St.

Location: T70N, R11W, Section 9
 Van Buren County, Iowa

Acres: 135 acres total
 119.8 acres timber
 15.3 acres grassland

Acquisition of the Selma WMA was completed in 1996. The Farmers Home Administration transferred the 135 acre tract to the Iowa DNR by fee title. Improvements to the wildlife area were completed at the time of transfer including new boundary fence and development of a parking lot on 120th St.

WORK PLAN FOR SELMA WMA

The work plan for the Selma WMA is designed to aid wildlife staff 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.

For purposes of this FWSP, the Selma WMA forested land was divided into 13 stands shown in the photo (refer to page 10). Each stand is described in this plan and recommendations are outlined for woodland management by stand. A priority level has been established for each stand recommendation to assist in management decisions.

Current Distribution of the Tree Size on the area

The woodland was stand mapped according to the average tree size as follows:
(Selma Size Class map on page 30)

| <u>Tree Size (DBH)</u> | <u>Acres</u> | <u>% of Forested Area</u> |
|------------------------|--------------|---------------------------|
| Sapling 1-4" | 13.4 | 11.3 |
| Pole 5-10" | 82.7 | 69.0 |
| Small Saw 12-18" | 19.7 | 16.4 |
| <u>Sawlog > 18"</u> | <u>4.0</u> | <u>3.3</u> |
| Total | 119.8 | 100 |

Proposed Management Systems for the Selma WMA

(Selma Mgt Systems map on page 31)

Recommendations for each stand were based on whether the stand will be managed to create an early successional or a even aged system, 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, and protect fragile sites.

The management recommendations for Selma WMA are shown in the table below:

| <u>Management System</u> | <u>Acres</u> | <u>% of Forested Acres</u> |
|--------------------------|--------------|----------------------------|
| Early successional | 6.1 | 5.1 |
| Even age | <u>113.7</u> | <u>94.9</u> |
| Total | 119.8 | 100 |

Early Successional Management

Many bird species such as bobwhite quail, American woodcock, blue-winged warbler, black-billed cuckoo, yellow-billed cuckoo, and eastern towhee are dependent on the early successional stages of woody growth. The high stem density of both trees and shrubs provides suitable nesting habitat and protection from predators.

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

The early successional management areas will be managed on a 15 to 20 year rotation. In other words, every 15 to 20 years the stands will be cut to create areas with high stem density. Selma WMA has 6.1 acres scheduled for early succession management.

Many of the timber edges contain narrow bands of sapling to pole size trees that could be managed for early successional habitat management but were not identified as such. The number of acres to manage for early succession could be increased if desired for management purposes.

Even Age Management

Even age management involves growing a stand of trees which are close to the same age. At some point in a stand's life, the area is clear cut which results in the even age structure. This type of management creates excellent habitat for deer, turkey, squirrels and a wide variety of other wildlife species. It is essential for regeneration of oak, which requires full sunlight. The only way that oak can be maintained as a component of the forest over the long run is by practicing some form of even age management.

Each stage or age class of an even age stand provides habitat for a suite of wildlife species. For example, regenerating stands (1-10 years old) benefit the same species as do early successional stands, i.e. blue-winged warblers, black-billed cuckoo, yellow-billed cuckoo, eastern towhee, as well as bobwhite quail and American woodcock.

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

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

As woodland stands age, they constantly lose trees to shading, insects, disease, etc. The dead and dying trees provide habitat for cavity nesters such as nuthatches, titmice, and woodpeckers. The federally endangered Indiana bat uses loose barked live trees such as shagbark hickory as well as the sloughing bark from dying trees for their maternity colonies. These trees should be maintained at a level of 6 -8 per acre or more.

Thus, even age management has the potential to provide a large variety of age classes that can meet the needs of a variety of wildlife species.

While there are many methods to open a stand to sunlight, clear cutting and shelterwood harvesting are the most common. Clear cutting is a practice that opens the stand all at once. Regeneration using clear cutting

requires there to be sufficient oak seedlings or advanced regeneration present. Without these seedlings, planting may be necessary following a clear cut.

Shelterwood harvests are one way of encouraging seedling production prior to a clear cut. Shelterwood harvests include several thinnings done prior to the final clear cut. If the shelterwood is done correctly, the trees left after the thinnings will provide seed and the forest will be open enough to allow sunlight to reach the forest floor. The trees left will also help provide shade that limits the growth of undesirable or invasive plant species. This method can take many years to create the next oak stand and may need mechanical or fire disturbance to keep out undesirable species. After sufficient seedling or advanced regeneration is present, the stand needs to be clear cut to successfully regenerate the oak stand.

Crop tree release (CTR) is discussed in this plan. This practice is done most frequently when the trees are pole sized. The goal of the practice is to choose no more than 50 trees per acre that are considered to have the best genetics. All trees that touch the canopy of the crop tree are killed to allow the tree to reach maximum growth potential.

Thinning the understory, or Site Preparation for Natural Regeneration (SPNR), is a practice also used in even age management. This practice involves removing trees that are below the main canopy to allow more sun light to get to the forest floor. Ironwood, sugar maple, and other shade tolerant species warrant this practice if species like oak are wanted in the future.

Fire is an effective and inexpensive tool that has a long history of use and continues to be studied in managing oak stands. Occasional burning of the leaf layer in the woods will kill thin barked species such as hard maple, cherry, elm, bitternut hickory and iron wood. Fire will expose mineral soil and open the ground to sunlight. These conditions favor the natural regeneration of oak. Depending on the extent of root system development, some oak seedlings will tolerate fire better than others, but as a whole, oaks tolerate fire better than other tree species. The top of an oak seedling often will die back following fire but the roots will send up new growth soon thereafter.

There are 113.7 acres on this area that will be managed as even aged woodlands to regenerate oak. The eventual acreage requiring clear cutting every 5 years depends on the rotation age used for the stand. With a typical 125 year rotation, approximately 5 acres would need to be clear cut every 5 years. If the rotation age can be extended significantly without jeopardizing the ability to regenerate oak, the acres of clear cutting every 5 years can be reduced correspondingly.

Monitoring Forest & Wildlife Response to Management Practices

Knowledge of vegetation and wildlife response to silvicultural practices (e.g. oak regeneration, Species of Greatest Conservation Need (SGCN) use of managed stands), will assist managers in developing future FWSPs to reach the goals of conserving SGCN as well as keeping common wildlife common. It will also help build public acceptance of silvicultural practices which are not always viewed favorably by the public. Information from monitoring will allow public and private forest managers to ensure that proper silvicultural techniques are being used in early successional habitat creation to meet the wildlife and vegetation goals of the plan. A detailed forest and wildlife monitoring plan will be developed as an addendum to this forest stewardship plan that will outline procedures, species monitoring to be conducted and timetable

SELMA WMA Stand Map – 2019 photo



Description and Recommendation's for Stands - Selma WMA

Stand 1 : 6.1 acres

Woodland Description –

This stand is located along the southeast edge of the area and consists of sapling to pole size shingle oak, dogwood, and red cedar with some black oak and swamp white oak.

Management Recommendations –

This area could be cut back on a 10 to 15 year rotation to maintain early successional vegetation. Some of the oak could be retained to provide an edge mast crop in future years.

Stand 2: 3.2 acres

Woodland Description –

The overstory consists primarily of pole size red cedar, shingle oak, and locust with swamp white oak, black oak, and cherry. Understory is primarily dogwood.

Management Recommendations –

CTR is recommended. Crop trees will be desirable species with good form and lack of significant defect. Trees with crowns that are touching or overtopping the crown of the crop trees will be killed by felling or double girdling. Species normally selected as crop trees are walnut and oak, but other mast producing trees such as cherry could be selected for wildlife benefits. Species diversity is encouraged in selecting crop trees.

Stand 3: 7.3 acres

Woodland Description –

These areas around the pond and along the north east edge of the timber consist primarily of sapling size shingle oak, cedar, elm, black oak, and hickory with scattered pole to small sawlog size locust, shingle oak, and hickory. Understory is mostly dogwood.

Management Recommendations –

This area would also benefit from receiving CTR to give the higher quality trees adequate growing space, but would be relatively low priority. Another alternative is to include part of this area in early successional management.

Stand 4: 4.4 acres

Woodland Description – The overstory is comprised primarily of pole size black oak, with some hickory, white oak, and locust. There are some scattered small sawlog size black oak, white oak and hickory. Understory is composed of dogwood.

Management Recommendations –

This area should receive CTR to give the best trees adequate growing space and enhance species diversity.

