

# FOREST MANAGEMENT PLAN



For the property of:

Landowner  
Information

Prepared by:

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## Table of Contents

SIGNATURES AND APPROVALS.....	3
INTRODUCTION.....	4
PROPERTY INFORMATION.....	5
LANDOWNER OBJECTIVES.....	5
SCHEDULE OF OPERATIONS.....	6
PROPERTY BOUNDARY / MANAGEMENT UNITS.....	7
EXISTING CONDITIONS / FIELD EXAMINATION FINDINGS.....	10
APPENDIX I - Location Information/Plat Map.....	21
APPENDIX II - Soil Information.....	22
APPENDIX III - Topographic Map.....	27
APPENDIX IV - Environmental Evaluations.....	29
FOREST MANAGMENT.....	29
ENDANGERED AND THREATENED SPECIES / STATE SPECIES OF CONCERN.....	29
ARCHAEOLOGICAL, CULTURAL, & HISTORICAL SITES.....	30
FOREST HEALTH AND PROTECTION.....	30
Destructive grazing.....	30
Fire management.....	30
Insect and disease.....	30
Invasive species.....	30
WATER RESOURCE & QUALITY.....	31
RECREATION & AESTHETIC RESOURCES.....	31
WILDLIFE RESOURCES.....	31
APPENDIX V - Glossary / Helpful Sites.....	32
Glossary.....	32
Helpful Internet Sites.....	33
ATTACHMENTS.....	
Soils Report.....	
Bat Habitat Requirements.....	

## SIGNATURES AND APPROVALS

This landowner FOREST MANAGEMENT Plan (*Tracking number 9816*) is provided as a guide to help you accomplish your objectives. This FOREST MANAGEMENT Plan will guide you in achieving the benefits of managing your forest and forest related resources.

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I certify that this FOREST MANAGEMENT Plan meets the requirements of the federal Forest Stewardship Program.

Landowner Information

Landowner Information

\_\_\_\_\_  
Plan Preparer

\_\_\_\_\_  
Date

I certify that this FOREST MANAGEMENT Plan meets the requirements of the federal Forest Stewardship Program.

\_\_\_\_\_  
Forestry Regional Supervisor

\_\_\_\_\_  
Date

---

I certify that this FOREST MANAGEMENT Plan meets the requirements of the USDA Environment Quality Incentives (EQIP) Program and/or the Quality Criteria for forest activity plans in Section III of the USDA NRCS Field Office Technical Guide.

Michael Gaskins

Landowner Information

\_\_\_\_\_  
Technical Service Provider

\_\_\_\_\_  
Number

\_\_\_\_\_  
Date

I accept this plan as written and certified by the Technical Service Provider and approve the item for payment as scheduled in the landowner's Environmental Quality Incentives Program (EQIP) contract.

\_\_\_\_\_  
District Conservationist

\_\_\_\_\_  
Date

---

I have reviewed this plan and approve its content.

\_\_\_\_\_  
Landowner

\_\_\_\_\_  
Date

## FOREST MANAGEMENT PLAN

New

Revision

### INTRODUCTION

A healthy and productive forest is the primary focus of forest management. Developing a FOREST MANAGEMENT Plan is a reflection of your intent to follow a balanced approach to forest management that considers your forest resources, expectations and goals. This plan will help guide you in achieving the benefits of managing your forest and forest related resources.

Many forest and wildlife management terms are unfamiliar to landowners. A glossary is included (APPENDIX V) to help clarify terms and concepts used in this report.

*Maximize & Maintain  
Value in Your Woods*



## PROPERTY INFORMATION

Tract Number: Lan

Farm Number: Lan

Preparation Date: Landowner

Prepared by: Michael Gaskins

Owners Name:

Landowner

Address:

Landowner Information

Phone: Landowner

Email: Landowner

Location Information:

County: Lando

Township: La

Range: La

Section(s): Lando

Land Information:

Forested Acres: 107.3

Plan Acres: 107.3

Tract Acres: 384.5

## LANDOWNER OBJECTIVES

The purpose of forest management is to achieve and maintain a healthy and productive forest. Depending upon your goals, forest health and productivity can be measured by the amount or quality of wood products, diversity of wildlife species, variety of recreational opportunities, or intensity of personal enjoyment your woodlands provide.

The following objectives have been identified as important to you and your property:

- Wildlife management and viewing
- Forest Health and the production of future wood products
- Aesthetic quality and outdoor recreation
- Natural Resource and nature interpretation

## Schedule of Operations

Stand	Stand Acres	Management Activity or Practice Code	Management Description	Treatment Details	Practice Acres or Units	Date Planned	Resource Concern
1	26.7	643	Woodland Restoration	Heavy (remove 54BA)	26.7	9/19	Wildlife
1	26.7	394	Firebreak	Constructed Med Equipment	2607 feet	12/18	Wildlife
1	26.7	338	Prescribed Burning	Woodland >10 acres	16.7	2/20	Wildlife
1	26.7	338	Prescribed Burning	Woodland small acres	10	2/20	Wildlife
1	26.7	666 alternate	Forest Stand Improvement	Heavy (remove 54BA)	26.7	9/19	Wildlife
1	26.7	568	Recreational Trails	Natural Resource interpretive trail	1089 feet	12/18	Wildlife
2	16.6	666	Forest Stand Improvement	Medium (remove 36 BA)	16.6	9/19	Wildlife
2	16.6	568	Recreational Trails	Natural Resource Interpretive Trail	769 feet	12/18	Wildlife
3	22.1	643	Woodland Restoration	Heavy (remove 44.6 BA)	21.1	1/19	Wildlife
3	22.1	394	Firebreak	Constructed med equipment	3768 feet	12/18	Wildlife
3	22.1	338	Prescribed Burning	Woodland >10 acres	14.7	10/19	Wildlife
3	22.1	338	Prescribed Burning	Woodland small acres	7.5	10/19	Wildlife
3	22.1	666 alternate	Forest Stand Improvement	Heavy (remove 44.6 BA)	21.1	1/19	Wildlife
3	22.1	568	Recreational Trails	Natural Resource Interpretive Trail	572	12/18	Wildlife
4	17.7	643	Open woodland restoration	Heavy (remove 50.4BA)	17.7	1/19	Wildlife
4	17.7	394	Firebreak	Constructed med equipment	1541	12/18	Wildlife
4	17.7	338	Prescribed Burning	Woodland small acreage	7.9	10/19	Wildlife
4	17.7	338	Prescribed Burning	Woodland small acreage	7.4	10/19	Wildlife
4	17.7	666 alternative	Forest Stand Improvement	Heavy (remove 50.4 BA)	17.7	1/19	Wildlife
4	17.7	315	Herbaceous Weed Control	Medium Spot Treatments	15.2	10/20	Wildlife
4	17.7	568	Recreational Trails	Natural Resource Interpretive Trail	462 feet	12/18	Wildlife
5	24.2	666	Forest Stand Improvement	Heavy (remove 56.4BA or 665 TPA)	24.2	1/19	Wildlife
5	24.2	568	Recreational Trails	Natural Resource Interpretive Trail	1748 feet	12/18	Wildlife

**Annually:**

- Maintain boundaries.
- Maintain wildlife food plots and wildlife structures.
- Maintain firebreaks/lines.
- Monitor and control invasive species.
- Review forestry plan for needed changes - update accordingly.
- Keep good records.

**Within five years:** The above table is a quick reference planning summary to be used when managing your forests. Additional details about each stand can be found on the following pages.

