


Mussel Fork Conservation Area

Fifteen-Year Area Management Plan FY 2018-2032





Wildlife Division Chief



Date

OVERVIEW

- **Official Area Name:** Mussel Fork Conservation Area, # 8422
- **Year of Initial Acquisition:** 1984
- **Acreage:** 2,440 acres
- **County:** Linn, Macon
- **Division with Administrative Responsibility:** Wildlife
- **Division with Maintenance Responsibility:** Wildlife
- **Statements of Purpose:**
 - A. Strategic Direction**

Provide, develop, manage, and protect quality upland habitat and associated wildlife species while providing a variety of outdoor recreational opportunities for the public.
 - B. Desired Future Condition**

The desired future condition of Mussel Fork Conservation Area (CA) is an ecologically functional system of forest/woodlands, grasslands, old field, open lands, and riparian habitats.
 - C. Federal Aid Statement**

N/A

GENERAL INFORMATION AND CONDITIONS

- I. Special Considerations**
 - A. Priority Areas:** None
 - B. Natural Areas:** None

- II. Important Natural Features and Resources**
 - A. Species of Conservation Concern:** Species of conservation concern are known from this area. Area managers should consult the Natural Heritage Database annually and review all management activities with the natural history biologist.
 - B. Caves:** None
 - C. Springs:** None
 - D. Other:** This area lies within the Chariton River Prairie/Woodland Hills Landtype Association. This landtype association consists of moderately broad to gently rolling uplands, and angular, stepped valley sides created by thin outcroppings of Pennsylvanian limestones and shale. Historically, prairie was present on the narrow uplands with the majority of the landtype association comprised of a woodland/forest mosaic with limestone glades (Nigh & Schroeder, 2002).

III. Existing Infrastructure

- Ten parking lots
- Two water control structures
- Wetland Levees, 3,790 linear feet
- One water hydrant
- Ten-individual campsites
- Fishable ponds: Pond #1 (0.3 acres), Pond #2 (2 acres), Pond #3 (0.7 acres), Pond #4 (1.3 acres)
- Arcadia Wetland (20 acres)
- Mussel Fork Wetland (28 acres)
- Four non-stocked ponds (2 acres total)

IV. Area Restrictions or Limitations

- A. Deed Restrictions or Ownership Considerations:** None
- B. Federal Interest:** Federal funds may be used in the management of this land. Fish and wildlife agencies may not allow recreational activities and related facilities that would interfere with the purpose for which the State is managing the land. Other uses may be acceptable and must be assessed in each specific situation.
- C. Easements:** No known easements on the area.
- D. Cultural Resources Findings:** No known cultural resources.
- E. Endangered Species:** None observed.
- F. Boundary Issues:** None

MANAGEMENT CONSIDERATIONS

V. Terrestrial Resource Management Considerations

Challenges and Opportunities:

- 1) Provide diverse prairie/grassland, forest/woodland, open land, and old field habitats and food sources for wildlife.
- 2) Control invasive species.

Prairie/Grassland Management

Native tall-grass prairies once dominated the landscape; however, lack of fire and conversion to cool-season grasses for forage production has eliminated most of these diverse natural systems. Diverse plant communities of native warm-season grasses have also been negatively affected by the introduction of invasive, sod-forming grasses.

Management Objective 1: Manage Mussel Fork CA grasslands to provide a diverse plant community of warm- and cool-season grasses, legumes, forbs, and bare

ground. The ideal condition would be for these fields to be maintained in 30 to 50 percent grasses; 30 to 40 percent annuals, forbs, or legumes; and 20 to 30 percent bare ground.

Strategy 1: Maintain grassland habitats using a combination of management techniques, including, but not limited to, prescribed burning, mechanical and chemical treatment to woody vegetation, disking, mowing, and over-seeding. (Wildlife)

Forest Management

Mussel Fork CA contains 1,051 acres of forest and woodland habitat that covers 43 percent of the area. The forest and woodlands were first inventoried in 1988 and a timber management plan was developed. At that time the property had been recently purchased and consisted of overgrazed stands and large areas of high-graded timber. The most recent inventory and forest management plan were completed in fiscal year 2012. Management prescriptions were carried out with the last work being completed in fiscal year 2015. The next inventory is scheduled for fiscal year 2028.

Management Objective 2: On appropriate sites, manage forest and woodland communities to provide healthy and diverse habitats for forest/woodland-dependent wildlife.

Strategy 1: Periodically monitor for the presence of invasive forest pests. (Forestry, Wildlife)

Strategy 2: Utilize a variety of sustainable forest management techniques to promote healthy forest and woodland communities, including, but not limited to, timber harvesting, forest thinning, firewood cutting, salvage cuttings, tree planting, seeding, and prescribed burning. (Forestry, Wildlife)

Strategy 3: Maintain a diversity of timber age classes that will provide a diversity of wildlife habitat and resiliency from harm. (Forestry)

Open Land Management

The purpose of managing openlands on Mussel Fork CA is to provide food and diverse habitat for wildlife (e.g., more edge habitat), and to control succession through disturbance.