Stand 5: 4.0 acres

Woodland Description –

This stand consists of a relatively narrow band of sawlog size white oak, 16 to 22+ inch diameter, on the slopes along the major draws. Understory is composed primarily of gooseberry and some ironwood.

Management Recommendations –

This area would benefit from limited CTR to remove the poorest quality trees and give the best oaks adequate growing space. A shelterwood harvest could be considered at any time but should probably wait another 5 to 10 years. SPNR should be applied prior to any harvest to remove the understory and allow sunlight to the forest floor to enhance natural regeneration of oak.

Stand 6: 2.9 acres

Woodland Description –

This area is composed primarily of pole to small sawlog size shagbark hickory and ash with some mockernut hickory, bitternut hickory, and black oak. Understory is mostly gooseberry and ironwood with some ash and hickory.

Management Recommendations –

This area could be considered for CTR to release the highest quality trees but would be relatively low priority.

Stand 7: 2.6 acres

Woodland Description –

This area is composed primarily of pole size hickory and ash, similar to stand 6 but with smaller diameter and less oak. Understory is primarily dogwood, gooseberry, ash, and hickory.

Management Recommendations –

This area could receive CTR, but would be low priority.

Stand 8: 47.7 acres

Woodland Description –

This large area appears to be long abandoned pastureland consisting of sapling to pole size black oak, locust, hickory, shingle oak, cherry, cedar, and some ash and white oak. Understory is ironwood, dogwood, and multiflora rose. There is one area towards the center of the stand that is still relatively open with mixed grasses and fewer saplings.

Management Recommendations –

CTR or weed tree removal could be applied to release the better trees but should wait 5 to 8 years to increase the average size of the trees. The relatively open area could probably still be brush hogged if an open area is desired for wildlife benefits.

Stand 9: 5.2 acres

Woodland Description –

This area is composed primarily of small sawlog to pole size hickory and black oak, with some white oak and ash. Understory is composed of prickly ash and ironwood with some hickory and ash regeneration.

Management Recommendations –

CTR is recommended to release the oak and best quality hickory. Priority would be relatively low because of limited number of high quality crop trees.

Stand 10: 10.4 acres

Woodland Description –

This area is composed primarily of pole size hickory with some locust and occasional mixed oak and ash. Understory is composed of gooseberry, ash, and hickory with some black oak and shingle oak regeneration.

Management Recommendations –

CTR to thin the hickory and release the occasional oak would be beneficial but would be low priority because of the limited number of high quality crop trees.

Stand 11: 7.5 acres

Woodland Description –

This stand is composed primarily of small sawlog to pole size hickory. There is some locust scattered throughout as well as some white oak and black oak, especially along the edge of the drainage. Understory is mostly prickly ash and gooseberry, with some hickory and ash reproduction.

Management Recommendations –

CTR could be applied to thin the hickory and release the oak, but is low priority because of the relatively low number of good quality crop trees.

Stand 12: 12.2 acres

Woodland Description –

This stand is primarily small sawlog size white oak with some black oak, red oak, and hickory, including scattered mockernut hickory. Understory is mostly ironwood and prickly ash with ash and hickory regeneration along with limited oak regeneration.

Management Recommendations –

CTR should be applied to release the highest quality oak. This is one of the best quality oak stands on the area and should receive high priority.

Stand 13: 6.3 acres

Woodland Description –

This mixed stand is primarily smaller pole size hickory, ash, cherry, elm, and black oak with occasional red and white oak. Understory is composed of ironwood and dogwood with ash, elm, and hickory regeneration.

Management Recommendations –

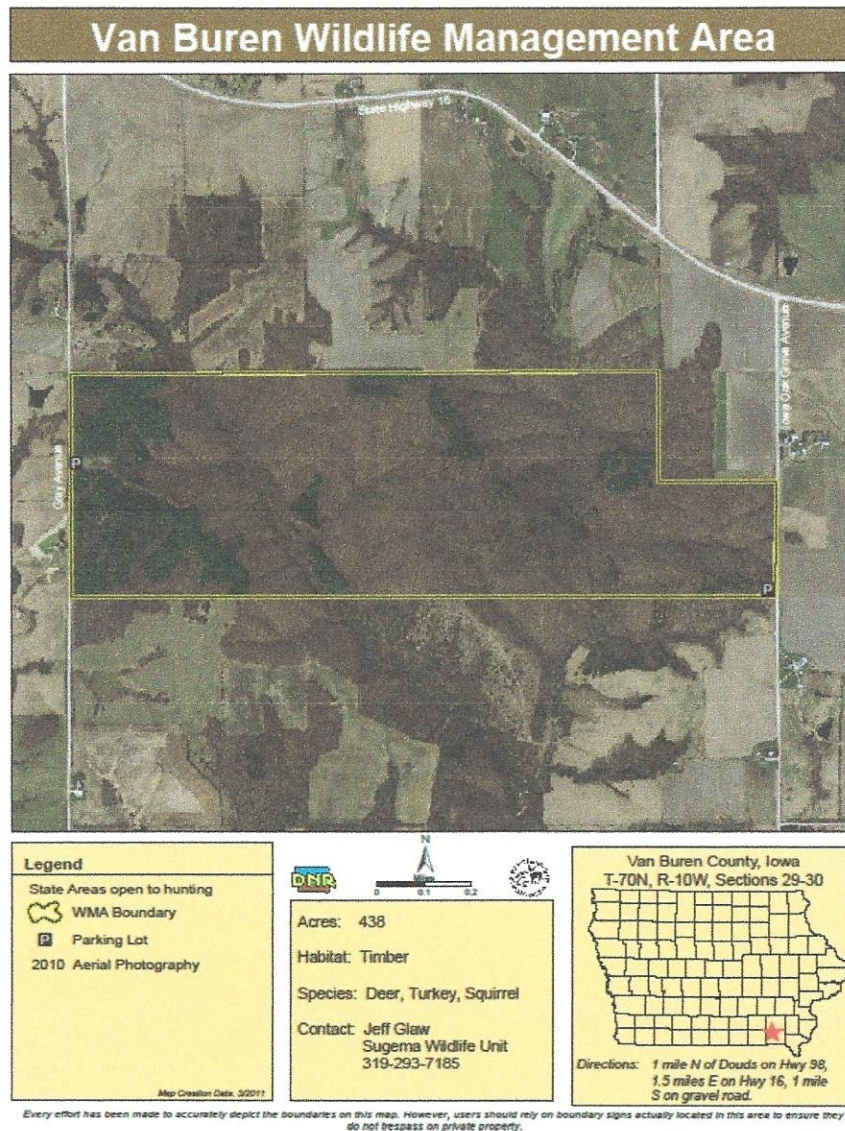
CTR could be applied to release the best trees and enhance species diversity but is low to medium priority because of the relatively low number of good quality crop trees.

Selma WMA Summary of Stands

| Stand | Acres | Timber type | Tree size | Prescription | Priority |
|-------|-------|--|-------------------|----------------|------------|
| 1 | 6.1 | Shingle oak, black oak, cedar, sw. w. oak | sapling | Weed tree, CTR | Low |
| 2 | 3.2 | Cedar, sw., w. oak, shingle oak, cherry | Pole | CTR | Low-medium |
| 3 | 7.3 | Shingle oak, hickory, black oak, elm, cedar | Sapling-pole | Weed tree, CTR | Low |
| 4 | 4.4 | Black oak, some hickory, white oak | Pole | CTR | High |
| 5 | 4 | White oak | Sawlog | CTR | Low |
| 6 | 2.9 | Hickory, ash, black oak | Pole-small sawlog | CTR | Low |
| 7 | 2.6 | Hickory, ash | Pole | CTR | Low |
| 8 | 47.7 | Black oak, locust, hickory, shingle oak, cedar, cherry | Sapling-pole | CTR | Low |
| 9 | 5.2 | Black, red, white oak, hickory | Pole-small sawlog | CTR | High |
| 10 | 10.4 | Hickory, some locust, black & shingle oak | pole | CTR | Low |
| 11 | 7.5 | Hickory, some locust, white & black oak | Small sawlog | CTR | Low |
| 12 | 12.2 | Black, red, white oak, hickory | Small sawlog | CTR | High |
| 13 | 6.3 | Hickory, ash, cherry, elm, black, red, white oak | Sapling-pole | CTR | High |

SELMA WMA HIGH PRIORITY PROJECTS

| <u>Stand #</u> | <u>Acres</u> | <u>Prescription</u> |
|----------------|--------------|---------------------|
| 4 | 4.4 | Crop Tree Release |
| 9 | 5.2 | Crop Tree Release |
| 12 | 12.2 | Crop Tree Release |
| 13 | 6.3 | Crop Tree Release |



Van Buren Wildlife Management Area

The Van Buren WMA is located 2.5 miles east of Douds on Hwy 16 then south 1 mile on Gray Ave.