**Within ten years:** Re-inventory your forested acres with the assistance of a professional forester.

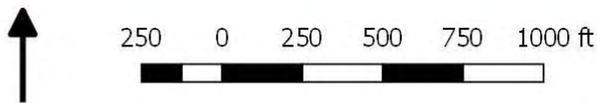
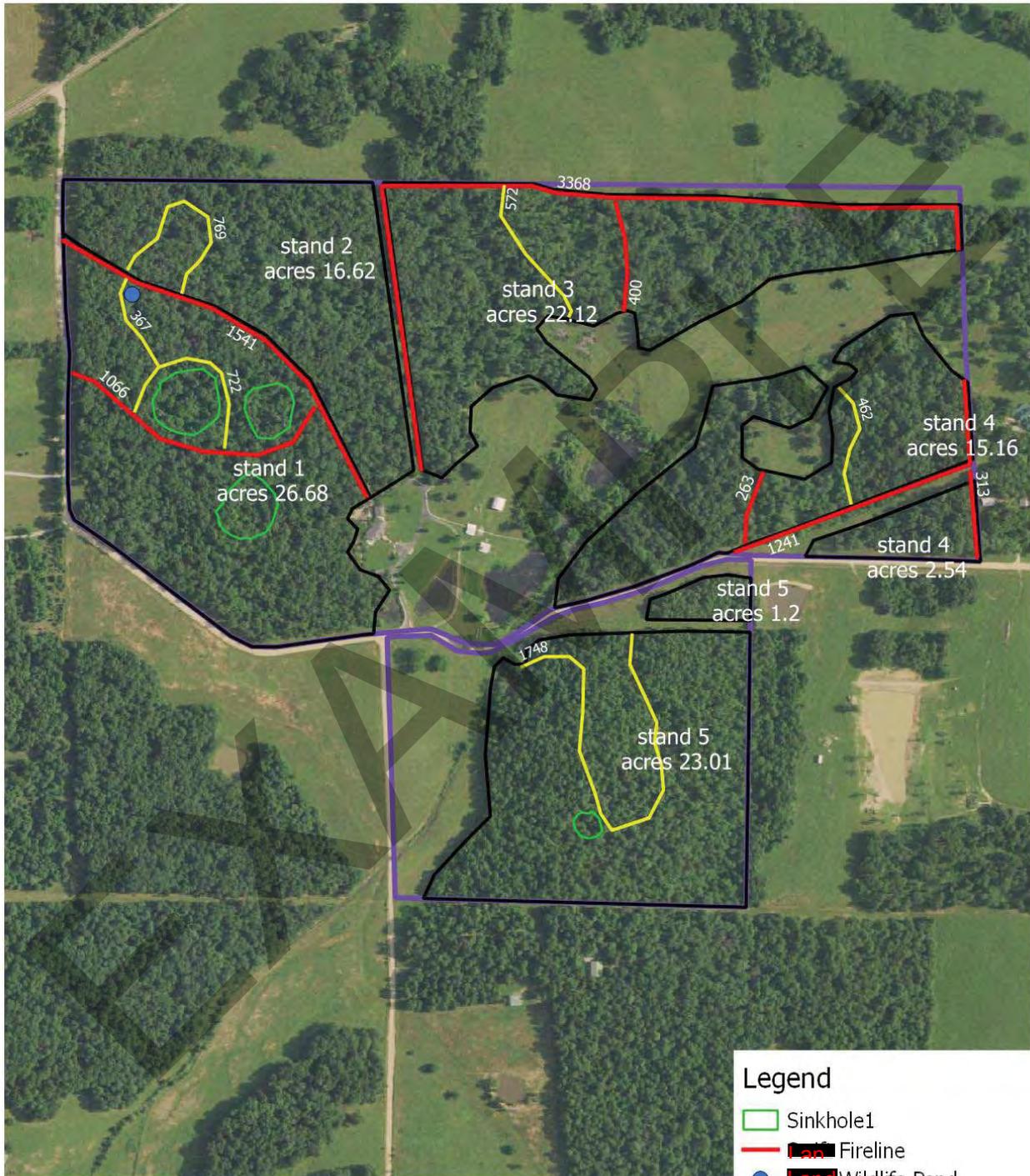
Contact your **private consulting forester** or agency forester with any questions you have about implementing any part of this plan. Progress should be evaluated at least every five years to insure that management of your forest land is consistent with existing planning standards and your current objectives.

This management plan is for a ten year period and should be updated in 2028

EXAMPLE

# PROPERTY BOUNDARY / MANAGEMENT UNITS

## Landowner Information

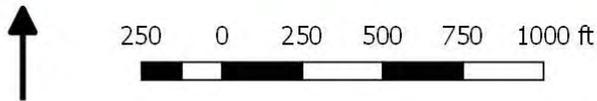
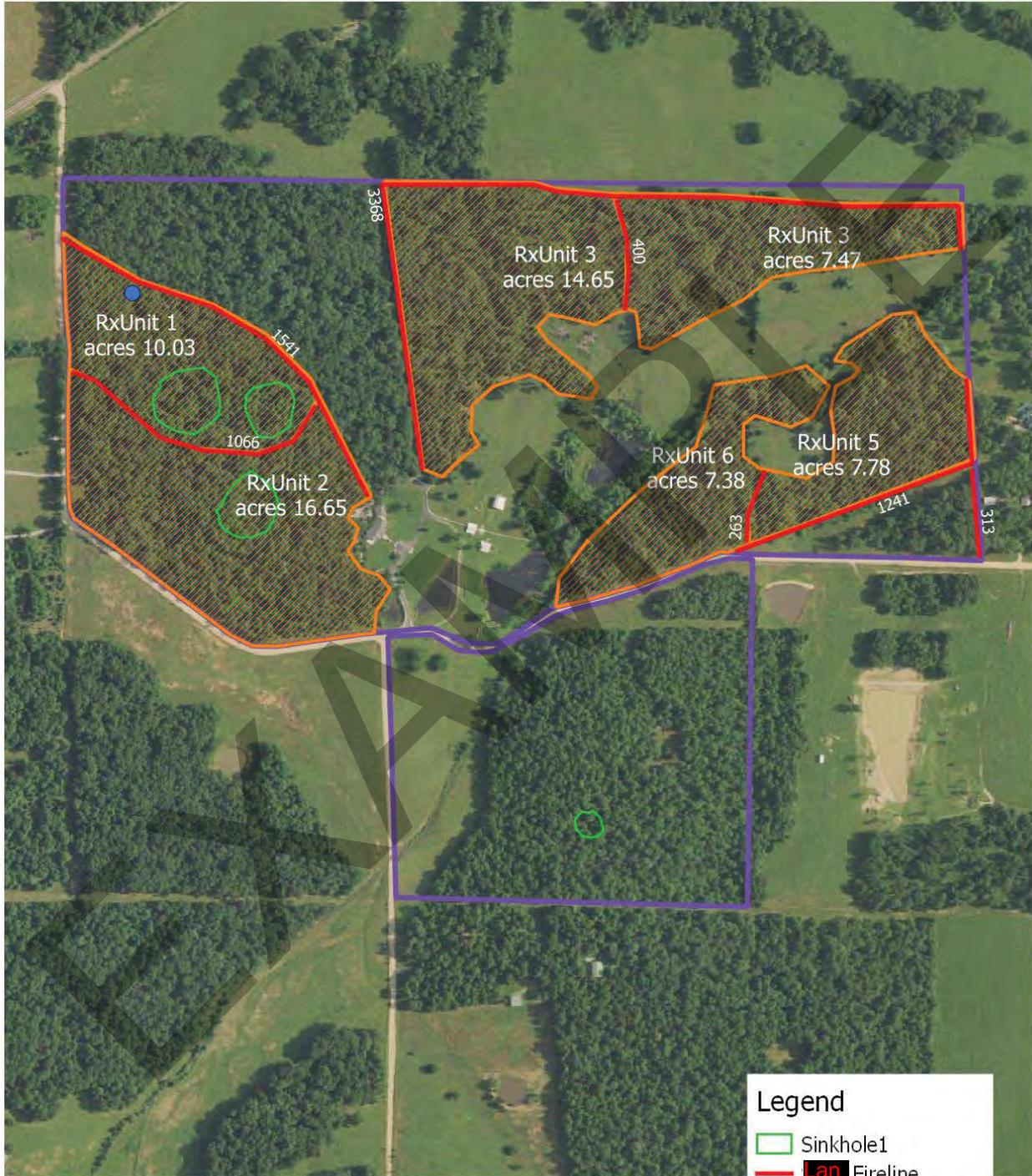


### Legend

- Sinkhole1
- Fireline
- Wildlife Pond
- FMP Stands
- Property Parcels
- 568 recreation trails

# PROPERTY BOUNDARY / MANAGEMENT UNITS

**Landowner Information**



**Legend**

- Sinkhole1
- Fireline
- Wildlife Pond
- Property Units
- RxFire Units

## EXISTING CONDITIONS/FIELD EXAMINATION FINDINGS

The forest inventory data used in this FOREST MANAGEMENT Plan was collected on 2018-03-24. Below is a summary of findings by stand. Additional stand information can be found in APPENDIX VI. Further detailed inventory/plot data can be provided upon request.