Management Objective 3: Utilize cropping and disturbance to promote desired early successional habitat in subsequent years and to provide a high energy food source for wildlife in a manner that complies with the Natural Resources Conservation Service soil conservation plan and promotes small game management.

Strategy 1: Employ a four or five-year rotation through Ag crop contract (corn/beans/wheat and oats or clover/idle) on most upland fields. (Wildlife)

Strategy 2: Employ a rotation of corn and soybeans on select bottomland fields, use small grains and idle acres as appropriate, and restore bottomland hardwoods where appropriate. (Wildlife)

Strategy 3: Maintain food plots in non-crop areas through bartered services on Ag Crop contract. Food plot rotation will be variable, but a sorghum or corn/legume/idle rotation is preferred. (Wildlife)

Old Field Management

Management Objective 4: Manage and maintain old field areas to provide nesting and brood-rearing habitat, such as bare ground, annual forbs, warm- and cool-season grasses, and shrubs.

Strategy 1: Maintain old field habitats in various successional stages providing 30 to 50 percent warm- and cool-season grasses, 20 to 30 percent annual forbs, 10 to 20 percent shrubs, and 20 to 30 percent bare ground, using a combination of management techniques, including, but not limited to, prescribed burning, mechanical tree removal, disking, mowing, and over seeding. (Wildlife)

VI. Aquatic Resource Management Considerations

Challenges and Opportunities:

- 1) Maintain riparian corridors at Mussel Fork CA.
- 2) Prevent erosion as much as possible.
- 3) Maintain quality fishing opportunities for the public.
- 4) Control nuisance aquatic vegetation.

Riparian Areas

Stream corridors on Mussel Fork CA generally consist of a variety of sizes and species of hardwood trees. The corridor width in most places is adequate to protect stream integrity. Mussel Fork Creek is the major drainage on the area with approximately 5.4 miles of stream frontage. Van Dorsen Creek is the other major stream on the area with approximately 2 miles of other unnamed tributary frontage (Figure 5).

Management Objective 1: Inventory riparian and stream habitat conditions on Mussel Fork CA. Implement and maintain good riparian corridor practices on all areas, following the Missouri Department of Conservation's (the Department's) stream and watershed guidelines (2009).

Strategy 1: Inventory riparian and stream habitat conditions on Mussel Fork CA by March 1, 2019. (Fisheries)

Strategy 2: Implement and maintain good riparian corridor practices on Mussel Fork CA following the established Department guidelines (2014) and provide

examples of good stream stewardship by demonstrating common U.S. Department of Agriculture cost-share practices. (Fisheries)

Strategy 3: Monitor gully erosion throughout the year every five years. Work with Natural Resources Conservation Service staff to implement appropriate practices where erosion is severe. (Fisheries)

Management Objective 2: Manage for quality angling opportunities on area ponds.

Strategy 1: Conduct fish surveys every five years to monitor for quality sport fish populations, e.g., largemouth bass proportional stock density (12) values of 40-70, and bluegill proportional stock density (6) values of 20-40. (Fisheries)

Strategy 2: Supplementally stock fish (e.g., channel catfish) when needed to maintain quality angling opportunities. (Fisheries)

Management Objective 3: Manage for native aquatic vegetation on area.

Strategy 1: Conduct herbicide treatments to control aquatic nuisance species. (Fisheries)

VII. Public Use Management Considerations

Mussel Fork CA is managed primarily for upland wildlife species and consequently receives significant public use during the spring turkey, fall firearms deer, and mourning dove seasons. Other upland wildlife such as bobwhite quail and cottontail rabbits are pursued to a lesser extent, based on reports from Wildlife and Protection staffs from recent years.

Challenges and Opportunities:

- 1) Provide for hunting and viewing opportunities.
- 2) Improve educational and interpretive opportunities.

Management Objective 1: Promote diverse recreational opportunities on the area that are consistent with defined management objectives and sensitive to the natural communities and features of the area.

Strategy 1: Maintain all 10 parking lots/camping areas, bulletin boards, and service roads to promote an inviting appearance for area users. (Wildlife, Design and Development)

Strategy 2: Annually review Atlas database in order to maintain current and updated information for the public. (Wildlife)

Management Objective 2: Provide public hunting and viewing opportunities.

Strategy 1: Conduct annual management activities that will provide habitat for a diversity of species. (Wildlife)

Management Objective 3: Improve educational and interpretive opportunities on Mussel Fork CA.

Strategy 1: Communicate to the public recreational opportunities (e.g., using brochures, Atlas database). (Wildlife)

Strategy 2: Communicate to teachers, students, scout groups, and youth groups the uniqueness of the area to facilitate as a possible destination for ecology classes, school programs, and workshops. (Outreach and Education)

VIII. Administrative Considerations

Challenges and Opportunities:

- 1) Maintain area infrastructure at current levels.
- 2) Build relationships with neighboring landowners.
- 3) Consider acquisition of land, when available.

Management Objective 1: Maintain area infrastructure at current levels.