Location: T70N, R10W, Section 29 & 30
Van Buren County, Iowa

Acres: 438 acres total
437.1 acres timber
.9 acres parking lot

The Van Buren WMA was purchased in 1971 from the Van Buren Foundation, Inc. at a cost of \$26,400. The area was under a forest management plan before the acquisition by the state of Iowa. The Van Buren Foundation made a number of pine plantings in the late 1950' and 1960's and also completed extensive timber stand improvement on the area. Since the time that the Iowa DNR took over management, forest work has been completed using fire and various tracts have had some timber stand improvement work completed.

WORK PLAN FOR VAN BUREN WMA

The work plan for Van Buren WMA is designed to aid wildlife staff 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.

For purposes of this FWSP, the Van Buren WMA forested land was divided into 34 stands shown in the photo (refer to page 20). Each stand is described in this plan and recommendations are outlined for woodland management by stand. A priority level has been established for each stand recommendation to assist in management decisions.

Current Distribution of tree size classes at Van Buren WMA

(Van Buren Size Class map on page 32)

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

| <u>Tree Size (DBH)</u> | <u>Acres</u> | <u>% of Forested Area</u> |
|------------------------|--------------|---------------------------|
| Sapling 1-4" | 6.3 | 1.4 |
| Pole 5-10" | 24.9 | 5.7 |
| Small Saw 12-18" | 290.1 | 66.4 |
| Sawlog > 18" | <u>115.8</u> | <u>26.5</u> |
| Total | 437.1 | 100 |

Proposed Management Systems for the Van Buren WMA

(Van Buren Mgt Systems map on page 34)

Recommendations for each stand were based on whether the area will be managed to create an early successional or a even age system, 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, and protect fragile sites.

The management recommendations for Van Buren WMA are shown in the table below:

| <u>Management System</u> | <u>Acres</u> | <u>% of Forested Area</u> |
|--------------------------|--------------|---------------------------|
| Early Successional | 8.1 | 2 |
| <u>Even age</u> | <u>429.0</u> | <u>98</u> |
| Total | 437.1 | 100 |

Early Successional Management

The early succession management areas will be managed on a 15 to 20 year rotation. In other words, every 15 to 20 years the stands will be cut to create areas with high stem density. Van Buren WMA has 8.1 acres scheduled for early successional management.

Some of the timber edges contain narrow bands of sapling to pole size trees that were not identified as stands to be managed for early successional management. The number of acres to manage for early succession could be increased from the 8.1 acres identified if desired for management purposes.

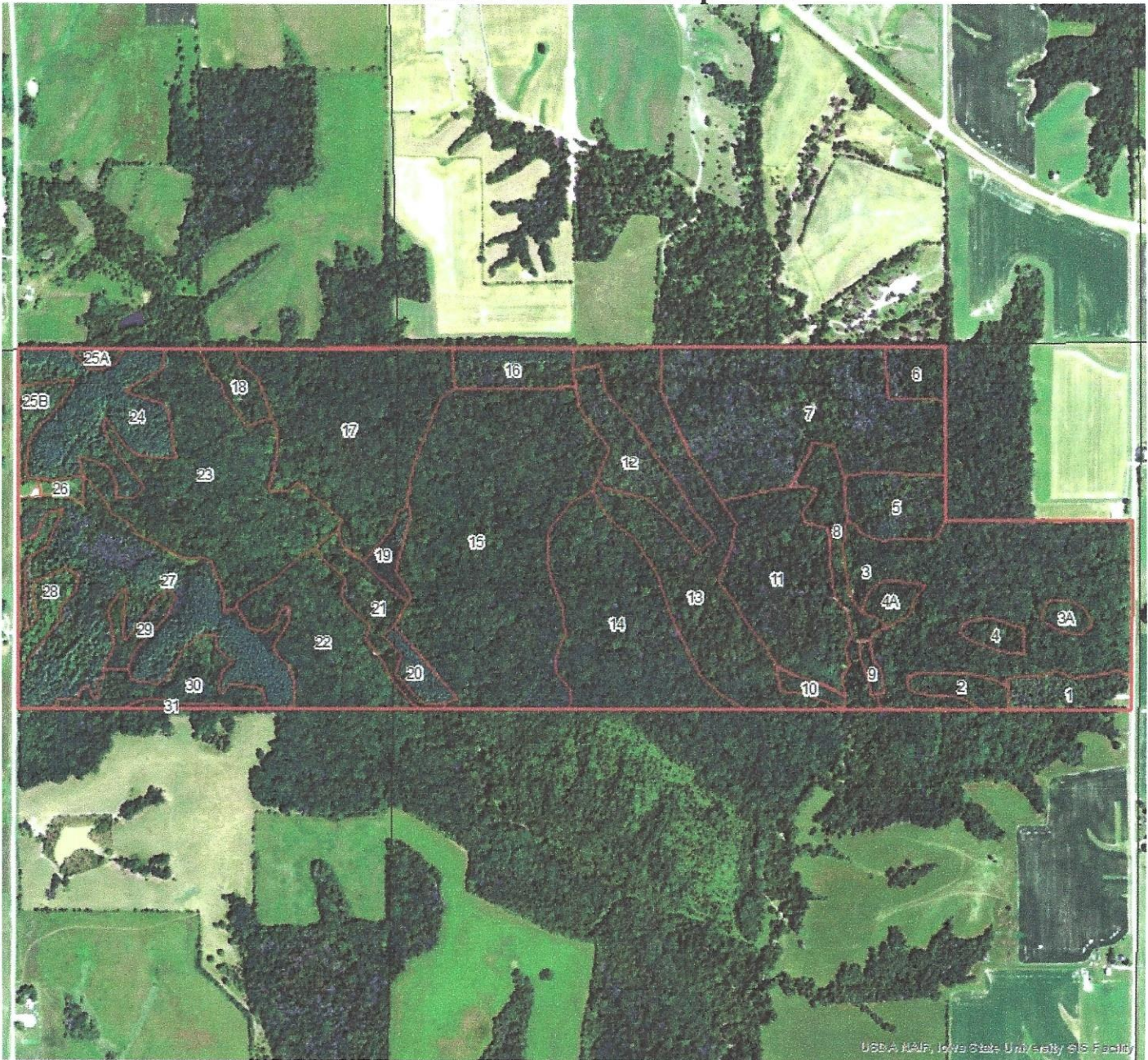
Even age Management

There are 429 acres on the Van Buren WMA that will be managed as even aged woodlands to regenerate oak. The eventual acreage requiring clear cutting every 5 years depends on the rotation age used for the stand. With a typical 125 year rotation, approximately 17 acres would need to be clear cut every 5 years. If the rotation age can be extended significantly without jeopardizing the ability to regenerate oak, the acres of clear cutting every 5 years can be reduced correspondingly.

Monitoring Forest & Wildlife Response to Management Practices

A detailed forest and wildlife monitoring plan will be developed as an addendum to this FWSP that will outline procedures, species monitoring to be conducted and timetable.

Van Buren WMA Stand Map - 2019



Description and Recommendation's for Stands - Van Buren WMA

Stand 1: 5.3 acres

Woodland Description –

This area was planted to red and Scotch pine around 1954. Most of the pine have long since died out but there are a few scattered living pine. The area is now occupied by large pole to sapling size locust, shingle oak, ash (mostly dead/dying), hackberry, elm, and some red and white oak and occasional walnut.

Management Recommendations –

This area could be cut back on a 10 to 15 year rotation to maintain early successional vegetation. Some of the oak could be retained to provide an edge mast crop in future years. Another option for this stand is to apply CTR. Crop trees will be desirable species with good form and lack of significant defect. Trees with crowns that are touching or overtopping the crown of the crop trees will be killed by felling or double girdling. Species normally selected as crop trees are walnut, white oak, and red oak. Species diversity is encouraged in selecting crop trees.

Since most of the trees are sapling and pole size, CTR is not a high priority at this time, but should be considered in another 5 years or so.

Stand 2: 3.0 acres

Woodland Description –

This stand is composed primarily of pole to small sawlog size shagbark hickory with scattered large sawlog size white oak. There are some pole size elm, mixed oak, and cherry.

Management Recommendations –

CTR is recommended to release the oak and any other desirable trees, but would be lower priority because of the low number of desirable species.