Stand: 1	Acres: 26.7	Priority High	Num. Plots: 5	Aspect: south	Slope: 6%
Landform: Sideslope	Natural Community: Mixed Oak Woodlands			Stand Condition: Even-Aged	
Overstory Structure: Two-Storyed			Fire Fuel Type: Hardwood Litter		
Understory Structure: Deciduous trees, oaks, hickories or tolerant trees					

Site Index 57	Black Oak
Stocking %	96%
Stocking % B level	57%
Stocking % C level	41%
Merchantable Volume/Acre	4588.3 Int. 1/4
Merchantable BA	56
Merchantable TPA	11.4

	BA / acre	TPA	Avg DBH
Total	104	318.9	7.7
AGS	60	137.9	8.9
UGS	24	112.6	6.2
Mature	4	2.9	16
Cull	14	63.9	6.3
Cavity	2	1.6	15
Dead	2	5.7	8
B-Level	62	191.7	
C-Level	43.1	157	

### Stand Management Objectives:

Healthy woods, optimal wildlife habitat, and aesthetic quality

### Description of Stand Condition:

Stand is fully stocked but pushing the limits of being overstocked. An overstocked condition is very undesirable since overall woodland health is comprised. The majority of the stocking in this stand is larger post oaks and black oaks, with some of the black oaks being mature and ready for harvest. There are several blackjack oaks and hickories in the mid story and understory. There is one existing pond in the NW part of the stand, and 3 sinkholes within the stand.

### Tree Species by Basal Area:

Oak, Post : 44 | Oak, Black : 24 | Hickory, Spp. : 20 | Oak, Blackjack : 14 | Oak, White : 4

### Tree Species by Size Class & TPA:

SAPLING - Oak, Post : 87 | Hickory, Spp. : 23 | Oak, White : 15 | Oak, Blackjack : 15

POLE TIMBER - Oak, Post : 51 | Hickory, Spp. : 38 | Oak, Blackjack : 36 | Oak, White : 10 | Oak, Black : 5

SAW TIMBER - Oak, Post : 22 | Oak, Black : 20 | Hickory, Spp. : 6



Black Oak tree rings show acceptable growth rate



Den Tree for wildlife

**Desired Future Condition:**

Functioning open woodland habitat with large healthy post oak and black oak trees scattered in the overstory and woodland floor growing native herbaceous plants and grasses.

**Stand Management Recommendations**

-Thin stand using timber stand improvement (TSI) to reduce the stand down to 50 BA a little below B-level stocking. B-level stocking is the density level at which all remaining trees in the stand are maximizing growing space, and a little below that would give up some sunlight to the woodland floor to grow herbaceous vegetation. Some of the thinning could be accomplished with a professionally marked and administered timber sale to ensure the proper trees are harvested correctly.

-Firelines need to be installed in this stand according to the attached map.

-Prescribed fire needs to be implemented in this stand to control woody sprouts and encourage the growth of herbaceous vegetation on the woodland floor. Fire should be applied on a 2 to 3 year rotation during the restoration phase, and then can be extended to a 3 to 5 year rotation in the maintenance phase of the stand. Alternate burns among burn units on the property to create more habitat diversity.

- Recreational Trails should be added to enhance landowner mission of recreation and Resource Interpretation.

Management or Activity Code	Management Descriptions	Treatment Details	Acres Applied
643	Woodland Restoration	Heavy (remove 54BA)	26.7
394	Firebreak	Constructed Med Equipment	2607 feet
338	Prescribed Burning	Woodland >10 acres	16.7
338	Prescribed Burning	Woodland small acres	10
666 alternate	Forest Stand Improvement	Heavy (remove 54BA)	26.7
568	Recreational Trails	Natural Resource interpretive trail	1089 feet

Stand: 2	Acres: 16.6	Priority High	Num. Plots: 5	Aspect: North	Slope: 8%
Landform: Sideslope	Natural Community: Mixed Oak Woodlands			Stand Condition: Even-Aged	
Overstory Structure: Two-Storyed			Fire Fuel Type: Timber (litter and understo		
Understory Structure: Deciduous trees, oaks, hickories or tolerant trees					

Site Index 62	Black Oak
Stocking %	97%
Stocking % B level	58%
Stocking % C level	42%
Merchantable Volume/Acre	7109 Int. 1/4
Merchantable BA	88
Merchantable TPA	18.4

	BA / acre	TPA	Avg DBH
Total	100	401.4	6.8
AGS	60	100	10.5
UGS	20	78.5	6.8
Mature	8	8.6	13.1
Cull	8	212.7	2.6
Cavity	4	1.7	20.9
Dead	18	38.8	9.2
B-Level	59.3	235.1	
C-Level	44	151	

**Stand Management Objectives:**

Forest health, aesthetics, timber production and wildlife habitat

**Description of Stand Condition:**

Stand is fully stocked at 97% and pushing the limits of being overstocked. Several dead trees found in the stand are evidence of the stand reaching the overstocked condition. The stand is primarily a black oak stand with some scattered trees in the white oak group and hickory. This stand has some oak regeneration in the understory and in canopy gaps from a somewhat recent high grade timber cut, there are some oaks mixed in with some undesirable stems occupying the growing space. There are a fair amount of culls and unacceptable growing stock left in the stand from the last entry.

**Tree Species by Basal Area:**

Oak, Black : 74 | Oak, Post : 22 | Hickory, Spp. : 14 | Black Cherry : 4 | Black Gum : 2 | Dogwood, Flowering : 2

**Tree Species by Size Class & TPA:**

SAPLING - Black Cherry : 115 | Dogwood, Flowering : 92 | Hickory, Spp. : 55 | Oak, Black : 15 | Black Gum : 15

POLE TIMBER - Oak, Black : 38 | Hickory, Spp. : 33 | Oak, Post : 4

SAW TIMBER - Oak, Black : 60 | Oak, Post : 15



black oak site index tree showing fair growth



black oak timber and some undesirables growing in canopy gaps from last harvest.

**Desired Future Condition:**

Productive and healthy mixed oak forest producing an abundance of hard mast for wildlife and future timber.

**Stand Management Recommendations**

-Cut stand down to B-level stocking by removing mature, UGS, and cull trees from the stand, making room for the highest quality trees to grow. Use TSI to remove 36 BA from the stand. Leave all dead trees, and 1 to 2 den trees and cavity trees per acre in the stand for wildlife habitat. A light timber harvest, marked and administered by a professional forester would be appropriate to reducing stocking levels.

- Recreational Trails should be added to enhance landowner mission of recreation and Resource Interpretation.

Management or Activity Code	Management Descriptions	Treatment Details	Acres Applied
666	Forest Stand Improvement	Medium (remove 36 BA)	16.6
568	Recreational Trails	Natural Resource Interpretive Trail	769 feet

Stand: 3	Acres: 22.1	Priority Very High	Num. Plots: 5	Aspect: south	Slope: 7%
Landform: Sideslope	Natural Community: Mixed Oak Woodlands			Stand Condition: Low Quality	
Overstory Structure: Two-Storyed			Fire Fuel Type: Light Logging Slash		
Understory Structure: Mixed shrub, tolerant and intolerant species					

Site Index 53	White Oak
Stocking %	86%
Stocking % B level	57%
Stocking % C level	39%
Merchantable Volume/Acre	4072.9 Int. 1/4
Merchantable BA	58
Merchantable TPA	12.1

	BA / acre	TPA	Avg DBH
Total	84	445.9	5.9
AGS	38	39	13.4
UGS	18	28.9	10.7
Mature	2	0.3	35
Cull	26	377.7	3.6
Cavity	0	0	
Dead	2	2.2	13
B-Level	56	295.2	
C-Level	39.4	183.5	

**Stand Management Objectives:**

Manage stand as a high quality open woodland stand for optimal wildlife habitat and aesthetic values.  
 Alternate - Manage as a regenerating hardwood stand for future timber production.

