

# Bunch Hollow Conservation Area

Ten Year Area Management Plan  
FY 2013-2022



*Jonathan Warren*  
Wildlife Division Chief

*7/31/14*  
Date

## Bunch Hollow Conservation Area Management Plan Approval Page

### PLANNING TEAM

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### NORTHWEST REGION

RCT Chair

  
Signature

6-23-14  
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### WILDLIFE DIVISION

Unit Chief

  
Signature

7/24/14  
Date

## OVERVIEW

- **Official Area Name:** Bunch Hollow Conservation Area, #8331
- **Year of Initial Acquisition:** 1983
- **Acreage:** 3,294 acres
- **County:** Carroll
- **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 general public. Based on historical data, it is thought that Bunch Hollow CA was a landscape with diverse prairies, woodlands and forested communities. Present day management direction is to maintain vegetative diversity on remnant grasslands, emphasize the use of best management practices where feasible and manage open lands to produce the highest quality habitat for bobwhite quail, grassland birds and other upland dependent wildlife.

### B. Desired Future Condition

The desired future condition of Bunch Hollow Conservation Area (CA) is a landscape with a healthy forest/diverse woodlands/ scattered savannas/diverse grasslands/agricultural complex that promotes upland wildlife with an emphasis on early successional species, especially quail. The landscape will be conducive to hunting and other recreation.

### C. Federal Aid Statement

N/A

## GENERAL INFORMATION AND CONDITIONS

### I. Special Considerations

#### A. Priority Areas:

Based upon the NW Region Quail and Grassland Bird Recovery Plan written in 2005, Bunch Hollow was identified as one of five primary focus areas for the region. Furthermore, Bunch Hollow CA, a Quail Emphasis Area, serves as a public land core area to recruit early successional habitat cooperators within the 2C Quail Focus Area which total over 20,000 acres (Figure 5). Specific habitat goals and objectives for quail and grassland birds are detailed in the Bobwhite quail area emphasis review and vision document.). Bunch Hollow CA also occurs in the Bunch Hollow Conservation Opportunity Area.

**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:** Box canyon, Dry-mesic loess/glacial till prairie, Dry-mesic loess/glacial till woodland. Records kept with MDC Natural History Biologist.

**III. Existing Infrastructure (Figure 9)**

- Parking lots-13
- Multi-use Trail- 4.5 miles
- Shop building-1
- Radio tower-1

**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:** Several known and undocumented (Figure 6).

**D. Cultural resource findings:** No known cultural resources.

**E. Hazards and hazardous materials:** None observed.

**F. Endangered Species:** None observed.

**G. Boundary Issues:** Establishing accurate and identifiable boundary markers is a priority for this property.

**MANAGEMENT CONSIDERATIONS**

**V. Terrestrial Resource Management Considerations**

**PRAIRIE/GRASSLAND MANAGEMENT**

Native tallgrass 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 Bunch Hollow CA grasslands to provide a diverse plant community of warm and cool-season grasses, legumes, forbs, bare ground and work with willing neighbors to expand management beyond Bunch Hollow CA boundaries. The ideal condition would be for these fields to be maintained in 30-50% grasses, 30-40% annuals, forbs, or legumes, and 20-30% 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.

## **FOREST MANAGEMENT**

Bunch Hollow CA contains 1,746 acres of forested habitat and covers approximately 50% of the area. Bunch Hollow CA lies within the Shoal Creek Prairie/Woodland Dissected Plain land type association (LTA). Historically, the terms “woodlands” and “savannas” were synonymous in practical description and accounted for 25% of the region. The remainder of the area was composed of vast prairies. Due to lack of fire, overgrazing, and land conversion, woodlands now account for 10% of the region and native prairies are virtually non-existent.

Forest management plans were developed in 1995 and 2006 based upon thorough inventories in 1986 and 2004/2005 respectively. Silvicultural activities were carried out from 1996 to 1999, and from 2007 to 2014. These practices included timber stand improvement (TSI), commercial timber sales, and post-harvest slashing/TSI (Figure 14). In 2006 the area was split into two forestry compartments for future inventories (Figure 13).

In the mid-late 1990’s, three management units were designated for prairie/savanna/forest mosaic restoration (Figure 2). These units are defined by public roads, field roads, and natural barriers that serve as permanent fire breaks. Crop fields occur on a limited basis along the perimeters of the management units. A monitoring project was begun in 1995 that consisted of photo stations inside natural community complexes.

Some of the stands within these prairie/savanna/forest complexes were harvested as part of the timber sale after the first inventory, while others had TSI performed after the second inventory. Furthermore, Forestry and Wildlife staff identified and wrote burn plans for additional woodland units in 2010 (Figure 2).

**Management Objective 1:** Maintain and promote healthy upland forests through the use of sustainable forest management practices. The primary goals will be optimum wildlife habitat and forest health.

**Strategy 1:** Complete 2006 inventory plan by concluding timber sale activities in 2012-2013 and complete final post-harvest slashing/TSI in 2014 (Figure 14).

**Strategy 2:** Conduct woodland burns as appropriate and according to the burn plans.

**Strategy 3:** Conduct additional inventories in 2020 (compartment 1) and 2027 (compartment 2), and implement the recommendations consistent with land type associations (LTAs) from these inventories (Figure 13).