Stand 3: 44.1 acres

Woodland Description –

This stand is composed mostly of sawlog size white oak 16 to 20+ inches in diameter. Other species include hickory and red oak with occasional cherry and walnut. Understory is relatively open with some prickly ash, ironwood, and gooseberry. Some regeneration of ash, elm, and hickory throughout, with limited oak regeneration on some of the south and west facing slopes.

There are scattered dead and dying large white oaks in parts of this stand, possibly due to Rapid White Oak Mortality.

Management Recommendations –

Selective harvest of some but not all of the dead and dying trees as well as merchantable lower quality trees is recommended. This harvest would lower the stand density somewhat and benefit the health of the remaining trees as well as increase natural regeneration of oaks. After this harvest, SPNR should be applied to remove mid and understory trees to further open the stand to allow more sunlight to the forest floor to increase natural regeneration of desired species.

Stand 3A: 1.5 acres

Woodland Description –

This stand is also composed primarily of sawlog size white oak but contains abundant advanced oak regeneration in the understory. This stand is part of the area that was logged in 1963.

Management Recommendations –

A clearcut harvest (regeneration cut) is recommended to remove the canopy and release the existing oak regeneration to sunlight. Some CTR to weed out any remaining undesirable species competing with the oaks saplings may be beneficial after the harvest.

Stand 4: 1.8 acres

Woodland Description –

This stand was clearcut about 1990 and now contains mostly pole size red oak, hickory, and elm with occasional white oak and walnut. Some light CTR was applied about 15 years ago to remove some of the undesirable trees.

Management Recommendations –

This stand should receive some CTR to release existing desirable trees from competition.

Stand 4A: 2.1 acres

Woodland Description –

This stand was also clearcut in 1990 and contains pole size mixed oak, hickory, and elm. There is a much higher percentage of white oak present than in stand 4. This stand also had light CTR done to remove some of the undesirable species about 15 years ago.

Management Recommendations –

CTR is recommended for this stand.

Stand 5: 7.5 acres

Woodland Description –

This stand was planted to pine about 1958 to 1960. The east side was mostly red pine, of which most have died over the past 10 years or so. It now contains scattered red pine with mixed hardwood saplings and poles. The west part is mostly 12 to 20 inch diameter eastern white pine with mixed hardwoods scattered throughout.

Management Recommendations –

CTR to weed out undesirable hardwood species would benefit the existing living pine on the west side. There are some nice oak and walnut among the pine that could be released with CTR. On the east side, where most of the pine are dead, CTR to release any oak and walnut would be beneficial but should probably wait a few years until hardwoods are slightly larger diameter. This area could also be managed for early successional habitat.

Stand 6: 3.7 acres

Woodland Description –

This stand consists mostly of large pole size shagbark hickory with some elm and mixed oak scattered throughout.

Management Recommendations –

CTR is recommended to release the oak and any other desirable trees but would be lower priority because of the low number of desirable species.

Stand 7: 37.8 acres

Woodland Description –

This stand is composed primarily of large sawlog white oak 18 to 26 inches in diameter. Other species present include hickory, elm, red oak, and black oak. Understory is composed of prickly ash, ironwood, gooseberry, and multiflora rose. There is some elm, hickory, and ash regeneration. A large number of the white oak are dead or dying, apparently from Rapid White Oak Mortality. Trees appear to have been dying for several years and are continuing to die.

Management Recommendations –

Select harvest of the dead and dying trees as well as merchantable lower quality trees is recommended. This harvest would lower the stand density considerably and benefit the health of the remaining trees as well as increase natural regeneration of oaks. After this harvest, SPNR should be applied to remove mid and understory trees to further open the stand to allow more sunlight to the forest floor to increase natural regeneration of desired species.

Stand 8: 8.0 acres

Woodland Description –

This stand is composed of small sawlog black oak, red oak and hickory, with some elm, swamp white oak, hackberry, and occasional walnut. There are scattered larger trees.

Management Recommendations –

CTR is recommended for this stand. A selective harvest of some of the larger black and red oak could possibly be recommended if harvesting in an adjacent stand.

Stand 9: 0.8 acres

Woodland Description –

This stand contains mostly small sawlog size eastern white pine planted about 1959. There are scattered mixed hardwoods throughout.

Management Recommendations –

CTR to weed out undesirable hardwood species would benefit the existing pine.

Stand 10: 1.4 acres

Woodland Description –

This stand is composed primarily of sawlog size white oak 16 to 26 inches in diameter with some larger red oak and hickory. There is pole size hickory scattered throughout. Understory is composed of mostly prickly ash and gooseberry with some elm, ash, and hickory regeneration.

Management Recommendations –

SPNR is recommended for this stand to allow more sunlight to the forest floor to increase natural regeneration of oaks. Following the SPNR, the area should have a Shelterwood harvest to remove some of the most mature and lower quality overstory trees. After several years, or when oak regeneration becomes established, the remaining overstory trees should be harvested.

Stand 11: 20.6 acres

Woodland Description –

This stand contains mostly large pole to small sawlog red and black oak with larger trees scattered throughout. Other species present include hickory, black locust, cedar, elm, and cherry, with some scattered white pine. Understory is prickly ash, multiflora rose, and gooseberry, with some elm, ash, and hickory regeneration.

Management Recommendations –

This stand would benefit from CTR. A selective harvest of some of the larger black and red oak could possibly be recommended if harvesting in an adjacent stand.

Stand 12: 9.0 acres

Woodland Description –

This area was planted to mixed pine around 1954. There is some eastern white pine remaining, but most of the pine have died. Much of the red pine has died in the past 8 to 10 years, and the area now consists of mixed hardwood saplings and poles.

Management Recommendations –

CTR would be beneficial to weed out undesirable species in this relatively young mixed hardwood stand, but should wait several years until the trees attain a slightly larger size. Undesirable hardwoods could also be eliminated from the existing white pine to enhance their growth and survival.

This area could also be managed for early successional habitat.

Stand 13: 28.5 acres

Woodland Description –

This stand contains pole to small sawlog black oak, hickory, and locust, with lesser amounts of red oak, elm, cherry, and white oak. There are some scattered pine. Understory is prickly ash, multiflora rose, and gooseberry, with some elm, ash, and hickory regeneration.

Management Recommendations –

This stand would benefit from CTR. A selective harvest of some of the larger black and red oak is recommended if harvesting in an adjacent stand.

Stand 14: 26.9 acres

Woodland Description –

This stand is comprised mostly of sawlog size white oak 14 to 24+ inches in diameter with some black oak and hickory. Other species present include elm, red oak, and cherry. Understory is prickly ash and gooseberry with some elm and hickory regeneration.

Management Recommendations –

SPNR is recommended for this stand to allow more sunlight to the forest floor to increase natural regeneration of oaks. Following the SPNR, the area should have a Shelterwood harvest to remove some of the most mature and lower quality overstory trees. After several years, or when oak regeneration becomes established, the remaining overstory trees should be harvested.

Stand 15: 58.4 acres

Woodland Description –

This stand is composed of small sawlog and some pole size white oak with lesser amounts of black oak, red oak, and hickory. Understory is composed of mostly prickly ash and gooseberry with some elm, ash, and hickory regeneration.

Management Recommendations –

This stand would benefit from CTR.

Stand 16: 5.7 acres

Woodland Description –

The north part of this stand consists of small sawlog eastern white pine 12 to 16 inches in diameter. The south part was red pine, most of which have died over the past 10 years, and now contains sapling and small pole mixed hardwoods.

Management Recommendations –

CTR would be beneficial to weed out undesirable species in this relatively young mixed hardwood stand, but should wait several years until the trees attain a slightly larger size. Undesirable hardwoods could also be eliminated from the existing white pine to enhance their growth and survival.

The south part of this area could also be managed for early successional habitat.

Stand 17: 32.4 acres

Woodland Description –

This stand consists mostly of small sawlog white oak 10 to 16 inches in diameter with lesser amounts of black oak, hickory, cherry, elm, locust, and red oak. There are some larger sawlog red oak along the draws. Understory consists of prickly ash, gooseberry, and multiflora rose, with some elm and hickory regeneration. There is also some limited oak regeneration on the south and west facing slopes.

Management Recommendations –

This stand would benefit from CTR.

Stand 18: 3.1 acres

Woodland Description –

This stand consists of large sawlog size cottonwood and honey locust with some hickory and occasional walnut, swamp white oak, and red oak.

Management Recommendations –

CTR to weed out some of the lower quality species to release the oak and walnut would be beneficial to this stand.