**Description of Stand Condition:**

Stand has suffered a recent high grade harvest where some of the best trees were harvested leaving behind some poor unacceptable and cull trees. The acceptable growing stock is at the level where it will take 25+ years for it to reach the point where it is maximizing growing space, but the stand is still worth managing as is. The stand is site index indicates it is on the lower end of desirable productivity for timber production, but could produce timber with longer entry intervals. The understory has a lot of blackberry and other shrubs as well as a fair amount of dogwood and persimmon.

**Tree Species by Basal Area:**

Oak, Post : 32 | Dogwood, Flowering : 14 | Oak, Black : 14 | Oak, White : 10 | Hickory, Spp. : 6 | Black Walnut : 6 | Elm, Spp : 2 | Persimmon : 2

**Tree Species by Size Class & TPA:**

SAPLING - Dogwood, Flowering : 239 | Persimmon : 92 | Oak, Black : 23  
 POLE TIMBER - Hickory, Spp. : 15 | Oak, Post : 11 | Oak, White : 7 | Black Walnut : 6 | Oak, Black : 5 | Elm, Spp : 4  
 SAW TIMBER - Oak, Post : 28 | Oak, Black : 10 | Oak, White : 7 | Black Walnut : 2 | Hickory, Spp. : 1



Notice cull tree left behind, scattered timber, and shrubs and some undesirable trees growing in canopy gaps.

**Desired Future Condition:**

Healthy and productive open woodland habitat for optimal wildlife habitat, aesthetic quality, and natural community interpretation.

**Stand Management Recommendations**

- Manage stand as an open woodland habitat by removing all UGS, cull, and mature trees down to C-level stocking. Leave as many of the most fire resistant trees in the stand such as post oak, white oak, and some hickory.
- Install fireline by using a dozer or medium equipment on the west, north, and east sides of the stand.
- Prescribed fire needs to be implemented in this stand to control woody sprouts and encourage the growth of herbaceous vegetation on the woodland floor. Fire should be applied on a 2 to 3 year rotation during the restoration phase, and then can be extended to a 3 to 5 year rotation in the maintenance phase of the stand. Alternate burns among burn units on the property to create more habitat diversity.
- Recreational Trails should be added to enhance landowner mission of recreation and Resource Interpretation.
- Alternative management can be to complete TSI down to C-level and let stand grow for 25 - 30 years.

Management or Activity Code	Management Descriptions	Treatment Details	Acres Applied
643	Woodland Restoration	Heavy (remove 44.6 BA)	21.1
394	Firebreak	Constructed med equipment	3768 feet
338	Prescribed Burning	Woodland >10 acres	14.7
338	Prescribed Burning	Woodland small acres	7.5
666 alternate	Forest Stand Improvement	Heavy (remove 44.6 BA)	21.1
568	Recreational Trails	Natural Resource Interpretive Trail	572

Stand: 4	Acres: 17.7	Priority Medium	Num. Plots: 5	Aspect: North	Slope: 7%
Landform: Sideslope	Natural Community: Mixed Oak Woodlands			Stand Condition: Low Quality	
Overstory Structure: Two-Storyed			Fire Fuel Type: Timber (litter and understo		
Understory Structure: Mixed shrub, tolerant and intolerant species					

Site Index 61	White Oak
Stocking %	109%
Stocking % B level	57%
Stocking % C level	39%
Merchantable Volume/Acre	4522.4 Int. 1/4
Merchantable BA	70
Merchantable TPA	14

	BA / acre	TPA	Avg DBH
Total	106	568.9	5.8
AGS	46	92.4	9.6
UGS	26	96.9	7
Mature	8	5	17
Cull	26	374.6	3.6
Cavity	0	0	
Dead	8	15.8	9.6
B-Level	55.6	303.3	
C-Level	38.9	188	

**Stand Management Objectives:**

Manage stand as an open woodland for optimal wildlife habitat and aesthetic values, or an understocked forest stand for wildlife habitat and future timber production.

**Description of Stand Condition:**

Stand is overstocked with an abundance of undesirable species in the understory and a somewhat sparse canopy of desirable species. When the stand was harvested last, many of the undesirable and cull trees were left in the stand. The stand has some old field characteristics in places and evidence of an old home place is found near the south of the stand near the county road.

**Tree Species by Basal Area:**

Oak, Black : 26 | Oak, Post : 22 | Dogwood, Flowering : 10 | Hickory, Spp. : 10 | Oak, White : 10 | Eastern Redcedar : 10 | Persimmon : 4 | Ash, Green : 4 | Elm, Spp : 4 | Black Walnut : 4 | Oak, Chinkapin : 4 | Redbud : 2 | Ash, Spp : 2 | Oak, Blackjack : 2

**Tree Species by Size Class & TPA:**

SAPLING - Dogwood, Flowering : 198 | Eastern Redcedar : 132 | Oak, Black : 55  
 POLE TIMBER - Hickory, Spp. : 43 | Oak, White : 20 | Persimmon : 20 | Dogwood, Flowering : 16 | Eastern Redcedar : 11 | Redbud : 10 | Elm, Spp : 9 | Oak, Post : 7 | Oak, Black : 6 | Ash, Spp : 4 | Black Walnut : 4  
 SAW TIMBER - Oak, Post : 17 | Oak, Black : 15 | Ash, Green : 4 | Oak, Chinkapin : 3 | Oak, Blackjack : 3 | Oak, White : 2 | Eastern Redcedar : 2 | Black Walnut : 2



Old house place with foundation stones, bricks, old tin, and daffodils



Beaver damage near creek on north end of stand



Beaver dam on creek on north end of stand



Japanese honeysuckle found in places in the stand.

**Desired Future Condition:**

Productive open woodland providing optimal wildlife habitat

**Stand Management Recommendations**

- Thin stand down to B-level stocking by removing 50.4 BA from the stand starting with the cull trees and the worst of the UGS stems, leaving some of the best UGS stems for proper spacing among the AGS trees.
- Install fire-line along the east and south of the stand with a dozer or medium equipment.
  - Prescribed fire needs to be implemented in this stand to control woody sprouts and encourage the growth of herbaceous vegetation on the woodland floor. Fire should be applied on a 2 to 3 year rotation during the restoration phase, and then can be extended to a 3 to 5 year rotation in the maintenance phase of the stand. Alternate burns among burn units on the property to create more habitat diversity.
  - Control invasive species such as Japanese honeysuckle, and serecia lespedeza that may attempt to spread into the woodland unit.
  - Recreational Trails should be added to enhance landowner mission of recreation and Resource Interpretation.
  - Implement a beaver damage control program to limit excessive resource damage by beavers in the creek and ponds

Management or Activity Code	Management Descriptions	Treatment Details	Acres Applied
643	Open woodland restoration	Heavy (remove 50.4BA)	17.7
394	Firebreak	Constructed med equipment	1541
338	Prescribed Burning	Woodland small acreage	7.9
338	Prescribed Burning	Woodland small acreage	7.4
666 alternative	Forest Stand Improvement	Heavy (remove 50.4 BA)	17.7
315	Herbaceous Weed Control	Medium Spot Treatments	15.2
568	Recreational Trails	Natural Resource Interpretive Trail	462 feet

EXAMPLE

Stand: 5	Acres: 24.2	Priority Very High	Num. Plots: 5	Aspect: North	Slope: 10%
Landform: Ridge	Natural Community: Mixed Oak Woodlands			Stand Condition: Even-Aged	
Overstory Structure: Two-Storyed			Fire Fuel Type: Timber (litter and understo		
Understory Structure: Deciduous trees, oaks, hickories or tolerant trees					

Site Index 60	White Oak
Stocking %	119%
Stocking % B level	57%
Stocking % C level	37%
Merchantable Volume/Acre	1891.1 Int. 1/4
Merchantable BA	40
Merchantable TPA	11.5

	BA / acre	TPA	Avg DBH
Total	108	811.3	4.9
AGS	68	345.4	6
UGS	26	390	3.5
Mature	0	0	
Cull	12	74.2	5.4
Cavity	2	1.6	15
Dead	4	25.5	5.4
B-Level	51.6	393.7	
C-Level	33.8	231	

**Stand Management Objectives:**

Manage for forest health, optimal timber production and wildlife habitat.