**Management Objective 2:** Monitor management actions to forest/woodland/prairie mosaics.

**Strategy 1:** Continue photo monitoring efforts on select woodland/savanna units established in 1995 (Figure 12). Photos will be taken at a minimum of once every 5 years.

### **CROPLAND MANAGEMENT**

The purpose of managing cropland on Bunch Hollow CA is threefold: 1) to provide food for wildlife, 2) to provide diversity in habitat thus increasing edge, 3) to economically control succession (Figure 3).

**Management Objective 1:** Utilize cropping 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 NRCS soil conservation plan and promotes small game management.

**Strategy 1:** Employ a four year rotation (corn/beans/wheat and oats or clover) on most upland fields.

**Strategy 2:** Employ a rotation of corn and soybeans on bottomland fields and use small grains and idle acres as appropriate.

**Strategy 3:** Maintain food plots in non-crop areas. Food plot rotation will be variable, but a sorghum or corn/legume/idle rotation is preferred.

### **OLD FIELD MANAGEMENT**

**Management Objective 1:** To 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 30-50% warm and cool season grasses, 20-30% annual forbs, 10-20% shrubs, and 20-30% bare ground using a combination of management techniques including but not limited to prescribed burning, mechanical tree removal, disking, mowing, and over seeding.

## **TERRESTRIAL WILDLIFE MONITORING**

**Management Objective 1:** Monitor Quail and grassland bird species to assess population trends.

**Strategy 1:** Conduct spring quail and grassland bird surveys between May 15 and July 1, annually (Figure 8).

**Strategy 2:** Conduct fall quail covey counts from October 1 to October 31, annually (Figure 8).

**Management Objective 2:** Monitor white-tailed deer populations annually to determine relative abundance, trends in population fluctuations and data to support area harvest regulation strategies.

**Strategy 1:** Conduct a minimum of one spotlight survey every month, from July 1 to October 31 (Figure 7).

## **VI. Aquatic Resources Management Considerations**

### **RIPARIAN AREAS**

Stream corridors on Bunch Hollow CA generally consist of a good mixture of sizes and species of hardwood trees. The corridor widths in most places are adequate to protect stream integrity. Bunch Hollow Creek, a 3rd order tributary to Shoal Creek, is the major drainage on the area. Approximately 7.9 miles of Bunch Hollow Creek and direct tributaries exist on the area; whereas 4.8 miles of other, unnamed tributaries exist (Figure 11). Gully erosion continues to be a problem throughout the area. The area offers opportunities to demonstrate various conservation practices that can enhance aquatic resources.

**Management Objective 1:** Inventory riparian and stream habitat conditions on Bunch Hollow Conservation Area. Implement and maintain good riparian corridor practices on all areas, following stream and watershed guidelines.

**Strategy 1:** Inventory riparian and stream habitat conditions on Bunch Hollow CA by March 1, 2014.

**Strategy 2:** Implement and maintain good riparian corridor practices on Bunch Hollow CA following the established MDC guidelines and provide examples of good stream stewardship by demonstrating common USDA cost share practices such as CP21, 22, 29, 30 or 33.

**Strategy 3:** Monitor gully erosion throughout the area annually. Work with NRCS staff to implement appropriate practices where erosion is severe.

## VII. Public Use Management Considerations

### **Challenges and Opportunities:**

Bunch Hollow CA is managed primarily for upland wildlife species and consequently receives significant public use during spring turkey and fall firearms deer seasons. Other upland wildlife such as mourning dove, bobwhite quail and cottontail rabbits are pursued to a lesser extent, based on hunter card reports over the last few years.

**Management Objective 1:** Monitor public use activities on Bunch Hollow CA.

**Strategy 1:** Collect hunter numbers and harvest data through daily hunter cards. Cards shall be collected in a timely manner and entered into a database to estimate hunter and harvest trends of various species of wildlife.

**Management Objective 2:** 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 13 parking lots/camping areas, bulletin boards and service roads to promote a presentable appearance for area users.

**Strategy 2:** Maintain 4.5 mile multi-use trail to promote horseback and bicycle riding as well as hiking for area users.

**Strategy 3:** Annually review atlas database in order to maintain current and updated information for the public.

## VIII. Administrative Considerations

### **Challenges and Opportunities:**

Pursue options and explore feasibility of closing abandoned public roads to facilitate better management strategies as well as decrease unlawful access into the area. Furthermore, illegal horseback riding within savanna unit #2 continues to be an issue and further enforcement will be needed.

**Management Objective 1:** Close abandoned portions of county roads 171 and 122 by June 2015.

**Strategy 1:** Work with county and township to begin process to close portions of county roads 171 and 122.

**Management Objective 2:** Continue enforcement efforts to curtail illegal horseback riding and ATV use on Bunch Hollow CA.

**Strategy 1:** Monitor ATV and illegal horseback use bimonthly or as often as necessary according to Carroll County agent.



**Strategy 2:** Improve signage to curtail horseback riding off of existing multi use trail and illegal ATV use on area.

**Lands proposed for acquisition:**

When available, inholdings and 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:

	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
<b>Terrestrial Resources Management</b>										
Forest Objective 1:										
Strategy 1:	X	X								
Strategy 3:								X	X	
Forest Objective 2:										
Strategy 1:	X					X				
<b>Aquatic Resources Management</b>										
Management Objective 1:										
Strategy 1:	X					X				
Strategy 3:	X					X				
<b>Administrative Considerations</b>										
Management Objective 1:										
Strategy 1:	X	X	X							

## APPENDICES

### Area Background

Bunch Hollow Conservation Area (CA) is in Carroll County, approximately 10 miles north of Carrollton on Highway 65, then seven miles north on County Route Z. Bunch Hollow CA consists of 3,294 acres with a wide variety of habitat types including forest, old fields, crop fields, prairie, savanna, streams and numerous ponds.