Stand 19: 2.1 acres

Woodland Description –

This stand consists of small sawlog eastern white and Virginia pine planted about 1962 with a majority of the pines still alive. There are some mixed hardwoods growing amongst the pine.

Management Recommendations –

This stand would benefit from removing the undesirable hardwoods from the pine as well as thinning out some of the pine where they are the densest.

Stand 20: 2.5 acres

Woodland Description –

This stand consists of small sawlog eastern white pine planted about 1960, a majority of which are still alive. There are mixed hardwoods scattered through the pine.

Management Recommendations –

This stand would benefit from removing the undesirable hardwoods from the pine as well as thinning out some of the pine where they are the densest.

Stand 21: 5.8 acres

Woodland Description –

This stand is comprised of small sawlog to pole size cottonwood, swamp white oak, black oak, river birch, bitternut hickory, elm, and some walnut, shingle oak, aspen, and occasional sycamore. Understory is mostly dogwood with some ash, elm, and shingle oak regeneration.

Management Recommendations –

This stand would benefit from CTR to release the oak and walnut. This area may also be a good area for early successional regeneration as well. Maintaining a few large overstory trees for singing perches.

Stand 22: 16.7 acres

Woodland Description –

This stand is comprised mostly of small sawlog to larger sawlog white oak 12 to 20+ inches in diameter with most of the trees being 14 to 16 inch diameter. There are also occasional red oak, black oak, hickory, and walnut. Understory is relatively open with some prickly ash and gooseberry. There is some hickory and elm regeneration as well as some oak regeneration in spots.

Management Recommendations –

This stand would benefit from CTR to release the oak and walnut. Selective harvest of some of the largest trees would also be beneficial .

Stand 23: 35.5 acres

Woodland Description –

This stand consists of small sawlog to pole size white oak, black oak, and hickory, with some red oak, elm, and locust. Understory is composed of ironwood and gooseberry with some elm and hickory regeneration.

Management Recommendations –

This stand would benefit from CTR to release the oak and walnut.

Stand 24: 16.6 acres

Woodland Description –

This stand consists mostly of small sawlog size eastern white pine planted about 1963, the majority of which are still alive. There are mixed hardwoods scattered through the pine.

Management Recommendations –

This stand would benefit from removing the undesirable hardwoods from the pine as well as thinning out some of the pine where they are the densest. Any high quality oak and walnut among the pine should be released with CTR

Stand 25a: 0.9 acres

Woodland Description –

This stand is composed of pole to sapling size mixed hardwoods with scattered larger trees. Species include shingle oak, hickory, elm, black oak, and locust, with some red cedar, white oak, bur oak, and walnut. Understory is mostly dogwood.

Management Recommendations –

This stand would benefit from CTR to weed out the undesirable species to release the oak and walnut. This area could also be managed for early successional habitat.

Stand 25B: 2.8 acres

Woodland Description –

Same as 25A.

Management Recommendations –

Same as 25A.

Stand 26: 1.0 acres

Woodland Description –

This small area next to the parking lot is dominated by dogwood with an abundance of mixed oak, elm, hickory, and walnut sapling scattered throughout.

Management Recommendations –

This area could be cut back on a 10 – 15 year rotation to maintain early successional vegetation. Some of the oak could be retained to provide an edge mast crop in future years.

Another option is to apply CTR to weed out undesirable species in this relatively young mixed hardwood stand, but should wait several years until the trees attain a slightly larger size.

Stand 27: 35.6 acres

Woodland Description –

This stand consists mostly of small sawlog size eastern white and red pine planted about 1961-1963. The majority of the white pine are still alive, while most of the red pine have died over the past 10 years. There are mixed hardwoods scattered through the pine.

Management Recommendations –

Where most of the pine are still alive, this stand would benefit from removing the undesirable hardwoods from the pine as well as thinning out some of the pine where they are the densest.

Where most of the pine are dead, the area could be managed for early successional habitat.

CTR to release any oak and walnut would be another option, but should probably wait a few years until hardwoods are slightly larger diameter

Stand 28: 4.6 acres

Woodland Description –

This stand is composed of mostly pole and sapling size trees with scattered larger trees. Species include elm, cottonwood, locust, cedar, mixed oak, and occasional walnut. Understory is mostly dogwood.

Management Recommendations –

This stand would benefit from CTR to weed out the undesirable species to release the oak and walnut.

Stand 29: 2.6 acres

Woodland Description –

This stand contains mostly small sawlog size mixed oak, locust, and walnut with some elm and hickory. There are scattered larger trees. Understory is composed of prickly ash, gooseberry, and multiflora rose.

Management Recommendations –

This stand should receive CTR to release existing desirable trees from competition.

Stand 30: 7.8 acres

Woodland Description –

This stand is composed mostly of small sawlog size white oak and hickory with some other mixed oak, elm, and locust.

Management Recommendations –

This stand should receive CTR to release existing desirable trees from competition.

Stand 31: 1.0 acres

Woodland Description –

This stand is composed primarily of sawlog size white oak 18 to 24+ inches in diameter with some larger red oak and hickory. There is pole size hickory scattered throughout. Understory is composed of mostly prickly ash and gooseberry with some elm, ash, and hickory regeneration.

Management Recommendations –

SPNR is recommended for this stand to allow more sunlight to the forest floor to increase natural regeneration of oaks. Following the SPNR, the area should have a Shelterwood harvest to remove some of the most mature and lower quality overstory trees. After several years, or when oak regeneration becomes established, the remaining overstory trees should be harvested.