**Description of Stand Condition:**

Stand is heavily overstocked at 119% and is experiencing some mortality and reduced growth rate of quality trees. Stand has a fairly even mix of hickory, black oak, and white oak, but a little heavy in the hickory component. Stand is primarily a poletimber and small sawtimber stand in need of a good thinning to increase growth. There are some competing blackjack oaks on the ridge top along with other undesirable growing stock. There are also some southern red oak trees found in the stand. Oregon County MO is along the extreme northern range of southern red oak. Jolliff Spring is found at the bottom of the hill at the NW edge of the stand.

**Tree Species by Basal Area:**

Hickory, Spp. : 28 | Oak, White : 20 | Oak, Black : 16 | Oak, Post : 14 | Persimmon : 10 | Oak, Blackjack : 8 | Sassafras : 4 | Oak, Southern Red : 4 | Black Walnut : 4 | Elm, Spp : 2 | Dogwood, Flowering : 2

**Tree Species by Size Class & TPA:**

SAPLING - Persimmon : 262 | Hickory, Spp. : 168 | Oak, Post : 92 | Oak, Blackjack : 46 | Sassafras : 38 | Oak, White : 38  
 POLE TIMBER - Oak, White : 48 | Hickory, Spp. : 42 | Oak, Post : 25 | Oak, Black : 21 | Black Walnut : 11 | Elm, Spp : 10 | Dogwood, Flowering : 7 | Oak, Blackjack : 4  
 SAW TIMBER - Oak, Black : 8 | Oak, Post : 5 | Oak, Southern Red : 5 | Hickory, Spp. : 4 | Oak, Blackjack : 3 | Oak, White : 3



White Oak site index tree shows fair growth and need of TSI



southern red oak leaves found on the ridge top



Spring house on Jolliff Spring

**Desired Future Condition:**

Healthy and productive oak hickory forest producing hard mast for wildlife and future timber production.

**Stand Management Recommendations**

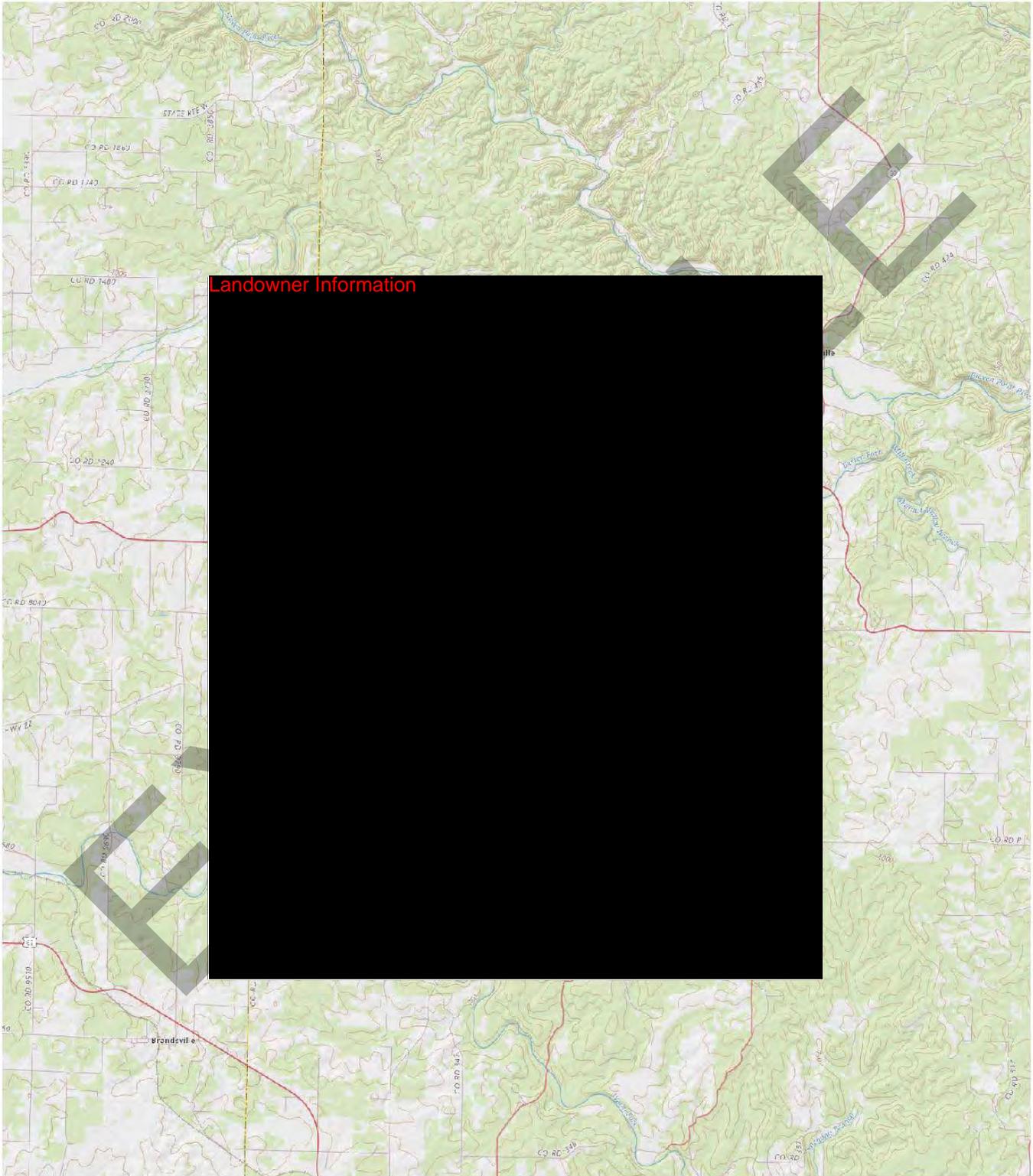
Implement TSI in this stand as soon as possible down to B-level stocking to release the highest quality oaks and some hickories for proper spacing.

- Recreational Trails should be added to enhance landowner mission of recreation and Resource Interpretation.

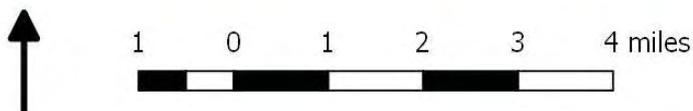
Management or Activity Code	Management Descriptions	Treatment Details	Acres Applied
666	Forest Stand Improvement	Heavy (remove 56.4BA or 665 TPA)	24.2
568	Recreational Trails	Natural Resource Interpretive Trail	1748 feet