Acquisition of the Bunch Hollow CA began in 1983; by July 1984, 3,000 acres had been purchased from 18 landowners. The purpose of the purchase, according to the Design for Conservation, was to provide for forest and upland wildlife, and public land for outdoor recreation throughout the state.

A first look at the area reveals Ozark-like topography with steep hills, deep hollows and rock outcroppings. The NRCS state geologist attributes this topography to the area missing the last ice age, thus more time for weathering and erosion.

Bunch Hollow lies in the Shoal Creek Prairie/Woodland Escarped Plain Land Type Association (LTA). This LTA is characterized by broad prairie ridges and angular scarped valleys. Bedrock-derived soils are common. Streams in the scarped valleys are often rock bottomed.

At the time of purchase, the original 3,000 acres was approximately 50% forest and 50% crop/pasture land. MDC management reduced farming by 50% and started converting fescue pastures to old fields and native warm season grasses. In the mid 1990's farming was further reduced and savanna management was initiated on a portion of the area and continues to date. Current management to date has maintained the existing forested component and total acreage, but amount of actively managed cool season grasslands have been significantly reduced (Figure 4).

### Current Land and Water Types

Land / Water Type	Acres	Feet	% of Area
Forest	1,246		37.8
Old Field	633		19.2
Grassland	392		11.9
Cropland	342		10.4
Woodland	315		9.6
Savanna	185		5.6
Food Plots	155		4.7
Impounded water	26		0.8
<b>Total</b>	<b>3,294</b>		<b>100%</b>
Stream footage		7,728	

## **Public Input Summary**

The draft Bunch Hollow Conservation Area Management Plan was available for a public comment period August 1-August 31, 2013. The Missouri Department of Conservation received comments from four respondents (Appendix A). The Bunch Hollow 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.

### MDC responses to themes and issues identified through Bunch Hollow public comment period

#### **Support for prescribed fire and thinning so that people and wildlife can walk through area easier.**

Prescribed fire has and continues to be identified as a key management tool in controlling succession in grassland, old field and forest habitats on Bunch Hollow CA. (V. Terrestrial Resource Management Considerations). Depending on weather conditions, we conduct prescribed burns on 250 to 700 acres annually on the area. Furthermore, we have edge-feathered/enhanced approximately 52 miles of field edges/borders in the last 5 years. This type of management involves cutting and using downed trees to provide escape cover for quail, rabbits and other small game from predators. Likewise, thinning management with forest management practices on forest, woodland and savanna habitats were conducted from 1996 to 1999, and from 2007 to 2014. These activities included timber stand improvement (TSI), commercial timber sales, and post-harvest slashing/TSI (Figure 14). During the early stages of this management, traversing through these stands can be difficult. However, over time these areas will actually be easier to walk due to a lower stem density in the forest stand.

#### **Would it be possible for more “rough habitat” to be converted to quail habitat?**

Bunch Hollow CA has been designated a Quail Emphasis Area (QEA) with the goal of maintaining and expanding useable space/habitat for quail on the area. We try to balance habitat needs for the life cycle of quail with nesting, brood rearing and shrubby escape cover habitats. Quail are early successional habitat species, which requires some type of disturbance every 1 to 3 and up to 5 years on these habitats using a combination of techniques stated in the area plan (V. Terrestrial Resource Management Considerations). Some of these habitats may look “rough” at times, but provide vertical vegetative structure diversity that is used by quail and other species of grassland birds.

**Would it be possible for row crops to be pesticide and herbicide free?**

Row crop farming and food plots provide an excellent source of high energy food during the fall and winter months and provides a management tool for vegetative succession control. The crop fields on Bunch Hollow CA are small with the largest being approximately 10 acres and the average size near 5 acres. While the planning team understands the concern with herbicides being improperly used, our permittee farmer must follow EPA guidelines by following the herbicide label instructions on mixing, application and disposal of all herbicide used on the area. At this time it is not economically feasible to restrict herbicide control on row crops for the permittee farmer and we could likely jeopardize our ag-crop program if permittee farmers cannot remain competitive with other producers in the current marketplace. Insecticide use must be approved by the area manager on a field by field determination. In the past 15 years, insecticides have not been used on any of the crops at Bunch Hollow CA.

**Would it be possible to add a shooting range?**

We do not have any plans to add a shooting range to Bunch Hollow CA. The Missouri Department of Conservation completed an infrastructure reduction in 2009 with the downturn of the economy, and is carefully reviewing any infrastructure additions. We do offer opportunities on several shooting ranges within the Northwest Region, that include Elam Bend, Gallatin, Pigeon Hill, Poosey and River Breaks Conservation Areas.

**Would it be possible to add more and/or longer equestrian trails?**

Currently horseback riding is allowed on the 4.5 mile multi-use trail and any road open to vehicular traffic (roads and parking lots open to the public). Having more or longer trails open to this activity increases the potential of interference with existing area uses and sensitive habitats (VIII. Administrative Considerations). While the planning team understands a desire by some to expand this activity on the area, there are no plans for changing length or adding more equestrian trails at this location.