Van Buren WMA Summary of Stands

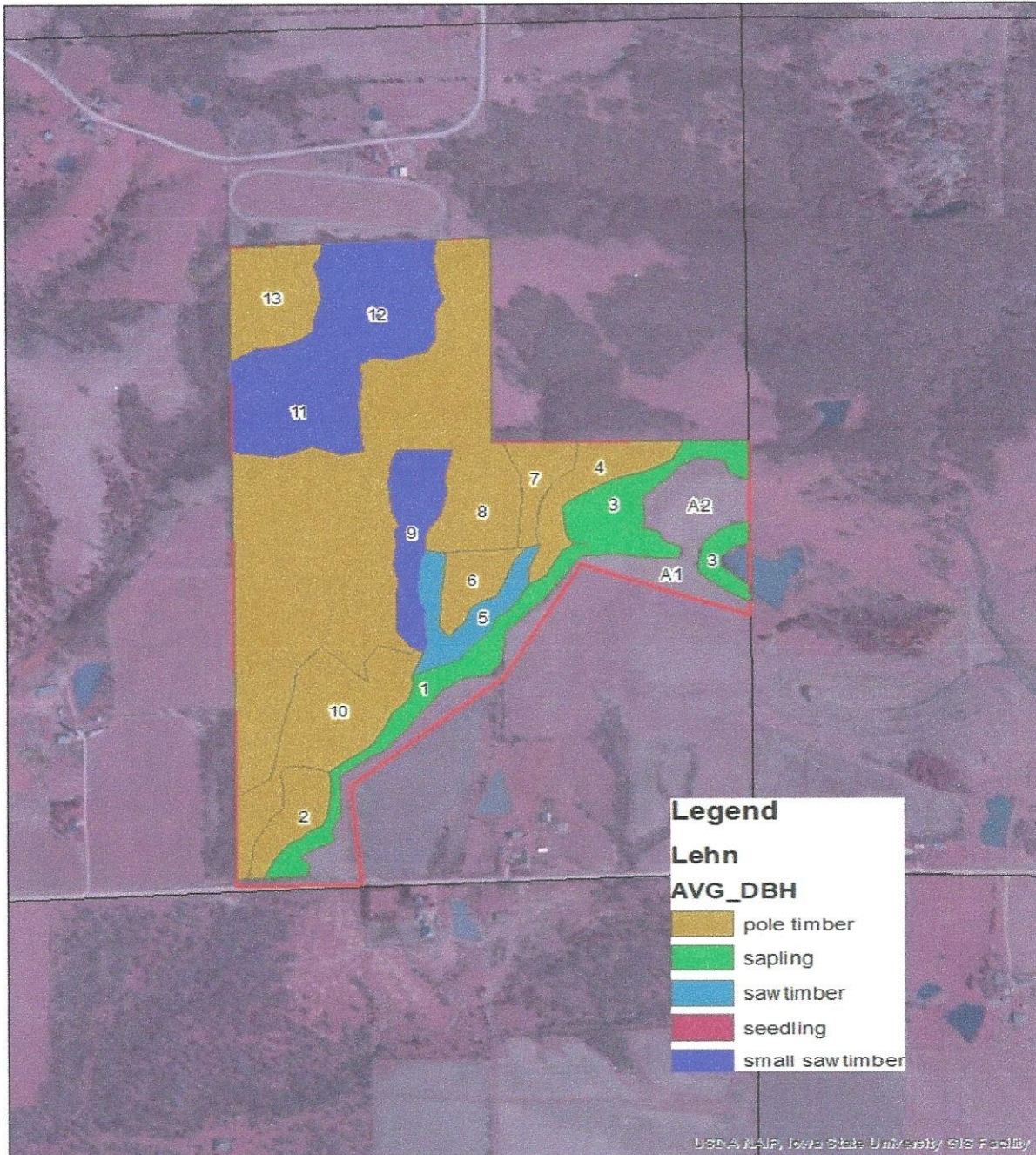
| Stand # | Acres | Timber Type | Tree Size | Prescription | Priority |
|---------|-------|--|--------------|-----------------------------|------------|
| 1 | 5.3 | Mixed hardwood with some pine | Pole-sapling | Weed, CTR | Low |
| 2 | 3.0 | Hickory, scattered large white oak | Pole-sawlog | CTR, Select harvest | Low |
| 3 | 44.1 | White oak, some hickory, red oak | sawlog | Select harvest, SPNR | High |
| 3A | 1.5 | White oak, advanced regeneration | sawlog | Clearcut | High |
| 4 | 1.8 | Mixed oak, hickory | pole | CTR | High |
| 4A | 2.1 | Mixed oak, hickory | pole | CTR | High |
| 5 | 7.5 | White, red pine | Small sawlog | Weed tree, early succession | Low |
| 6 | 3.7 | Hickory, scattered oak | Pole | CTR | Low |
| 7 | 37.8 | White oak (many dying), hickory | Sawlog | Select harvest, SPNR | High |
| 8 | 8.0 | Swamp w. oak, bl. Oak, red oak, hickory | Small Sawlog | CTR | Medium |
| 9 | 0.8 | White pine | Small Sawlog | Weed | Low |
| 10 | 1.4 | White oak, some hickory, black oak | Sawlog | SPNR, Shelterwood | Med-low |
| 11 | 20.6 | Black, red, white oak, hickory, scattered pine | Small sawlog | CTR | Low |
| 12 | 9.0 | Mixed pine (mostly dead), sapling hardwoods | Pole-sapling | Weed tree | Low |
| 13 | 28.5 | Black oak, hickory, locust, scattered pine | Small sawlog | CTR | Low |
| 14 | 26.9 | White oak, hickory, black oak | Sawlog | SPNR, Shelterwood | Medium |
| 15 | 58.4 | White oak, black oak, red oak, hickory | Small sawlog | CTR | High |
| 16 | 5.7 | White pine, dead red pine, sapling hardwoods | Small sawlog | Weed tree | Low |
| 17 | 32.4 | White oak hickory, mixed hardwoods | Small sawlog | CTR | High |
| 18 | 3.1 | Locust, cottonwood, swamp white oak, walnut | Sawlog | Weed | Low |
| 19 | 2.1 | White pine, Virginia pine | Small sawlog | Weed | Low |
| 20 | 2.5 | White pine | Small sawlog | Weed | Low |
| 21 | 5.8 | Cottonwood, birch, swamp, white oak, walnut | Small sawlog | CTR | High |
| 22 | 16.7 | White oak, black, red oak, walnut | Small sawlog | CTR, select harvest | Medium |
| 23 | 35.5 | White & black oak, hickory | Small sawlog | CTR | High |
| 24 | 16.6 | White pine | Small sawlog | Weed | Low |
| 25A | 0.9 | Mixed hardwoods, some oak, walnut | Pole | CTR | Low-med |
| 25B | 2.8 | Mixed hardwoods, some oak, walnut | Pole | CTR | Low-med |
| 26 | 1.0 | Dogwood, mixed hardwoods, oak, walnut | Sapling | CTR, early successional | Low |
| 27 | 35.6 | Mixed pine | Small sawlog | Weed | Low |
| 28 | 4.6 | Cottonwood, elm, locust, mixed oak | Pole | CTR | Low |
| 29 | 2.6 | Mixed oak, locust, walnut | Small sawlog | CTR | Med-high |
| 30 | 7.8 | White oak, hickory | Small sawlog | CTR | Medium |
| 31 | 1.0 | White & red oak, hickory | Sawlog | SPNR, harvest | Low-medium |

Van Buren WMA High Priority Projects

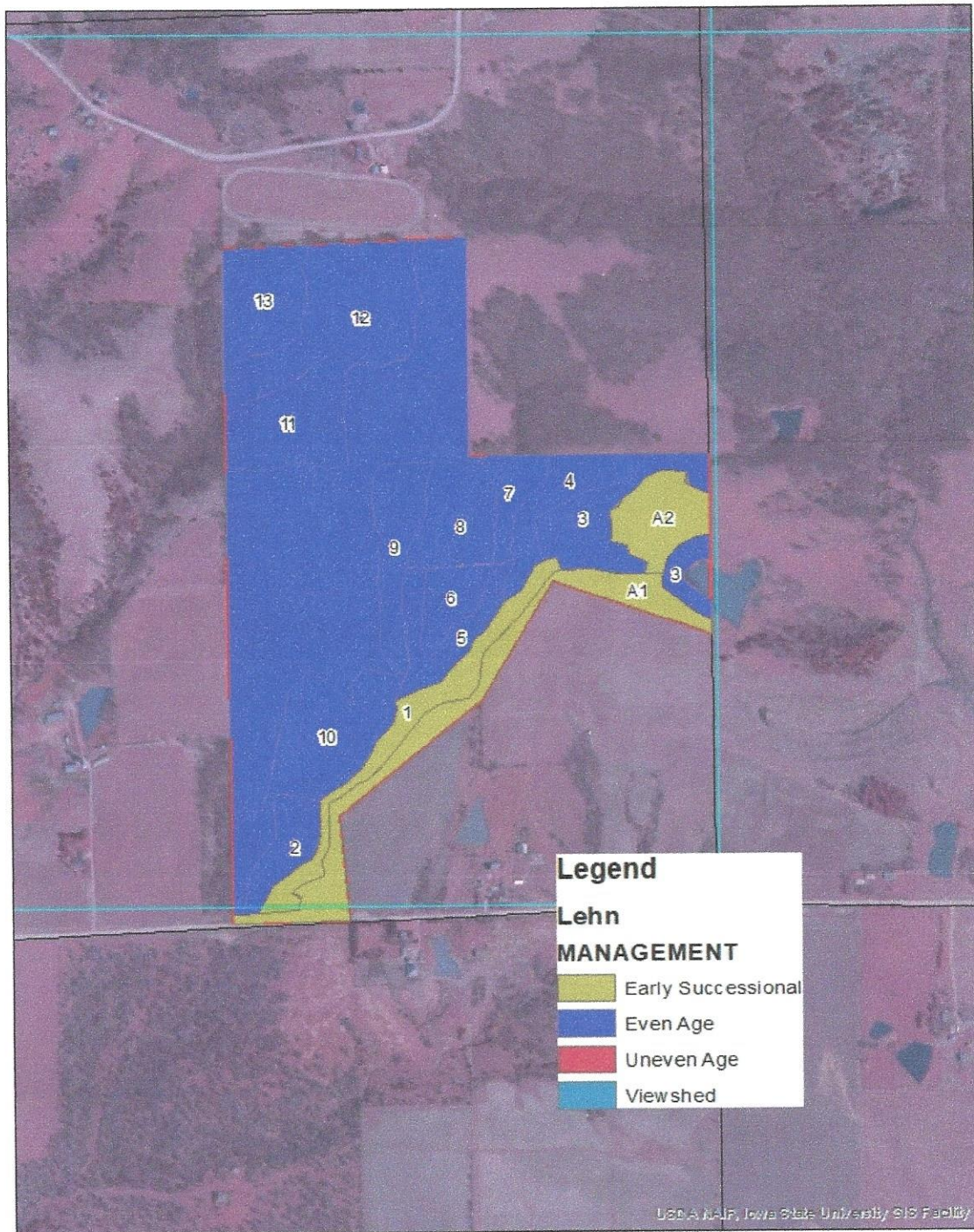
| <u>Stand #</u> | <u>Acres</u> | <u>Prescription</u> |
|----------------|--------------|--|
| 3 | 44.1 | Select harvest and SPNR |
| 3A | 1.5 | Clearcut harvest and weed tree removal |
| 4 | 1.8 | Crop Tree Release |
| 4A | 2.1 | Crop Tree Release |
| 7 | 37.8 | Select Harvest and SPNR |
| 15 | 58.4 | Crop Tree Release |
| 17 | 32.4 | Crop Tree Release |
| 21 | 5.8 | Crop Tree Release |
| 23 | 35.5 | Crop Tree Release |