# APPENDIX I - Location Information/Plat Map

Landowner Information



Landowner Information



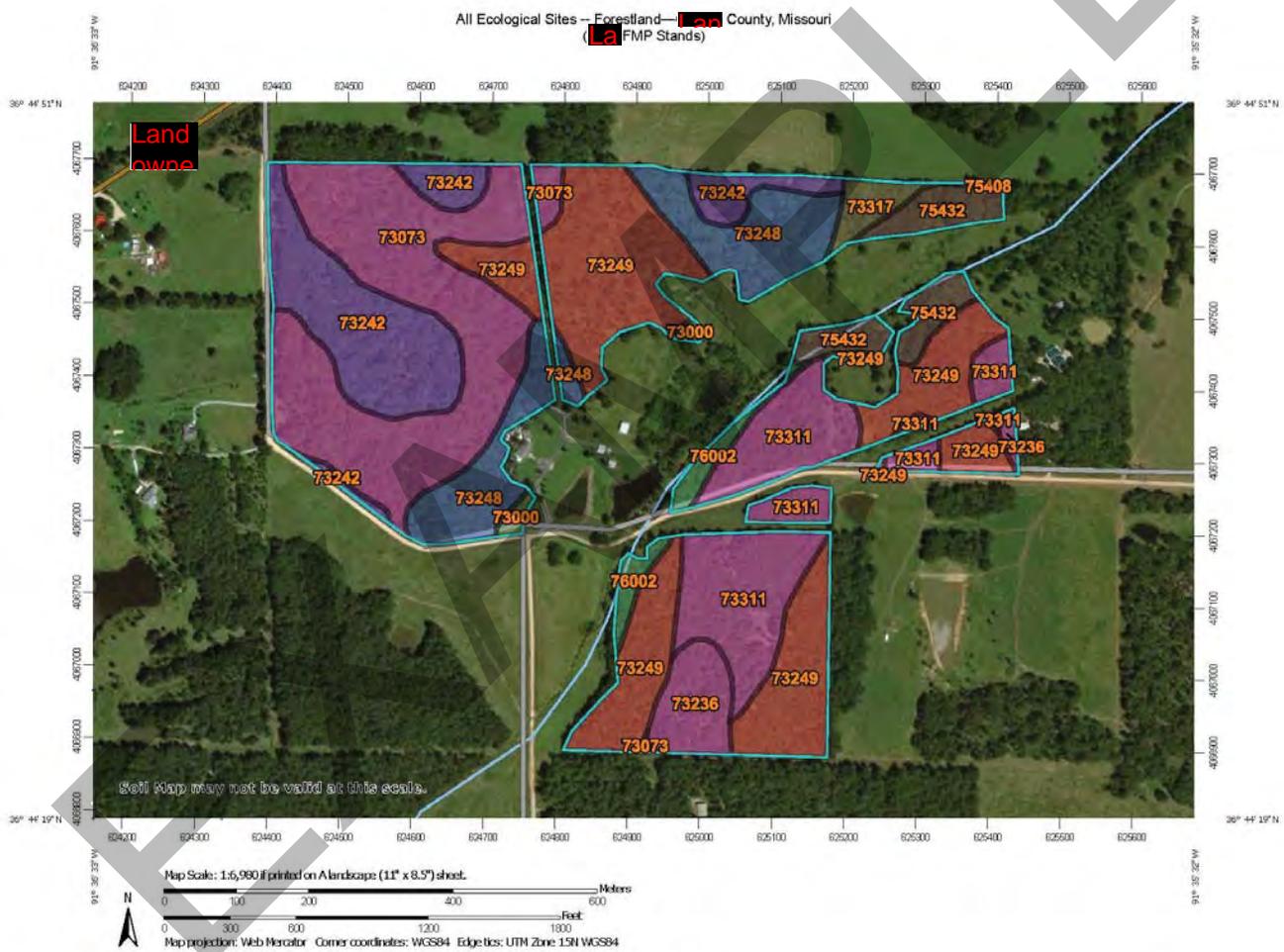
## Legend

 Land Property Parcels

## APPENDIX II - Soil Information

Soils are the foundation on which trees grow. Not all soils have the same ability to grow trees. Bottomland soils and north and east facing slope soils are usually more productive. They retain soil moisture and have the capability of producing good tree growth. On south and west facing slopes, soils are usually shallower in depth, lose soil moisture quicker, and are not as productive for tree growth. Having a knowledge and understanding of soils provides the forest owner and manager with a better idea of forest land potential.

### Soil Map:



# Soil Map:

All Ecological Sites - Forestland - **Lea** County, Missouri  
(FMP Stands)

### MAP LEGEND

**Area of Interest (AOI)**

- Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**

- F116AY002MO
- F116AY007MO
- F116AY011MO
- F116AY012MO
- F116AY031MO
- F116AY032MO
- F116AY034MO
- F116AY036MO
- F116AY040MO
- Not rated or not available

**Water Features**

- Streams and Canals

**Transportation**

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**

- Aerial Photography

**Soil Rating Lines**

- F116AY002MO
- F116AY007MO
- F116AY011MO
- F116AY012MO
- F116AY031MO
- F116AY032MO
- F116AY034MO
- F116AY036MO
- F116AY040MO
- Not rated or not available

**Soil Rating Points**

- F116AY002MO
- F116AY007MO
- F116AY011MO
- F116AY012MO
- F116AY031MO
- F116AY032MO
- F116AY034MO
- F116AY036MO
- F116AY040MO
- Not rated or not available

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: [http://websoilsurvey.sc.egov.usda.gov](#)  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Oregon County, Missouri  
Survey Area Data: Version 17, Sep 18, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 2, 2016—Jan 28, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Soil Map:

All Ecological Sites – Forestland – **La**n County, Missouri

**La**MP Stands

## All Ecological Sites — Forestland

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
73000	Pomme silt loam, 3 to 8 percent slopes	Pomme (80%)	F116AY032MO — Loamy Footslope Forest	0.6	0.6%
		McGirk (2%)			
		Sacville (2%)			
73073	Schotten-Poynor complex, 8 to 15 percent slopes	Schotten (50%)	F116AY012MO — Low-Base Chert Upland Woodland	24.7	22.7%
		Poynor (35%)	F116AY012MO — Low-Base Chert Upland Woodland		
		Clarksville (10%)	F116AY012MO — Low-Base Chert Upland Woodland		
		Tatermill (5%)	F116AY031MO — Dry Footslope Forest		
73238	Schotten-Poynor complex, 3 to 8 percent slopes	Schotten (50%)	F116AY012MO — Low-Base Chert Upland Woodland	4.0	3.7%
		Poynor (30%)	F116AY012MO — Low-Base Chert Upland Woodland		
73242	Fanchon-Tonti complex, 3 to 8 percent slopes	Fanchon (40%)	F116AY007MO — Low-Base Loamy Upland Woodland	14.0	12.8%
		Tonti (30%)	F116AY004MO — Fragipan Upland Woodland		
73248	Aired-Bendavis complex, 8 to 15 percent slopes	Aired (55%)	F116AY011MO — Chert Upland Woodland	11.7	10.7%
		Bendavis (20%)	F116AY012MO — Low-Base Chert Upland Woodland		
73249	Aired-Ocie-Bendavis complex, 15 to 35 percent slopes, stony	Aired (30%)	F116AY002MO — Chert Protected Backslope Forest	26.7	26.3%
			F116AY062MO — Chert Exposed Backslope Woodland		
		Ocie (25%)	F116AY002MO — Chert Protected Backslope Forest		

Soil Map:

All Ecological Sites – Foreland, **Franklin** County, Missouri

**Franklin** MP Stands

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in ACI	Percent of ACI
			F116AY062MO — Chert Exposed Backslope Woodland		
		Bendavis (20%)	F116AY013MO — Low-Base Chert Protected Backslope Woodland		
			F116AY049MO — Low-Base Chert Exposed Backslope Woodland		
73311	Scholten-Bendavis- Poynor complex, 8 to 15 percent slopes	Scholten (35%)	F116AY012MO — Low-Base Chert Upland Woodland	16.0	14.7%
		Bendavis (30%)	F116AY012MO — Low-Base Chert Upland Woodland		
		Poynor (25%)	F116AY012MO — Low-Base Chert Upland Woodland		
73317	Tonti-Taterhill complex, 3 to 8 percent slopes	Tonti (40%)	F116AY031MO — Dry Footslope Forest	1.6	1.5%
		Taterhill (35%)	F116AY034MO — Dry Footslope Forest		
75408	Secesh silt loam, 0 to 2 percent slopes, rarely flooded	Secesh (80%)	F116AY034MO — Loamy Terrace Forest	0.1	0.1%
		Bearthicket (9%)	F116AY037MO — Gravelly/Loamy Upland Drainageway Forest		
		Baylock (5%)	F116AY036MO — Wet Upland Drainageway Forest		
75432	Batcave-Farewell complex, 0 to 2 percent slopes, frequently flooded	Batcave (45%)	F116AY040MO — Wet Floodplain Step Forest	5.3	4.9%
		Farewell (40%)	F116AY040MO — Wet Floodplain Step Forest		
		Tanglehook (2%)			
76002	Batcave-Farewell complex, 1 to 3 percent slopes, frequently flooded	Batcave (45%)	F116AY036MO — Wet Upland Drainageway Forest	2.2	2.0%

## Soil Map:

All Ecological Sites – Forestland – **lan** County, Missouri

**5** MP Stands

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in ACI	Percent of ACI
		Farewell (40%)	F116AY038MO — Wet Upland Drainageway Forest		
		Balcave (8%)	F116AY036MO — Wet Upland Drainageway Forest		
		Farewell (5%)	F116AY038MO — Wet Upland Drainageway Forest		
		Tanglenock (2%)			
<b>Totals for Area of Interest</b>				<b>108.9</b>	<b>100.0%</b>

 Natural Resources Conservation Service

Web Soil Survey  
National Cooperative Soil Survey

3/28/2018  
Page 5 of 5

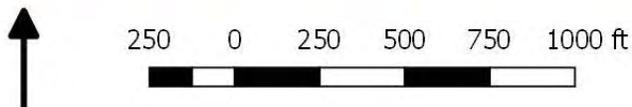
### Description of Your Soils

A brief description of your soil types is discussed above. These condensed descriptions are included for quick reference.