**Would it be possible to add hiking trails?**

We have a designated 4.5 mile multi-use trail that is open to hiking, bicycle and horseback riding. As stated above, creating more or longer designated trails increases the potential of interference with existing area uses and sensitive habitats on the area. We do not have any plans to add designated hiking trails to Bunch Hollow CA. There are approximately 13.5 miles of undesignated area access trails throughout the area that are open to foot traffic only. Likewise, area users can travel by foot on any portion of Bunch Hollow CA.

**References:**

2006 Area plan (unapproved), MDC memos, Bobwhite Quail Emphasis Area Review and Vision, NRCS Soil Conservation Plan and personal interviews with MO River District staff and active DCT members.

**Additional Appendices:**

Appendix A: Draft Bunch Hollow Area Plan Public Comments

**Maps:**

Area Map

Figure 1: 1989 Natural Features Inventory

Figure 2: Natural Community Management Mosaics

Figure 3: Agriculture and Food Plot Fields

Figure 4: Habitat Cover Types

Figure 5: Landowner Cooperative Areas

Figure 6: Area Easements

Figure 7: Spotlight Deer Survey Routes

Figure 8: Quail and Grassland Bird Monitoring Points

Figure 9: Infrastructure and Public Use Facilities

Figure 10: Fencing Agreements

Figure 11: Streams and Fishing Ponds

Figure 12: Photostations

Figure 13: Forest Compartment and Stand Boundaries

Figure 14: Forest Management Prescription FY 2007-14

**Appendix A. Draft Bunch Hollow Area Plan Public Comments**

Received during public comment period (August 1-31, 2013).

I live across the road from Bunch Hollow and I would like to see it back to the way it was with the natural grasses and timber. Right now it looks like to me it has been let go. There are a lot of places that are so thick with briers and brush that a person can't even walk through let alone a deer or turkey. I think with planned burning and thinning of the timber would be a great start to get it back the way it was. Also if you decided to have row crops I would like to see it pesticide and herbicide free. I think a few hiking trails would be nice I know my wife and I would love it. Thank you for letting me give you my thoughts.

would like to see a shooting range added as the nearest one to northern carroll / southern livingston counties is poosey or gallatin.

I would like to see more equestrian trails added to Bunch Hollow. There is a short trail there that is nice to ride. However, with over 3000 acres at Bunch Hollow, there is plenty of room for more equestrian trails. They do not have to be wide enough to drive a vehicle down. Trails can be ridden single file and marked with plastic ribbon tied on tree limbs. I think a lot of people in the area would enjoy and use added trails.

My husband would like to see more rough habitat converted to quail habitat.

Thanks for the opportunity to make these requests.

I would like to see longer trails for horses as well as more trails available throughout Bunch Hollow.

Area Map

# BUNCH HOLLOW CONSERVATION AREA

CARROLL COUNTY  
3,294 ACRES



LEGEND

- Boundary
- Paved Road
- Gravel Road
- Unimproved Road
- Drainage
- Parking Lot
- Pond
- Fishing Pond
- Primitive Camping Area
- Forest
- Topography
- Multi-Use Trail