Appendix

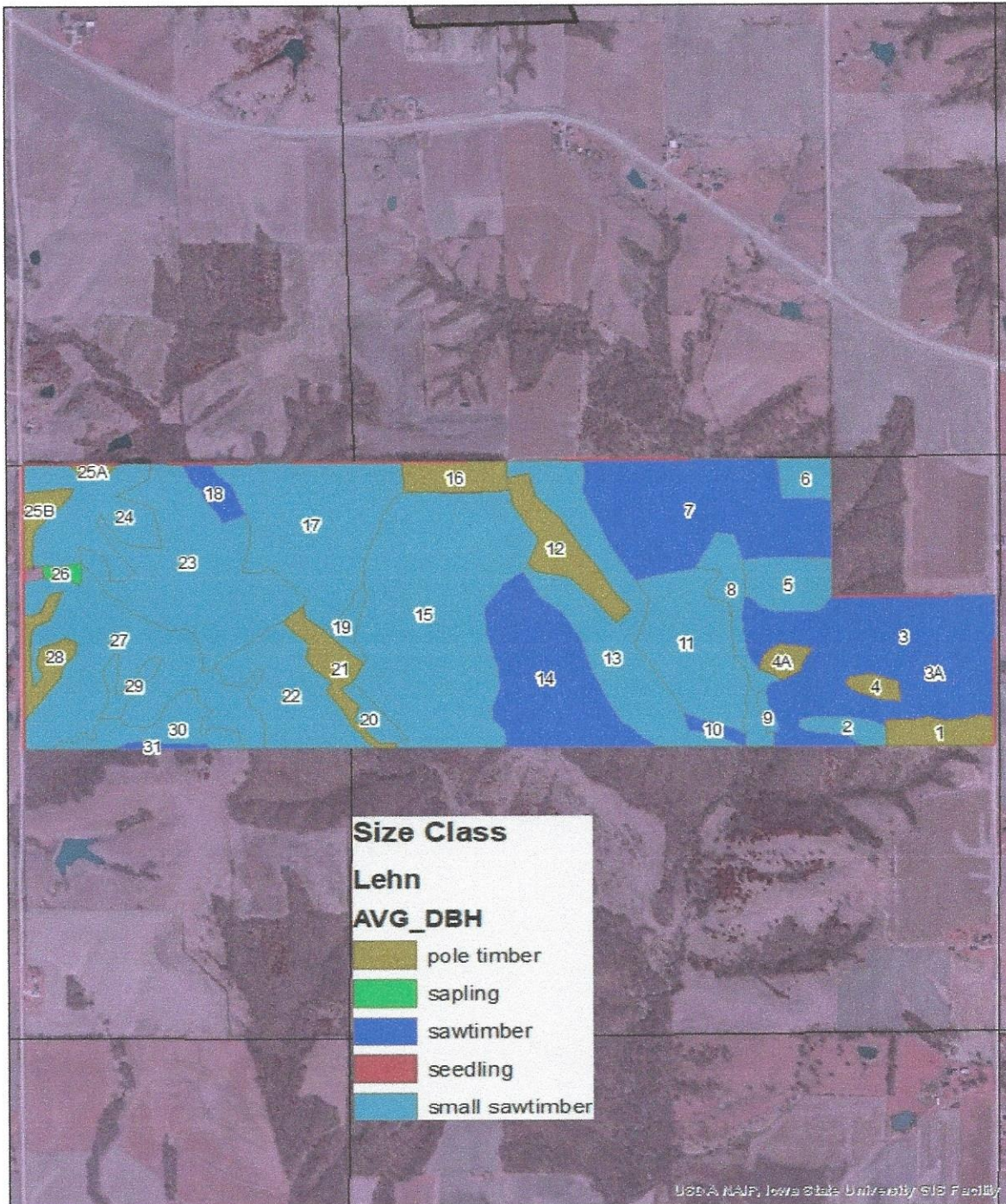
Selma WMA Size Class



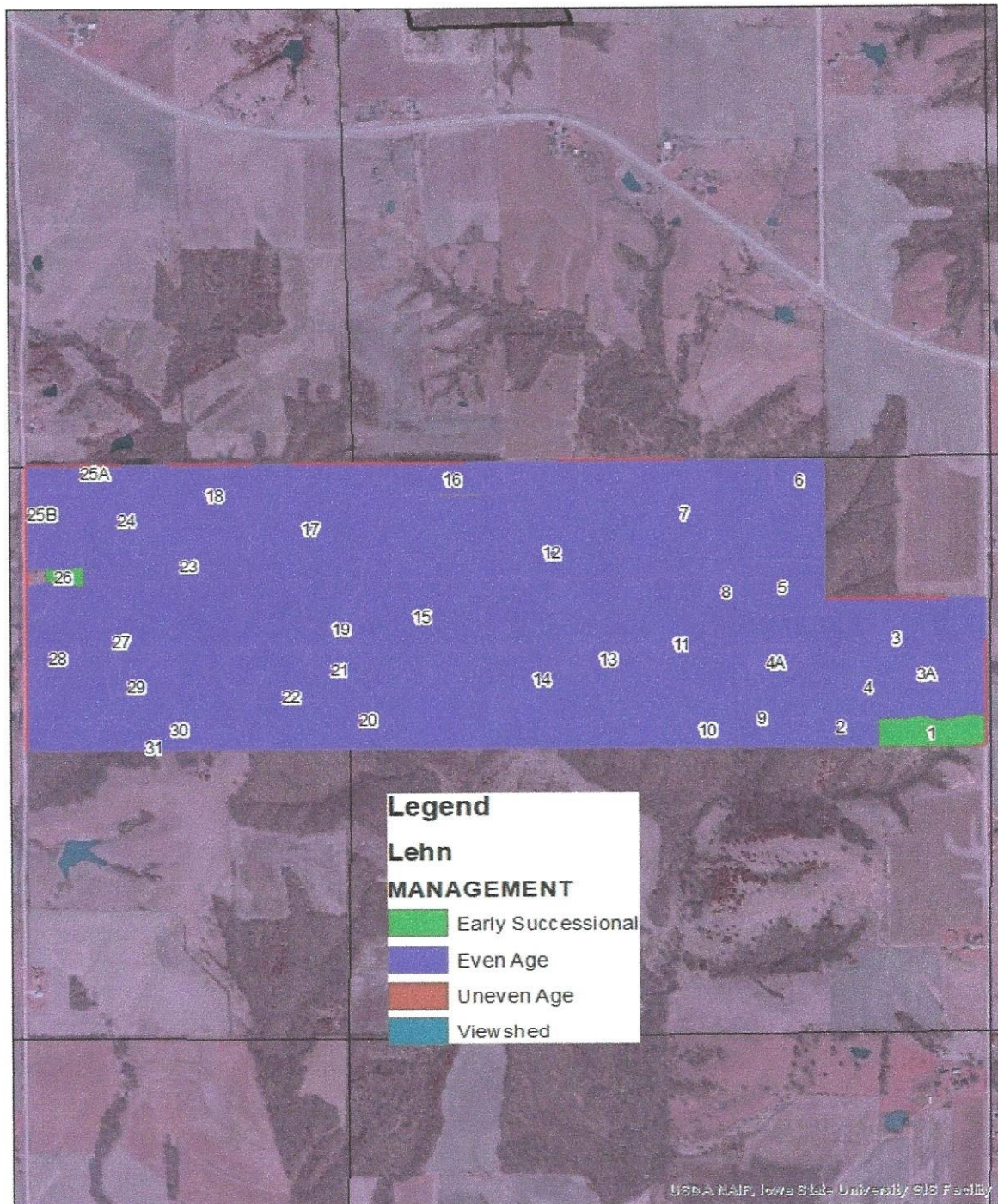
Selma WMA Management System



Van Buren WMA Size Class



Van Buren WMA Management System



Species of Greatest Conservation Need

Table 1. Potential Forest Birds of Greatest Conservation Need Breeding in the Selma and Van Buren WMA Drainages