*For more detailed information about the soils found on your property see included soils report or contact your local USDA, NRCS (Natural Resource Conservation Service) , located in Alton , Missouri.*

# APPENDIX III - Topographic Map

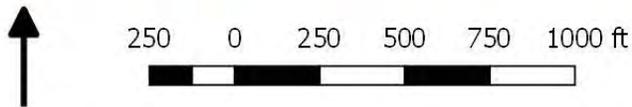
Landowner Information FMP Stands TOPO



## Legend

- Sinkhole1
- Land Fireline
- Land Wildlife Pond
- Land FMP Stands
- Land Property Parcels
- Land 568 recreation trails

Landowner Information FMP Stands TOPO



- Legend
- Sinkhole1
  - Fireline
  - Wildlife Pond
  - Property Parcels

## APPENDIX IV - Environmental Evaluations

### FOREST MANAGEMENT

The stocking level of a forest stand is an indication of the number and size of trees in a stand in relation to the desired number of trees. A stocking level less than 60% is considered “understocked.” Stocking levels from 60% to 80% are considered “optimally stocked,” with space available for additional growth. Stocking levels from 80% to 100% are “fully stocked,” but may be thinned to allow trees room to grow and for improved stand health. Stands greater than 100% stocked are “overstocked” have limited growth potential, and are in need of some level of thinning or harvest.

Since many of our forests are overstocked, thinning or forest stand improvement is a commonly recommended practice. The goal is to choose the most desirable trees and kill or remove the competing, undesirable ones. This allows more growth to occur on the best trees.

Harvest sales are also a good management tool. An overstocked stand could be thinned by harvesting selected trees. In many cases, low quality trees of various sizes and trees considered mature are selected for harvest. The end result should be a properly stocked stand of better quality trees. This increases the vigor and health of the stand, improves carbon storage, and adds more value to future sales. Avoid diameter limit cuts where all trees over a certain size will be harvested. This almost always leads to hi-grading, a practice where the best trees are harvested leaving poor quality trees with little future potential.

### ENDANGERED AND THREATENED SPECIES/STATE SPECIES OF CONCERN

Over 600 native plants and 300 native animals in Missouri are of concern because they are uncommon, rare, or because their numbers are low or rapidly declining. Many of these species occur on private land. As a consequence, private land owners can have a significant impact on these rare plants, animals, critical habitat, and natural communities (e.g., caves, high conservation value forests). A review of the Missouri Department of Conservation Natural History Database revealed \*2\* rare species or species of conservation concern on or near your site. Gray Bat and Bald Eagle were identified in the review. The Refer to threatened and endangered Best Management sheets for guidance on species that may be present on your land.

The Indiana Bat (*Myotis sodalist*) is a federal and state listed endangered species in Missouri. This small bat utilizes cracks, crevices, splits, and loose bark of trees that are at least 9 inches Diameter at Breast Height (DBH) for roosting and maternity colonies throughout the state during the spring and summer months and hibernates in Ozark caves in the fall and winter months. If participating in federal cost share programs, the NRCS Indiana Bat Habitat Conservation Priorities in Missouri guidelines, located in Section II-F-4 of the Missouri Field Office Technical Guide, and must be followed, including:

- Protect all known hibernacula with restricted tree removal in 5 mile radius buffer.
- Protect known maternity roosts.
- Follow a “no cut period” from April 1st - October 31st for trees greater than 9 inches DBH if in a county north of Missouri river or in a county south of the river with known maternity roosts.\*
- Protect other caves with a 100' radius buffer with a no tree removal zone.

\*Existing summer habitat trees (greater than 9” DBH) can be girdled during forest management activities, but not felled/cut.

## **ARCHAEOLOGICAL, CULTURAL, & HISTORICAL SITES**

Cultural resources are important to protect. They include any prehistoric or historic district, site, building, structure or object listed or eligible to be listed in the National Register of Historic Places. Cultural resources that are also protected under other authorities (such as the American Indian Religious Freedom Act) include tangible traces such as; districts, sites, buildings, structures and objects, and less tangible traces such as; dance forms, aspects of folk life, landscapes, vistas, cultural or religious practices; historical documents; and some landscapes, vistas, cemeteries (if they have historic or cultural value). The following sites have been noted on your property:

- There is a cemetery located on or near your property
- An old house place
- Jolliff Spring

## **FOREST HEALTH AND PROTECTION**

Your property is a valuable asset and should be protected from destructive grazing, wildfire, insects and diseases, invasive species, or any other disruptive force. Practices that will improve forest health include fencing, fire breaks/lanes, and monitoring for insect and disease activities.

### **Destructive grazing**

Cattle, hogs, horses, or other livestock compact the soil in a woodland, trample young seedlings and sprouts, damage roots, rub bark from stems, and eat or defoliate small trees. Once woodlands have been grazed, they are more prone to disease and insect problems. If excessive grazing is allowed, soil compaction and erosion problems may also occur. Fencing livestock out of woodlands is necessary to meet the objectives you have for your forested land.

### **Fire Management**

Fire is a natural force and may be either beneficial or harmful. The difference is a matter of timing and management objectives. Uncontrolled fire that occurs in a place or time that is not desired is considered a wildfire. Wildfire can cause damage to woodlands. It may weaken or kill trees, cause wounds where insects and diseases can enter, and reduce timber quality and value. Alternatively, prescribed fires are conducted under carefully controlled and managed conditions to accomplish land management objectives as outlined in a site specific plan. Prescribed fire is a tool that can be used to improve oak regeneration, increase herbaceous vegetation and diversity, restore natural communities and improve wildlife habitat.

### **Insect and disease**

There are a lot of common misconceptions about tree and forest health. Frequently, people believe that if a tree is green, it is healthy. Many times trees impacted by insects or disease are beyond the point of treatment before any symptoms are noticed. Active management that removes these declining trees and provides sufficient growing space to the remaining, more vigorous, healthy trees is important for optimal forest health. However, it is also important to remember that an occasional dead tree is natural in a healthy forest due to competition for sunlight and nutrients. These dead trees, commonly known as snags, also provide habitat for many types of woodland wildlife.

### **Invasive species**

An "invasive species" is defined as a species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Invasive species can be plants, animals, and other organisms (e.g., microbes). Human actions are the primary means of invasive species introductions. You can help prevent and control the spread of exotic invasive species by maintaining or developing well-established, diverse communities of native plants to resist these invaders.

## **WATER RESOURCE & QUALITY**

Water is an important renewable resource. It is also one of the most important resources that a landowner can affect. Three of the most important items you can do to maintain water quality is to retain adequate forested buffers along streams and drainages, properly plan and/or maintain roads/trails used for vehicles, and/or logging equipment, and exclude livestock. More specific information on best management practices for water quality and resource protection can be found in the MDC “Missouri Watershed Protection Guide” and “Missouri Woody Biomass Harvesting Manual”.

## **RECREATION & AESTHETIC RESOURCES**

Many management practices affect the appearance and recreation resource of your property. Your forest stewardship/forest management plan recommends management activities with your aesthetic and recreational considerations in mind.

## **WILDLIFE RESOURCES**

All wildlife species need food, shelter and water within their home habitat. Forest management can improve wildlife habitat for game and non-game species. The increased growth of trees in managed woodlands will result in an increase in the mast (nuts, acorns, seeds) production of these trees. Increased sunlight reaching the forest floor increases plant growth and provides additional food and cover for wildlife. Down tree tops and logs will provide escape cover and habitat for grouse and other ground-dwelling birds, chipmunks, salamanders and frogs. Standing dead trees or non-commercial cull trees can provide dens for a variety of wildlife. Creating a transition zone or edge where stands meet open land or fields or developing forest openings can provide wildlife food, cover, and nesting areas. Construction of wildlife watering facilities, or small fishless ponds, can provide needed water where it is currently lacking in larger blocks of forest.