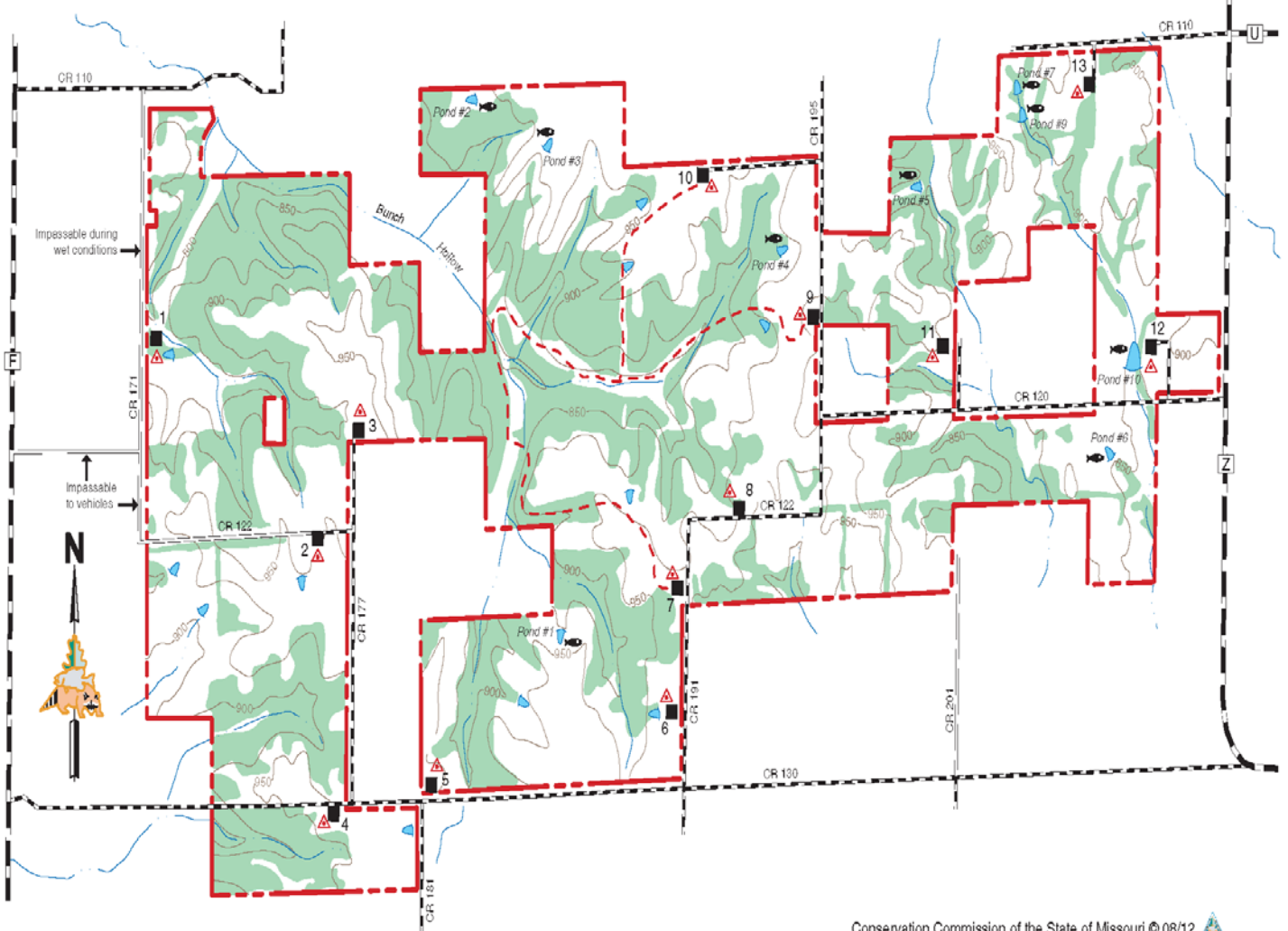
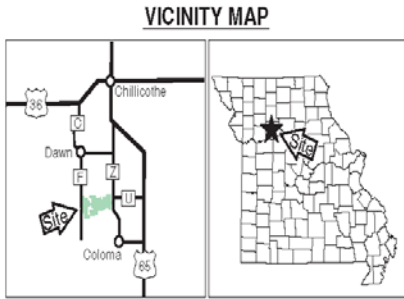
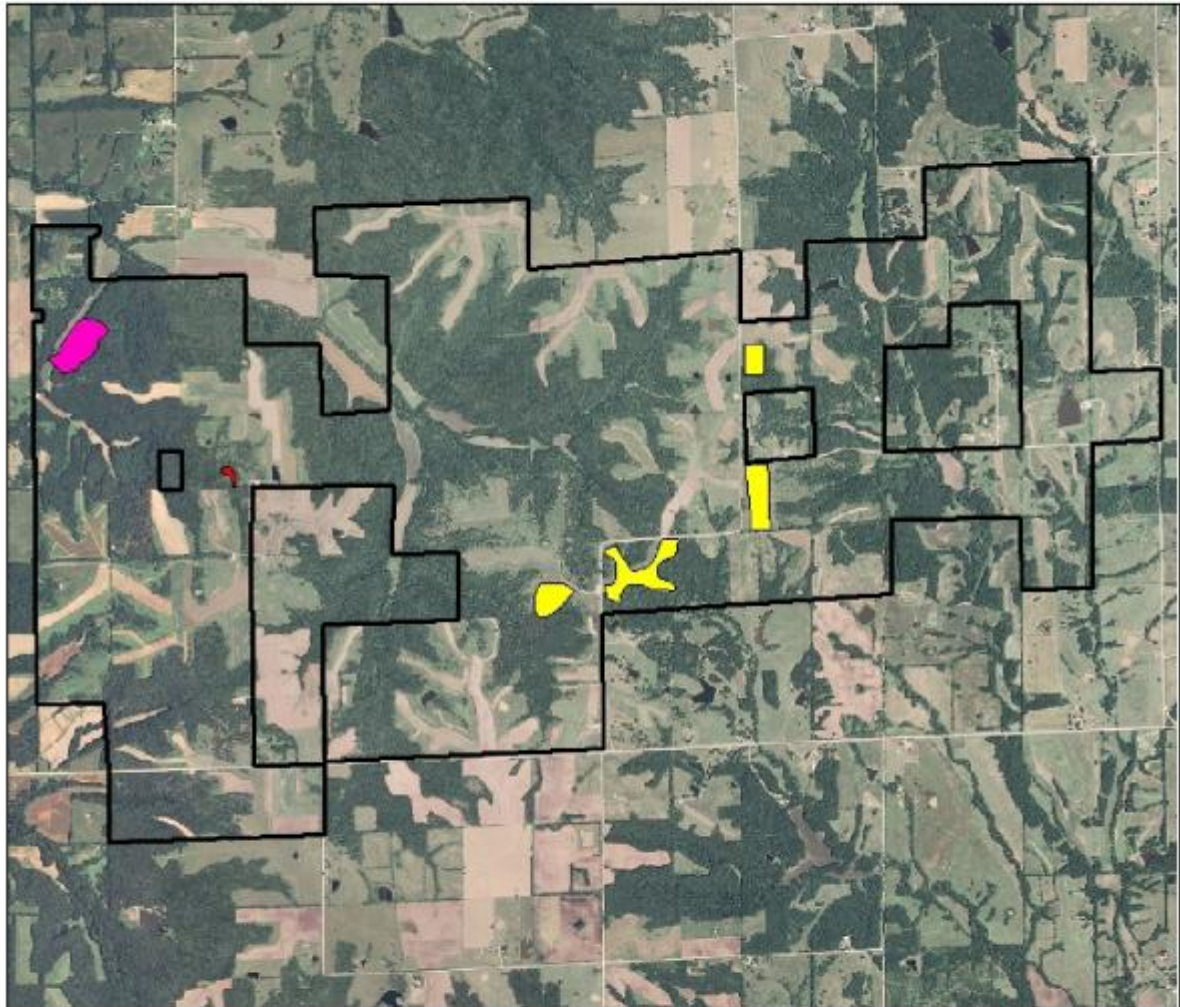