Strategy 1: Maintain area infrastructure in accordance with Department guidelines. (Wildlife, Design and Development)

Management Objective 2: Work with willing neighbors to expand management beyond Mussel Fork CA boundaries.

Strategy 1: Work with neighbors to minimize any boundary, trespass or any other issues affecting Mussel Fork CA or private property. (Wildlife)

Strategy 2: Promote habitat management on neighboring landowner properties. (Private Land Services)

Lands Proposed for Acquisition:

When available, adjacent land may be considered for acquisition from willing sellers. Tracts that improve area access, provide public use opportunities, contain unique natural communities and/or species of conservation concern, or meet other Department priorities, as identified in the annual Department land acquisition priorities, may be considered.

MANAGEMENT TIMETABLE

Strategies are considered ongoing unless listed in the following table:

	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Aquatic Resource Management															
<i>Objective 1</i>															
Strategy 1		X		X											
Strategy 3	X														
<i>Objective 2</i>															
Strategy 1	X					X					X				

APPENDICES

Area Background:

Mussel Fork Conservation Area (CA) is located in Linn and Macon counties, approximately 10 miles east of Brookfield, just south of Missouri Highway 36. Mussel Fork CA consists of 2,440 acres with a wide variety of habitat types, including forest, savannas/woodlands, old fields, grasslands, crop fields, wetlands, streams, and numerous ponds.

Mussel Fork CA was acquired in 1984. The purpose of the purchase was to provide for forest and upland wildlife, and public land for outdoor recreation throughout the state.

Current Land and Water Types:

Land/Water Type	Acres	Miles	% of Area
Forest	1,051		43
Open Land	354		15
Old Field	325		13
Woodland	271		11
Grassland	230		9
Savanna	129		5
Wetland	47		2
Open Water	33		1
Total	2,440		100
Stream Frontage		4.0	

Public Input Summary:

The draft Mussel Fork Conservation Area Management Plan was available for a public comment period Aug. 1–31, 2017. The Missouri Department of Conservation received comments from three respondents (Appendix A). The Mussel Fork Conservation Area Planning Team carefully reviewed and considered these ideas as they finalized this document. A brief summary of public input themes, including how they were incorporated or why they were not, can be found below. Rather than respond to each individual comment, comments are grouped into general themes and are addressed collectively.

Department responses to themes and issues identified through the Mussel Fork Conservation Area Management Plan public comment period.

Suggests providing some days when quail/pheasant hunting is allowed on the area, but archery deer hunting is not allowed. Concerned about hunter safety.

The Department understands the potential for user conflicts on Department areas. Likewise, it is an important goal to maximize different public use opportunities on our areas. At this time, there

are no plans to create a managed hunt segment for quail season. Area users should be aware of other hunting seasons occurring at different times of the year and proceed with caution while using the area when these seasons are in progress.

Suggests adding a shooting range.

There are no plans to add a shooting range to Mussel Fork CA. The Department completed an infrastructure reduction in 2009 with the downturn of the economy, and is carefully reviewing any infrastructure additions. The Department offers shooting range opportunities at several nearby conservation areas, including Atlanta CA (30 miles away), Sugar Creek CA (41 miles away), Big Creek CA (42 miles away), and Poosey CA (55 miles away).

Loves to rabbit hunt at Mussel Fork CA. Suggests liming and fertilizing plots and planting with alfalfa cover.

The food plot program will continue to be managed through the Ag Crop permittee farmer to provide food resources for small game species. The rate of fertilizer on food plots is set through the bidding process services through cash rent of cropland on the area. Liming of food plots is limited to funding provided through the yearly cash rent payment and on an as-needed basis. Legumes, such as clover or alfalfa, are established in certain fields on a rotational basis according to the area's crop plan for the year.

References:

Missouri Department of Conservation. (2009). *Watershed and stream management guidelines for lands and waters managed by Missouri Department of Conservation*. Jefferson City, MO: Missouri Department of Conservation.

Missouri Department of Conservation. (2014). *Missouri watershed protection practice recommended practices for Missouri forests: 2014 management guidelines for maintaining forested watersheds to protect streams*. Jefferson City, MO: Conservation Commission of the State of Missouri.

Nigh, T. A., & Schroeder, W. A. (2002). *Atlas of Missouri ecoregions*. Missouri Department of Conservation.