## APPENDIX V - Glossary/Helpful Internet Sites

### Glossary

- Acceptable Growing Stock:** Saleable trees that are of good form, species and quality and would be satisfactory as crop trees.
- Aspect:** The direction that a slope faces (north, south, etc.)
- Basal Area:** The cross-sectional area of a tree, in square feet, at 4.5 feet from the ground (at breast height). When the basal area of all the trees in a stand are added together, the result is expressed as square feet of basal area per acre, which is a measure of a stand's density.
- Best management practices (BMP):** applied forestry practices that protect or enhance a forest stand.
- Biomass:** A [renewable energy source](#) of [biological materials](#) derived from living, or recently living organisms, such as wood, waste, and crop residues.
- Board Feet:** A unit for measuring wood volumes. It is commonly used to express the amount of wood in a tree, saw log, or individual piece of lumber. A piece of wood 1 foot long, 1 foot wide, and 1 inch thick (144 cubic inches).
- Canopy:** The more or less continuous cover of branches and foliage formed collectively by the tops, or crowns of adjacent trees.
- Clearcut:** A harvest and regeneration technique that removes all trees from an area at the same time, resulting in an even-aged stand.
- Crop Tree:** A tree identified to be grown to maturity for the final harvest cut, usually on the basis of its location with respect to other trees and its timber quality.
- Cull:** A tree or log of merchantable size that because of a defect is useless for its intended purpose.
- Den Tree:** A living tree with a cavity large enough to shelter wildlife.
- Diameter Breast Height (DBH):** The diameter of a tree at 4.5 feet above the ground.
- Even-Aged Management:** Forest management with periodic harvest of all trees on part of the forest at one time or over a short period to produce stands containing trees all the same or nearly the same age or size.
- Forest Stand Improvement:** See timber stand improvement.
- Girdling:** Completely encircling the trunk of a tree with a cut that severs the bark and cambium of the tree. Herbicide is sometimes injected into the cut to ensure death of the tree.
- Hack-n-squirt:** A tree treatment method where an axe or hatchet is used to make "hacks" (injections) into the tree's cambium layer. A plastic "squirt" bottle is used to spray a specific amount of herbicide into the cuts placed around the tree.
- High-grading:** Cutting only the high-value trees from a forest property, leaving a stand of poor quality with decreased future timber productivity.
- Intermediate Cut:** Removing immature trees from the forest sometime between establishment and stand harvest to improve the quality of the remaining forest stand. Contrast this technique with a harvest cut.
- Landing:** A place where logs are taken to be loaded on trucks for transport to the mill.
- Log Rules:** A table showing estimated amount of lumber that can be sawed from logs of given lengths and diameters. Two log rules are commonly used in Missouri:  
**Doyle Rule** is a simple formula rule used in the eastern United States. It underestimates the amount of lumber in small logs and overestimates large logs.  
**International 1/4-inch Rule** is a formula rule allowing ½ -inch taper for each 4 feet of length and 1/16 -inch shrinkage for each 1-inch board. This measure approximates the actual sawmill lumber tally.
- Mast:** Nuts of trees such as; oak, walnut, and hickory, that serve as food for many species of wildlife.
- Mature Tree:** A tree that has reached the desired size or age for its intended use.
- MBF:** Abbreviation for 1,000 board feet.
- Overstocked:** A forest stand condition where too many trees are present for optimum tree growth.
- Overstory:** The portion of trees in a stand forming the upper crown cover.
- Pole Timber:** Trees from 6 inches to 12 inches in diameter at breast height.
- Prescribed Burn:** To deliberately burn natural fuels under specific weather conditions, which allows the fire to be confined to a predetermined area and produces the fire intensity to meet predetermined objectives.
- Pruning:** Removing live or dead branches from standing trees to improve wood quality.
- Pulpwood:** Wood cut primarily for manufacture of paper, fiberboard, or other wood fiber products.
- Regeneration:** The number of seedlings or saplings existing in a stand. The process by which a forest is renewed by direct seeding, planting, or naturally by self-sown seeds and sprouts.
- Regeneration Cut:** Any removal of trees intended to assist regeneration already present or to make regeneration possible.
- Release:** To free trees from competition by cutting, removing, or killing nearby vegetation.
- Riparian Zone:** The area adjacent to or on the bank of rivers and streams.
- Sapling:** Trees from 2 inches to 6 inches in diameter at breast height.
- Sawtimber:** Trees at least 12 inches in diameter at breast height from which a sawed product can be produced.
- Seed-tree Harvest:** A harvest and regeneration method where nearly all trees are removed at one time except for scattered trees to provide seed for a new forest.

- Selection Harvest:** Harvesting trees to regenerate and maintain a multi-aged structure by removing some trees in all size classes either singly or in small groups.
- Shelterwood Harvest:** A harvesting and regeneration method that entails a series of partial cuttings over a period of years in the mature stand. Early cuttings improve the vigor and seed production of the remaining trees. The trees that are retained produce seed and also shelter the young seedlings. Subsequent cuttings harvest shelterwood trees and allow the regeneration to develop as an even-aged stand.
- Site Index:** An expression of forest site quality based on the height of a free-growing dominant or co-dominant tree at age 50 (or age 100 in the western United States).
- Skid Trail:** A road or trail over which equipment or horses drag logs from the stump to a landing.
- Skidding:** Pulling logs from where they are cut to a landing or mill.
- Slash:** The treetops and branches left on the ground after logging or as a result of a storm, fire, or pruning.
- Snag:** A standing dead tree from which leaves and most of the branches have fallen. Used by wildlife.
- Stand:** A group of trees with similar characteristics, such as species, age, or condition that can be distinguished from adjacent groups. A stand is usually treated as a single unit in a management plan.
- Stand density:** A measure of the **stocking** of a stand of trees based on the number of trees per area and **diameter at breast height** of the tree of average **basal area**.
- Stocking:** An indication of the number of trees in a stand in relation to the desirable number of trees for best growth and management.
- Thinning:** A cutting or killing of trees in an immature forest stand to reduce the tree density and concentrate the growth potential on fewer, higher quality trees.
- Timber Stand Improvement (TSI):** A thinning made in immature stands to improve the composition, structure, condition, health, and growth of the remaining trees.
- Undesirable Growing Stock:** Trees of low quality or less valuable species that should be removed in a thinning.
- Understocked:** Insufficiently stocked with trees.
- Understory:** All forest vegetation growing under an overstory.
- Uneven-Aged Management or Stand:** A stand of trees containing at least three age classes intermingled on the same area.
- Volume:** The amount of wood in a tree, stand of trees, or log according to some unit of measurement, such as board foot, cubic foot, etc.
- Wolf Tree:** A very large, overmature tree that is or was open grown.

#### **Helpful Internet Sites:**

- **Scenic Rivers Farm & Forest Consulting LLC :** <http://scenicriversfarmforest.com>.
- Missouri soil and physical resource information: <http://cares.missouri.edu/>.
- USDA NRCS Field Office Technical Guide (FOTG): <http://www.nrcs.usda.gov/technical/efotg/>.
- University of Missouri Extension publications: <http://extension.missouri.edu/publications/>.
- US Forest Service publications: <http://www.fs.fed.us/publications/>.
- Forest health updates for the central states including Missouri: <http://na.fs.fed.us/fhp/fhw/csfhw/>.
- Missouri timber price trends: <http://agebb.missouri.edu/mkt/timber/>.
- American Tree Farm System: <http://www.treefarmssystem.org/>.
- Missouri Tree Farm System: <http://www.moforest.org/treefarmssystem.htm>.
- Missouri Forest Products Association: <http://www.moforest.org/landowner/index.html>.
- USDA National Agroforestry Center: <http://www.unl.edu/nac/index.htm>.
- University of Missouri Center for Agroforestry: <http://www.centerforagroforestry.org/>.
- Missouri Consulting Foresters Association: <http://www.missouriforesters.com/>.
- Missouri Department of Conservation: <http://mdc.mo.gov/>.