Figure 1. 1989 Natural Features Inventory



**Legend**





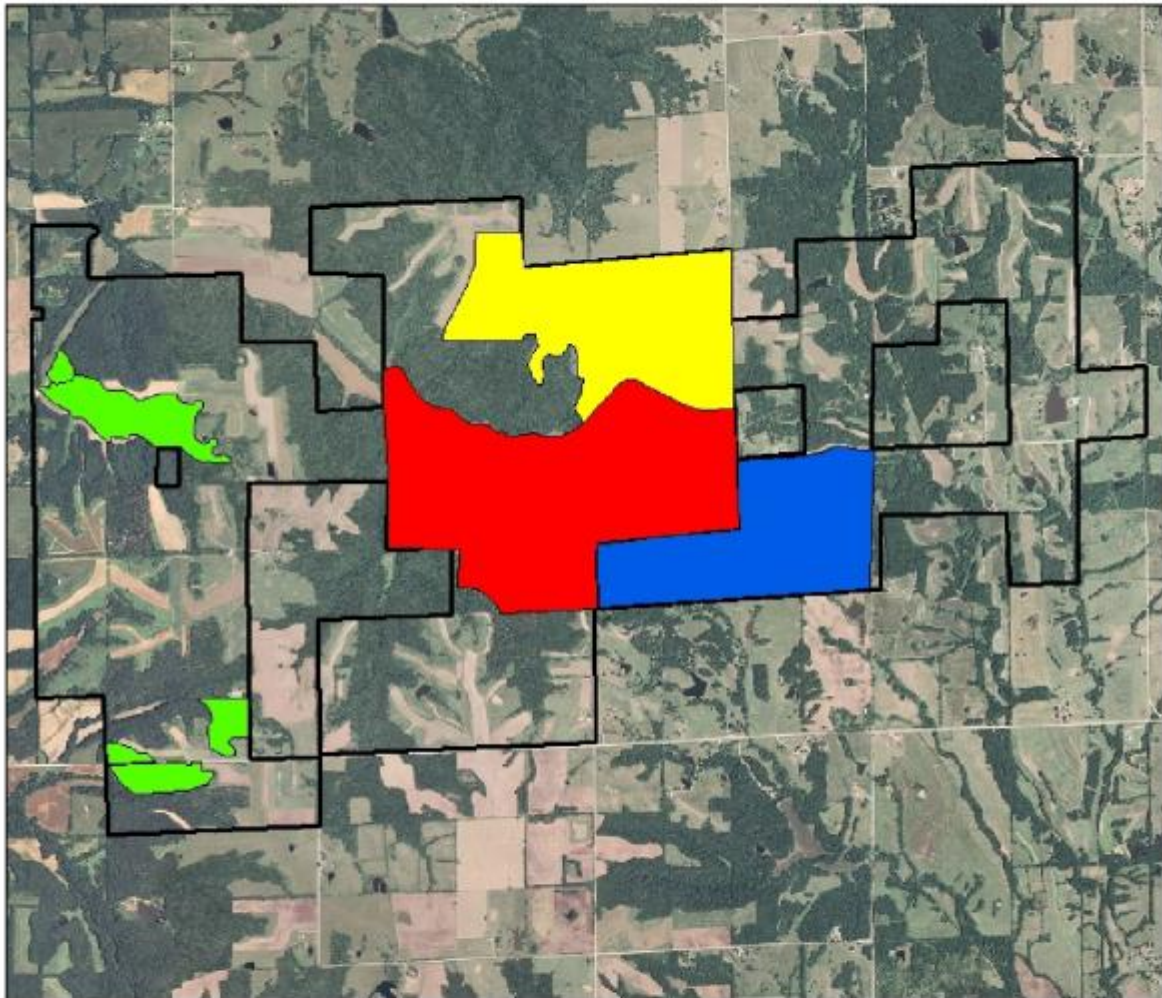
-  Dry-Mesic Limestone Woodland
-  Box Canyon
-  Dry-mesic loess/glacial till remnant prairie
-  BHCA Boundary