Maps:

Figure 1: Area Map

Figure 2: Infrastructure and Public Use Facilities

Figure 3: Land Cover Types

Figure 4: Forestry Management Prescriptions

Figure 5: Streams and Ponds

Figure 6: Topographic Map

Additional Appendices:

Appendix A: Mussel Fork Conservation Area Management Plan Public Comments

Figure 1: Area Map

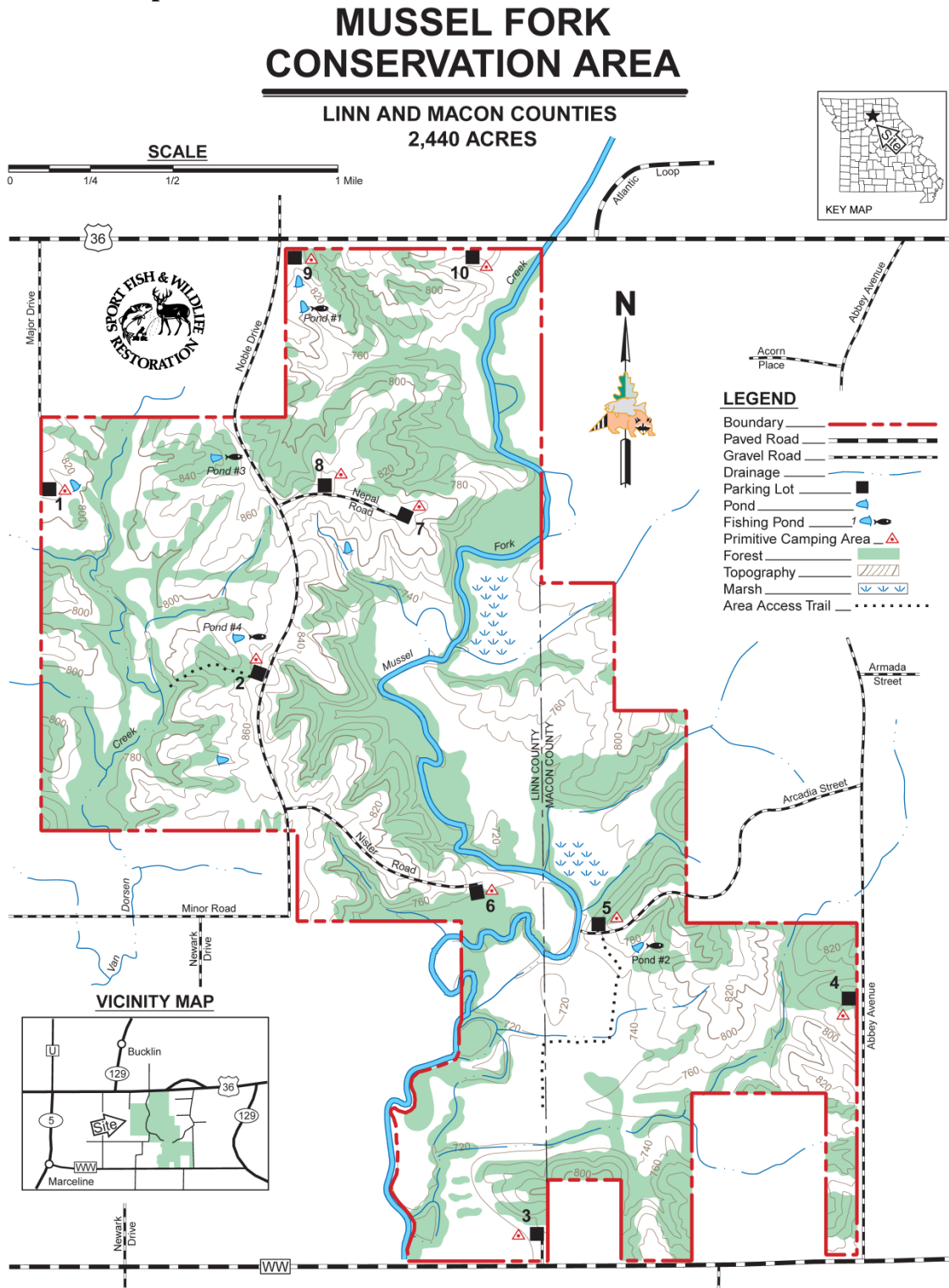
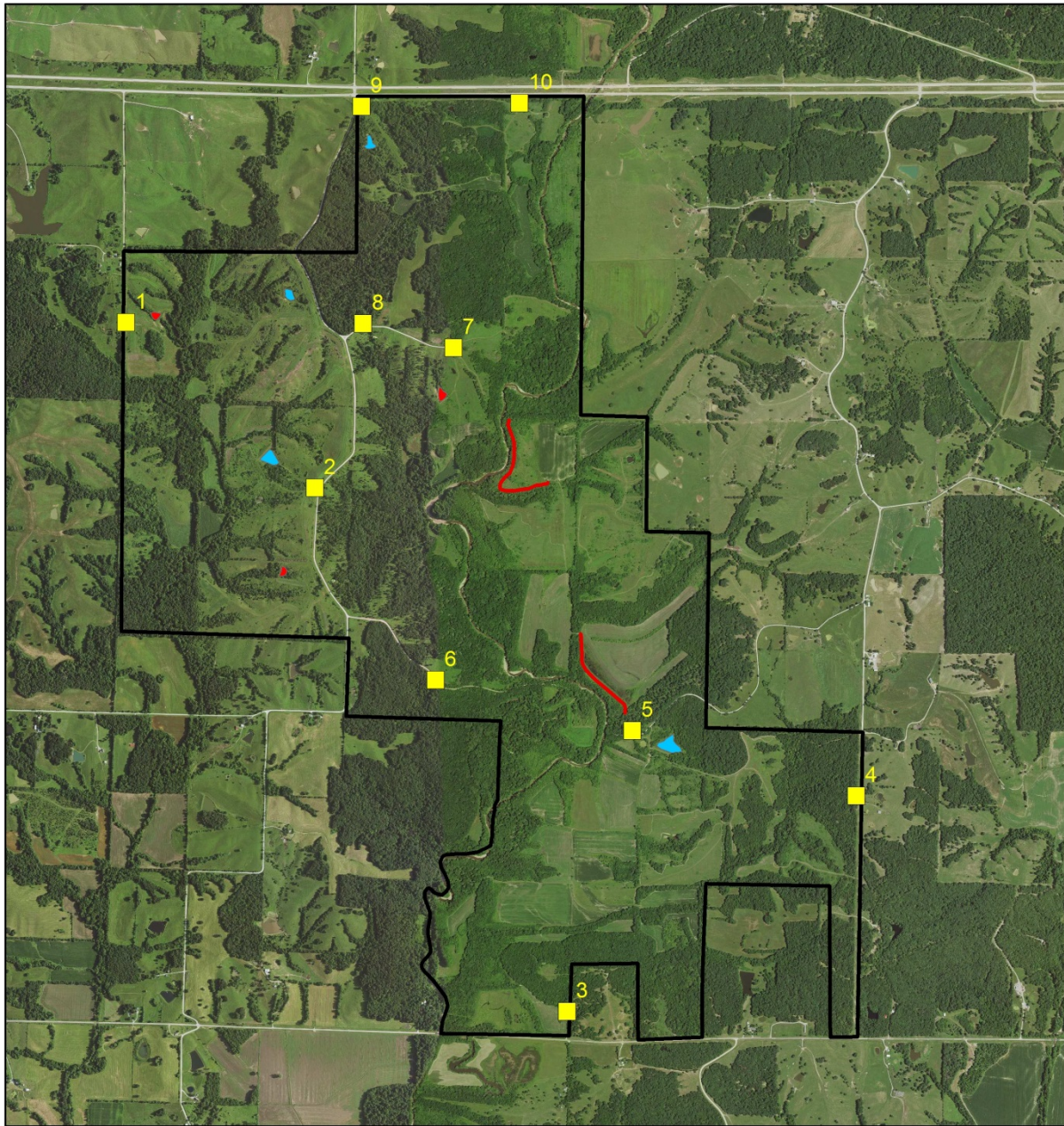