| | |
|-------------------------|-----------------------------------|
| Bald Eagle | <i>Haliaeetus leucocephalus</i> |
| Northern Bobwhite Quail | <i>Colinus virginianus</i> |
| Red-shouldered hawk | <i>Buteo lineatus</i> |
| Broad-winged hawk | <i>Buteo platypterus</i> |
| American woodcock | <i>Scolopax minor</i> |
| Black-billed cuckoo | <i>Coccyzus erythrophthalmus</i> |
| Yellow-billed cuckoo | <i>Coccyzus americanus</i> |
| Eastern Screech Owl | <i>Megascops asio</i> |
| Long-eared owl | <i>Asio otus</i> |
| Chuck-will's widow | <i>Caprimulgus carolinensis</i> |
| Eastern Whip-poor-will | <i>Caprimulgus vociferous</i> |
| Red-headed woodpecker | <i>Melanerpes erythrocephalus</i> |
| Acadian flycatcher | <i>Empidonax virescens</i> |
| Northern Flicker | <i>Colaptes auratus</i> |
| Eastern Wood-Pewee | <i>Contopus virens</i> |
| Bewick's wren | <i>Thryomanes bewickii</i> |
| Veery | <i>Catharus fuscescens</i> |
| Wood thrush | <i>Hylocichla mustelina</i> |
| Bell's Vireo | <i>Vireo bellii</i> |
| Cerulean warbler | <i>Dendroica cerulea</i> |
| Prothonotary warbler | <i>Protonotaria citrea</i> |
| Worm-eating warbler | <i>Helmitheros vermivorus</i> |
| Kentucky warbler | <i>Oporornis formosus</i> |
| Yellow-breasted chat | <i>Icteria virens</i> |
| Brown's Thrasher | <i>Toxostoma rufum</i> |
| Common Yellowthroat | <i>Geothypis trichas</i> |
| Baltimore Oriole | <i>Icterus galbula</i> |
| Field Sparrow | <i>Spizella pusilla</i> |

Table 2. Potential Forest Migrant Birds of Greatest Conservation Need in the Selma and Van Buren WMA Drainages

| | |
|------------------------|------------------------------|
| Golden-winged warbler | <i>Vermivora chrysoptera</i> |
| Canada warbler | <i>Wilsonia canadensis</i> |
| White-winged Crossbill | <i>Loxia leucoptera</i> |
| Olive-sided flycatcher | <i>Contopus cooperi</i> |
| Bay-breasted Warbler | <i>Setophaga castanea</i> |
| Harris's Sparrow | <i>Zonotrichia querula</i> |

Table 3. Potential Forest and Forest Edge Mammals of Greatest Conservation Need in the Selma and Van Buren WMA Drainages

| | |
|-----------------------------|----------------------------------|
| Southern Short-tailed Shrew | <i>Blarina carolinensis</i> |
| Elliot's Short-tailed Shrew | <i>Blarina hylophaga</i> |
| Least Shrew | <i>Cryptotis parva</i> |
| Evening Bat | <i>Nycticeius humeralis</i> |
| Indiana Bat | <i>Myotis sodalist</i> |
| Northern long-eared Myotis | <i>Myotis septentrionalis</i> |
| Silver-haired Bat | <i>Lasionycteris noctivagans</i> |
| Little Brown Bat | <i>Myotis septentrionalis</i> |
| Tri-colored Bat | <i>Perimyotis subflavus</i> |
| Southern Flying Squirrel | <i>Glaucomys volans</i> |
| Southern Bog Lemming | <i>Synaptomys cooperi</i> |

Table 4. Potential Forest and Forest Edge Reptiles and Amphibians of Greatest Conservation Need in the Selma and Van Buren WMA Drainages

| | |
|---------------------------|----------------------------------|
| Smallmouth Salamander | <i>Ambystoma texanum</i> |
| Eastern Tiger Salamander | <i>Ambystoma tigrinum</i> |
| Eastern Newt | <i>Notophthalmus viridescens</i> |
| Crawfish Frog | <i>Rana areolata</i> |
| Blanchard's Cricket Frog | <i>Acris blanchardi</i> |
| Slender Glass Lizard | <i>Ophisaurus attenuatus</i> |
| Smooth Earth Snake | <i>Virginia valeriae</i> |
| Eastern Hognose Snake | <i>Heterodon platirhinos</i> |
| Ringneck Snake | <i>Diadophis punctatus</i> |
| Western (Black) Rat Snake | <i>Pantherophis obsoletus</i> |
| Western Fox Snake | <i>Pantherophis ramspotti</i> |
| Western Worm Snake | <i>Carphophis amoenus</i> |
| Prairie Kingsnake | <i>Lampropeltis calligaster</i> |
| Speckled Kingsnake | <i>Lampropeltis getulus</i> |
| Bull Snake | <i>Pituophis catenifer sayi</i> |
| Timber Rattlesnake | <i>Crotalus horridus</i> |

Table 5. Potential Forest and Forest Edge Butterflies of Greatest Conservation Need in the Selma and Van Buren WMA Drainages

| | |
|-----------------------|------------------------------|
| Pipevine Swallowtail | <i>Battus philenor</i> |
| Spicebush Swallowtail | <i>Papilio troilus</i> |
| Wild Indigo Duskywing | <i>Erynnis baptisiae</i> |
| Sleepy Duskywing | <i>Erynnis brizo</i> |
| Juvenal's Duskywing | <i>Erynnis juvenalis</i> |
| Zebra Swallowtail | <i>Eurytides marcellus</i> |
| Silvery Blue | <i>Glaucopsyche lygdamus</i> |
| Zabulon Skipper | <i>Poanes zabulon</i> |
| Hickory Hairstreak | <i>Satyrium caryaevorum</i> |

| | |
|-----------------------|-------------------------------------|
| Edward's Hairstreak | <i>Satyrium edwardsii</i> |
| Striped Hairstreak | <i>Satyrium liparops</i> |
| White M Hairstreak | <i>Parrhasius m-album</i> |
| Henry's Elfin | <i>Callophrys henrici</i> |
| Compton Tortoiseshell | <i>Nymphalis vaualbum (l-album)</i> |

Guidelines for Protecting Indiana Bat Summer Habitat

Indiana bats have been documented in Van Buren County. These guidelines were prepared to provide information about the Indiana bat and its summer habitat requirements in Iowa and to prevent inadvertent harm to the species through various human activities. This update of the guidelines is in response to changes in the US Fish and Wildlife Service requirements for protecting this endangered species. The changes include:

- ☐ No cut dates changed to April 1 through September 30
- ☐ Updated US Fish and Wildlife Service guidelines for mist net surveys

The Indiana bat is a federal (50CFR Part 17) and state (Code of Iowa, Chapter 481B) endangered species that occurs in southern Iowa from April through September.

Female Indiana bats (*Myotis sodalis*) have their young beneath loose or peeling tree bark. Most nursery colonies have been found on the trunk or large branches beneath the bark of standing dead trees. The nursery colonies are located along streams and rivers or in upland forest areas.

Trees that retain sheets or plates of bark that provide space beneath the bark when dead, such as red oak, post oak, and cottonwood, are potential roost trees. Live trees such as shagbark and shellbark hickory are also occasionally used as roosts.

Indiana bats have also been captured on the edge of urban areas. It is likely that the bats would use areas on the edge of urban areas only if there is suitable habitat such as a greenbelt or a large park with a natural forest component. This would exclude city parks that are maintained as mowed areas.

In Iowa, records for the Indiana bat have occurred in areas of 10% or greater forest cover and near permanent water. Trees with slabs or plates of loose bark are considered suitable as summer roosts.

Suitable summer habitat in Iowa is considered to have the following within a one-half or one mile radius of a location:

- ☐ Forest cover of 10% or greater within one-half mile.
- ☐ Permanent water within one-half mile.
- ☐ The potential roost trees ranked as moderate or high for peeling or loose bark within one mile.

Do not cut down potential roost trees between April 1 and September 30. Such trees can be left standing live or dead, during that time period.

Special Note on Northern Long-eared Bat

The Northern Long-eared Bat (NLEB) is a federally Threatened Species that can occur in any county of Iowa. To protect summer habitat for NLEB, tree removal should not occur within 0.25 miles of a known hibernaculum, and no trees within a 150-foot radius of a known, occupied maternity roost tree may be cut nor destroyed during the pup season (June 1 through July 31). Please contact the U.S. Fish and Wildlife Service (USFWS) for maps of known hibernacula and the most up-to-date information pertaining to the NLEB. Visit the USFWS Midwest Region Endangered Species webpage at: <https://www.fws.gov/midwest/endangered/index.html>

EXPLANATION OF TIMBER MANAGEMENT PRACTICES

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.

Crop-Tree Release (CTR) - In pole-sized stands (4 to 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.

Site Prep and Natural Regeneration (SPNR) - 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.

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.