Figure 2. Natural Community Management Mosaics

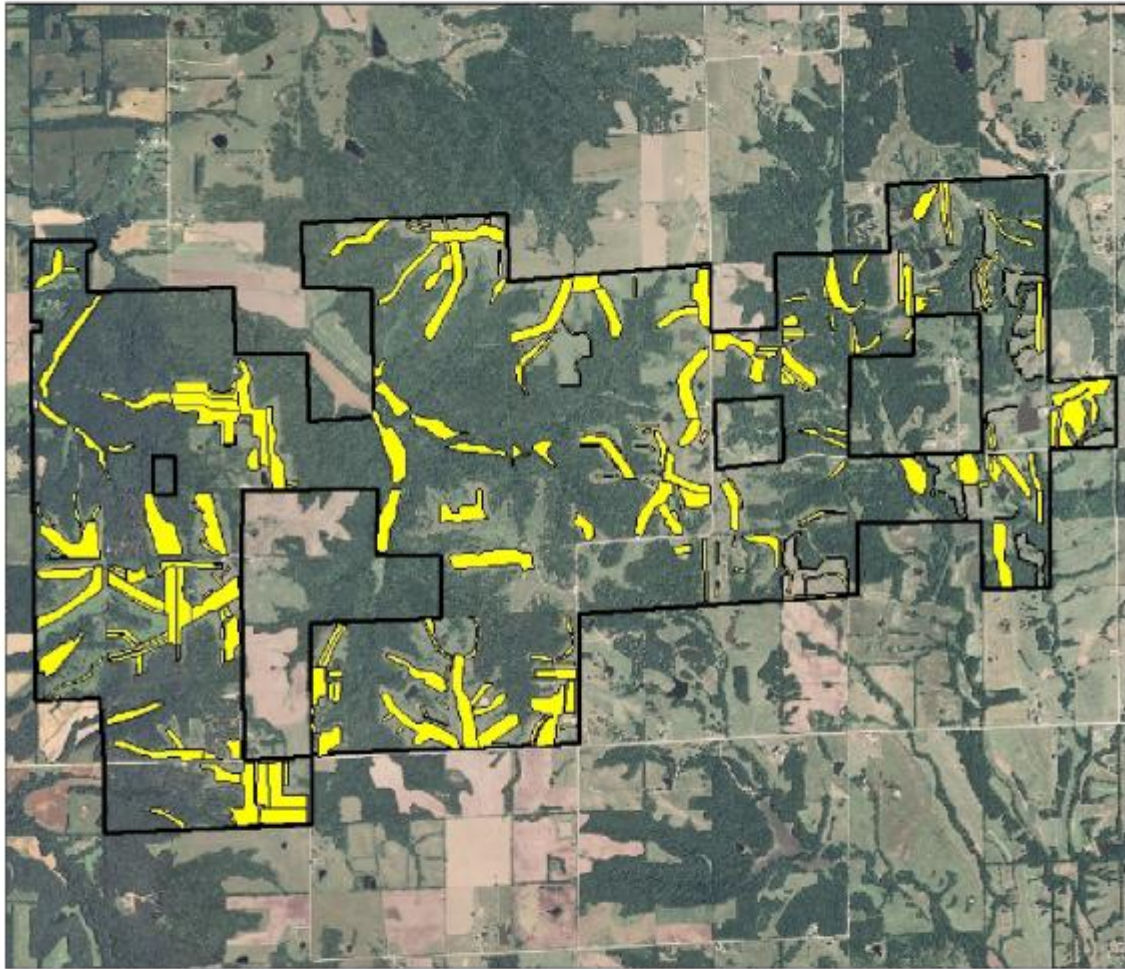


**Legend**

-  Savanna Unit 1
-  Savanna Unit 2
-  Savanna Unit 3
-  Woodland Management Units
-  BHCA Boundary