Figure 2: Infrastructure and Public Use Facilities



Legend

-  Area Boundary
-  parkinglots
-  Levees

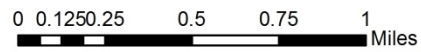


Figure 3: Land Cover Types

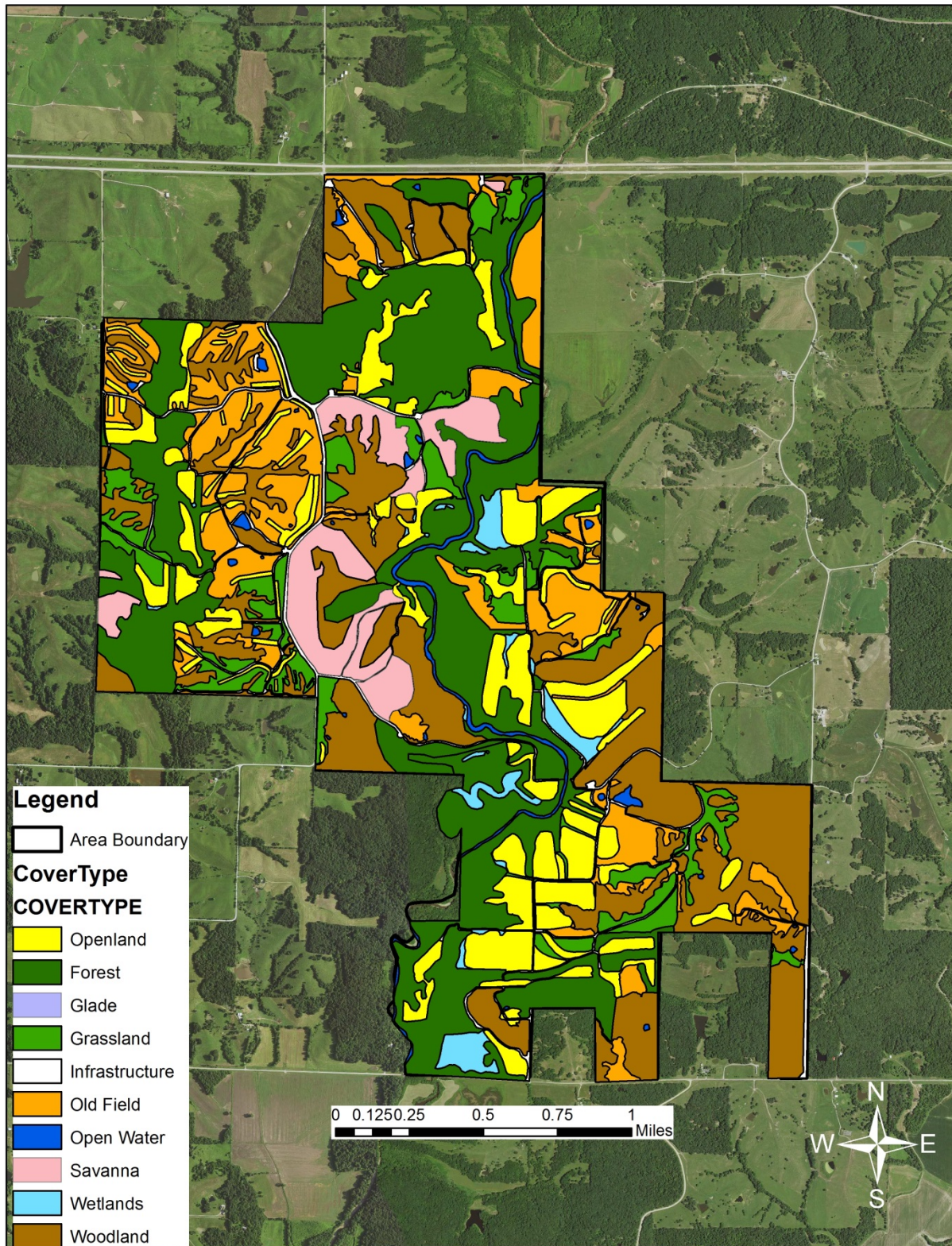


Figure 4: Forestry Management Prescriptions

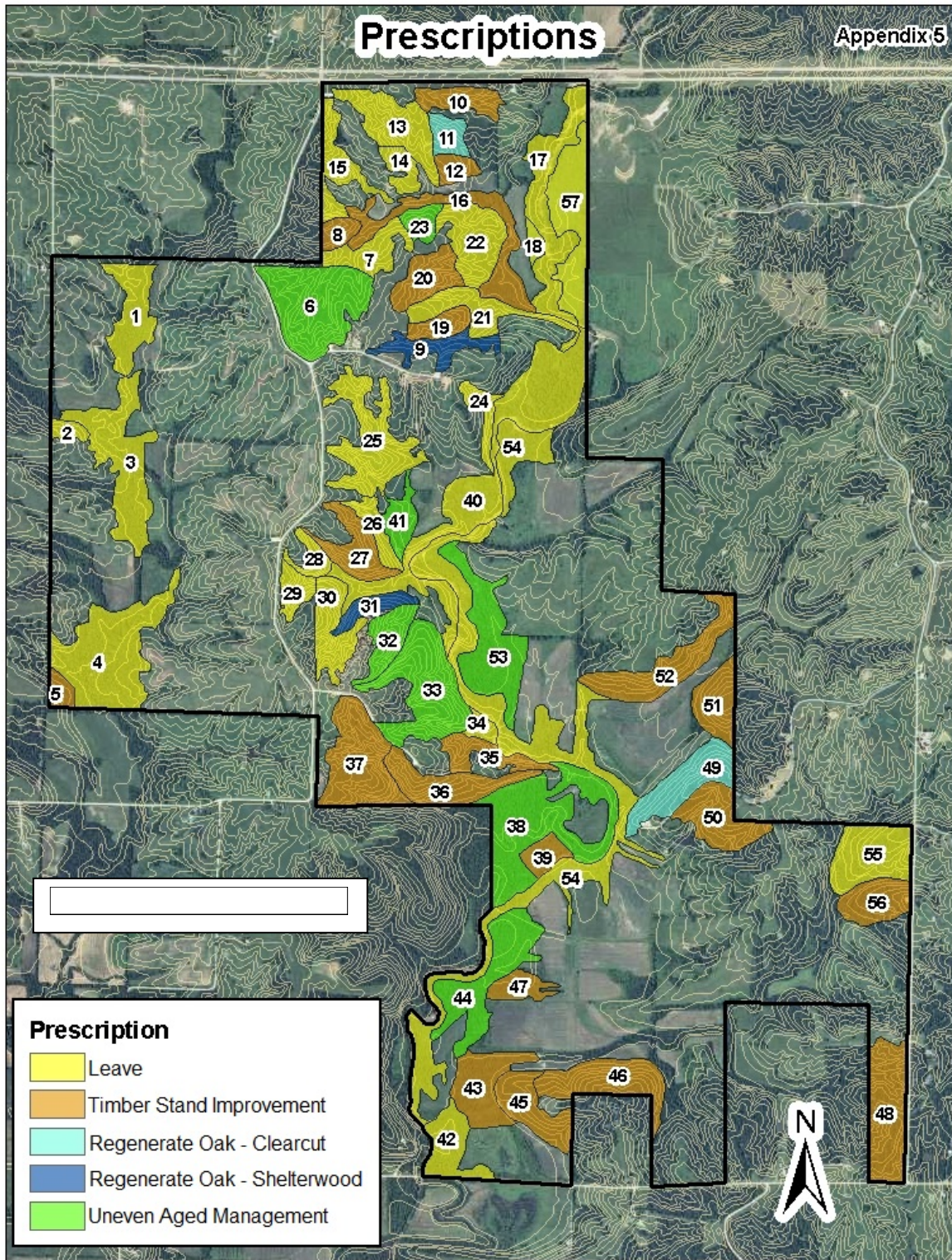
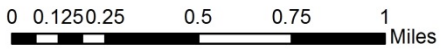
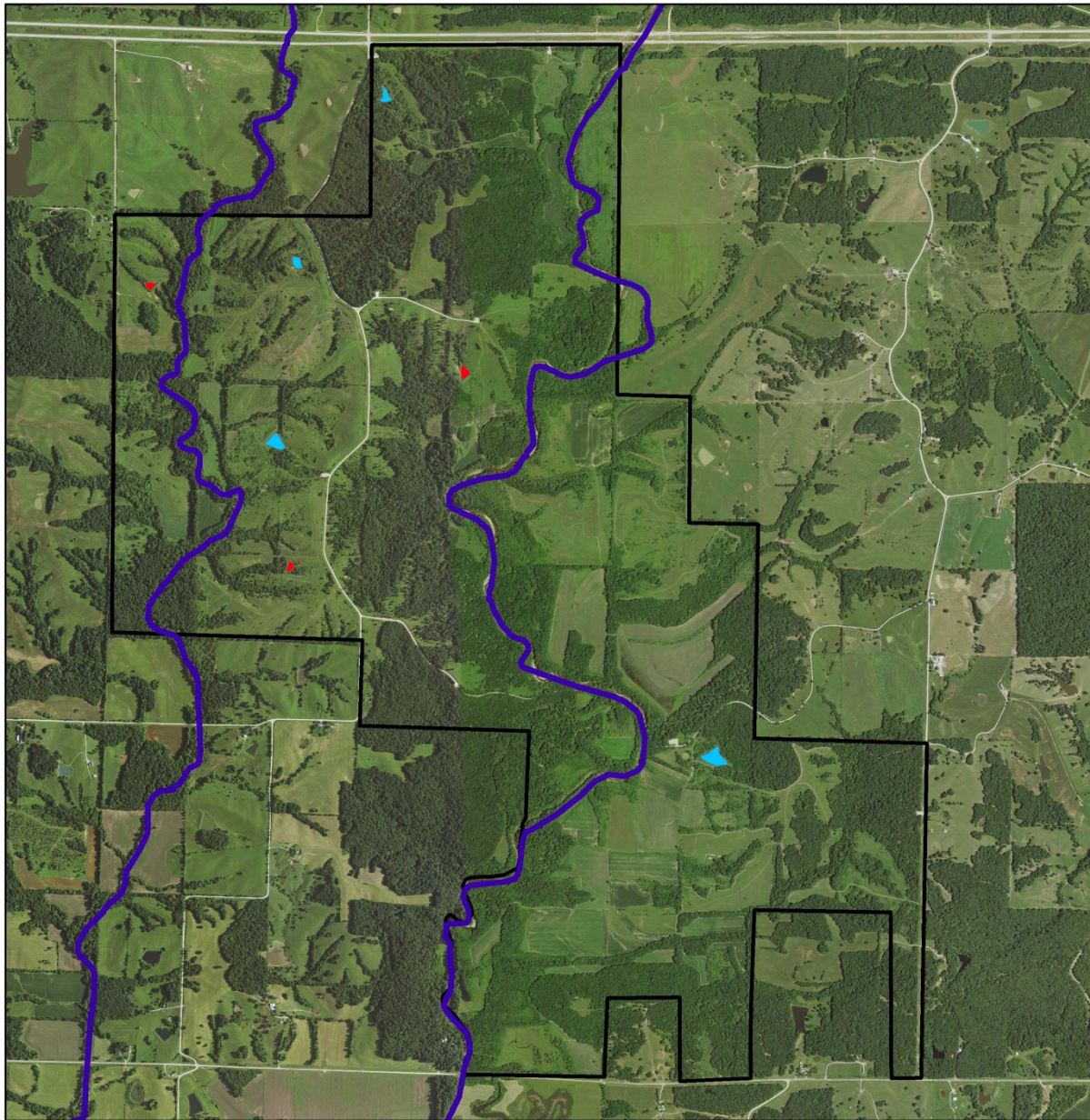


Figure 5: Streams and Ponds

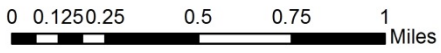
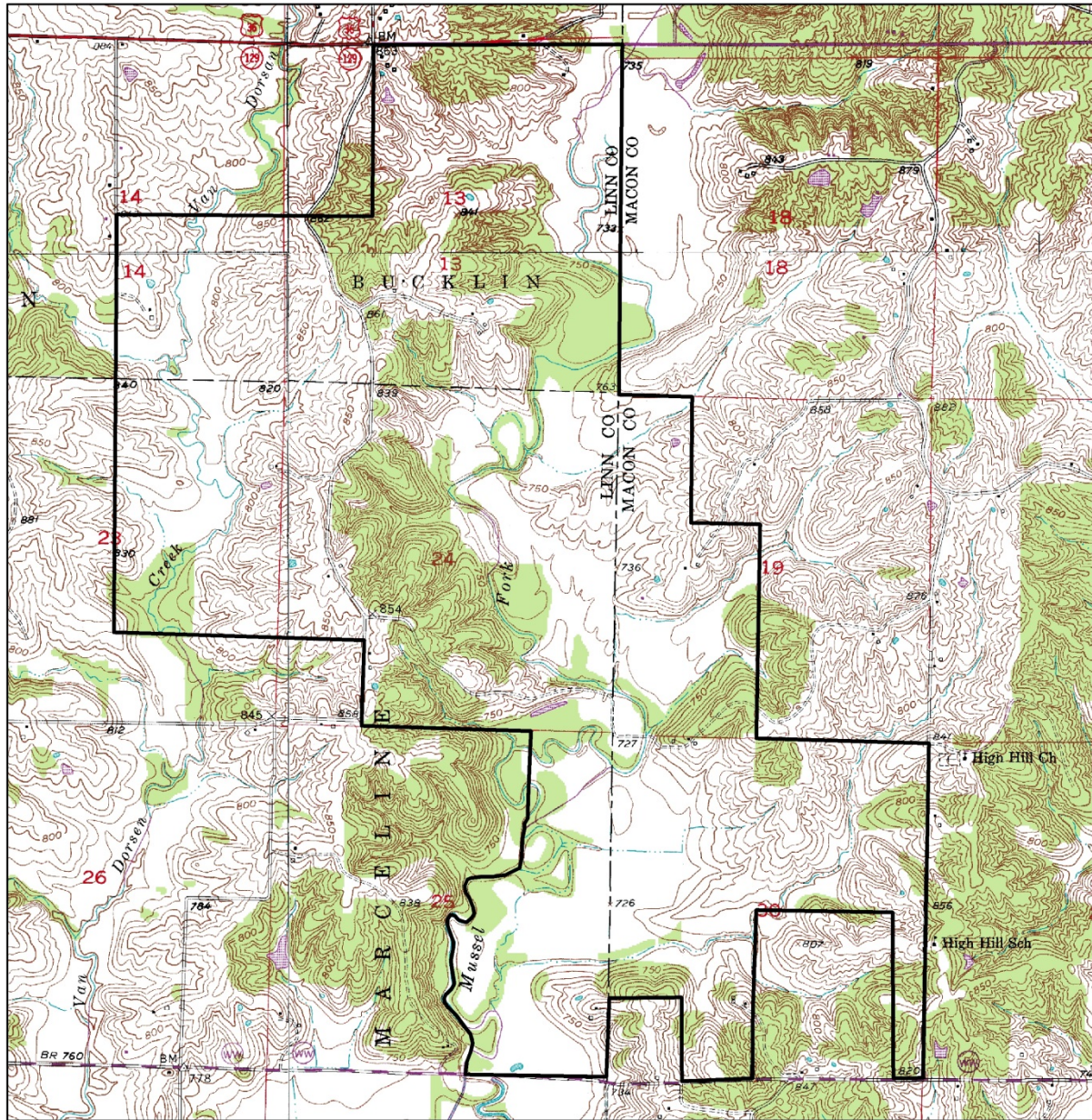


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
-  Area Boundary
-  Non-stocked Ponds
-  Streams
-  Stocked Ponds



Figure 6: Topographic Map



Legend

 Area Boundary



Appendix A: Mussel Fork Conservation Area Management Plan Public Comments

Received during public comment period (Aug. 1–31, 2017):

I like the management plan a lot. This is a particularly nice area for quail hunting. However, this is also a popular archery deer area. I would ask that MDC consider letting the quail hunters like me have a few days in November without any archery deer hunting on this and some other similar areas. The reason I ask is simply due to safety. I had a close call a couple of years ago where my dog pointed hard along the edge of a field but thankfully no birds got up. After working the area I looked and noticed a ladder about 20 yards away. Looking carefully I finally saw a bowhunter, completely covered in camo in his deer stand. He never said a word. Now I can complain about the fact that he didn't say anything but that doesn't change the fact that I would have shot if the birds were there and headed that way. I simply could not see him. If you look at the calendar between the youth deer hunts, the rifle deer season, there isn't much time for us quail hunters to get out early in the season. If we could get a few areas where we could quail and pheasant hunt without worrying about the archers that would be great. I support archery hunting and believe multiple use is important but I don't get out much because of the safety issues. If the archery season on some areas be stopped between Nov 1st and the deer season you would go a long ways in support of upland bird hunters. Thanks for your time and I do like the plan.

Please add a shooting range. You don't have one within several miles of north central Mo!
Also do more quail habitat management.

Mussel Fork is my favorite rabbit hunting area. I would to see some test plots limed and fertilized to soil test [7.0 ph] and planted to alfalfa close to good cover.