Figure 3. Agriculture and Food Plot Fields

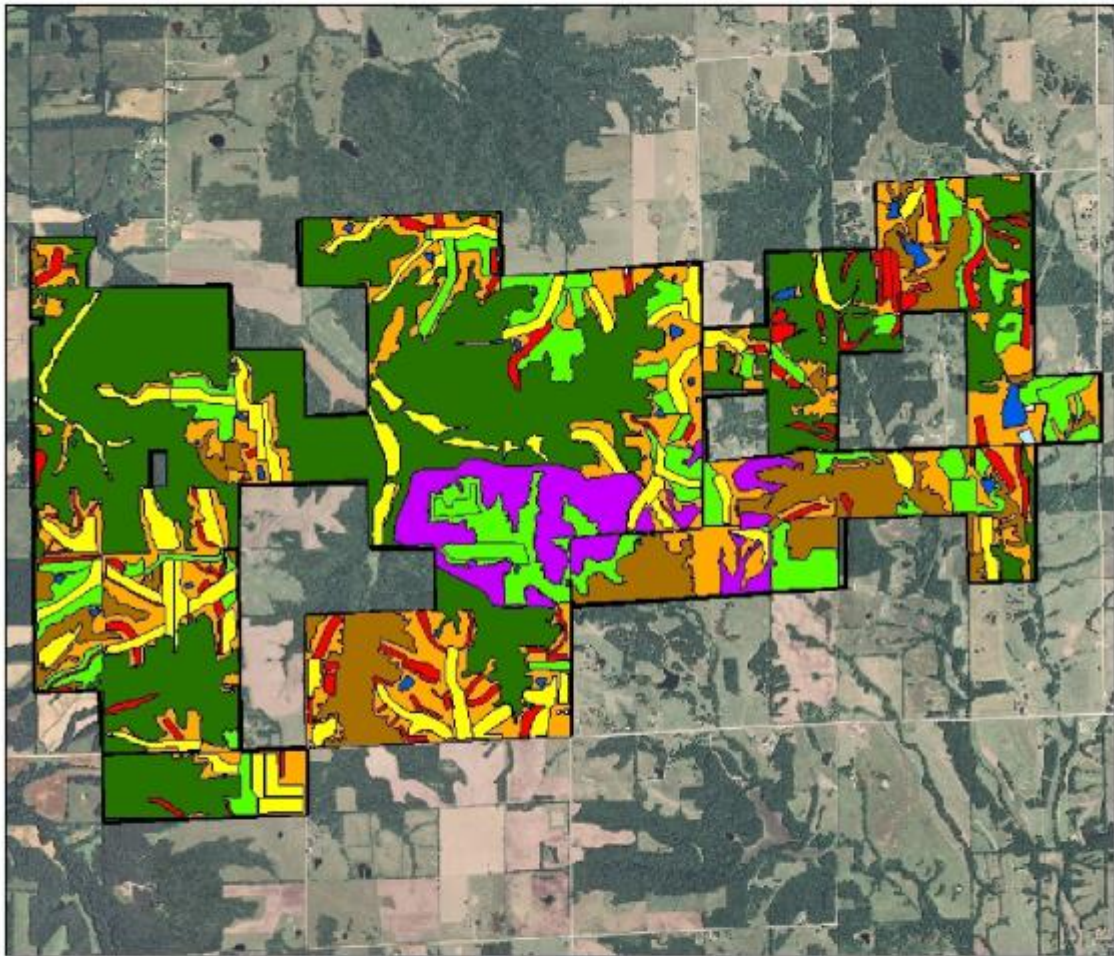


**Legend**

-  BHCAAG Fields
-  BHCA Boundary



Figure 4. Habitat Cover Types

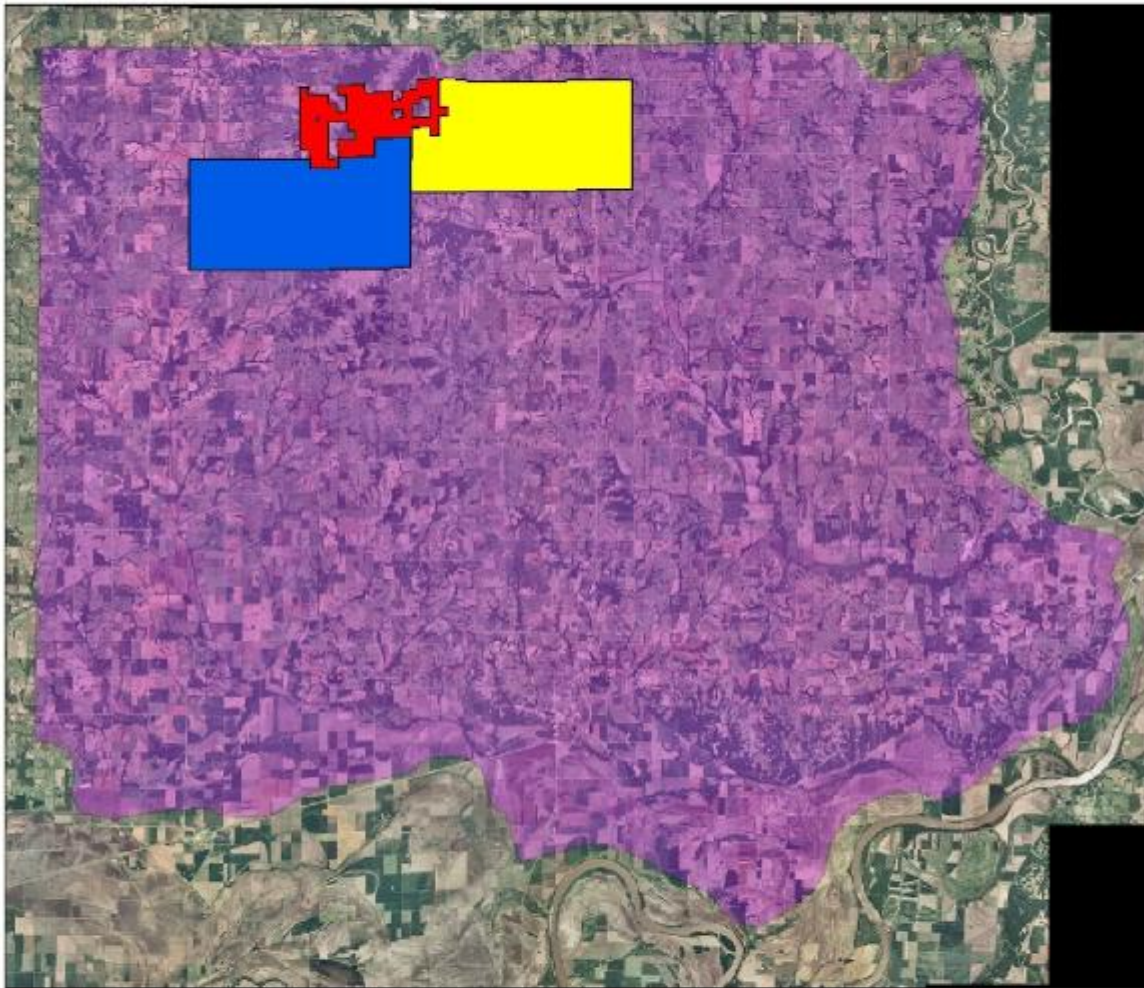


**Legend**

Habitat Cover Types	Grassland	Savanna
Food Plot	Old Field	Undefined
Forest	Permanent Water	Wetland
Glade	Permitted Cropland	Woodland
	BHCA Boundary	



Figure 5. Landowner Cooperative Areas

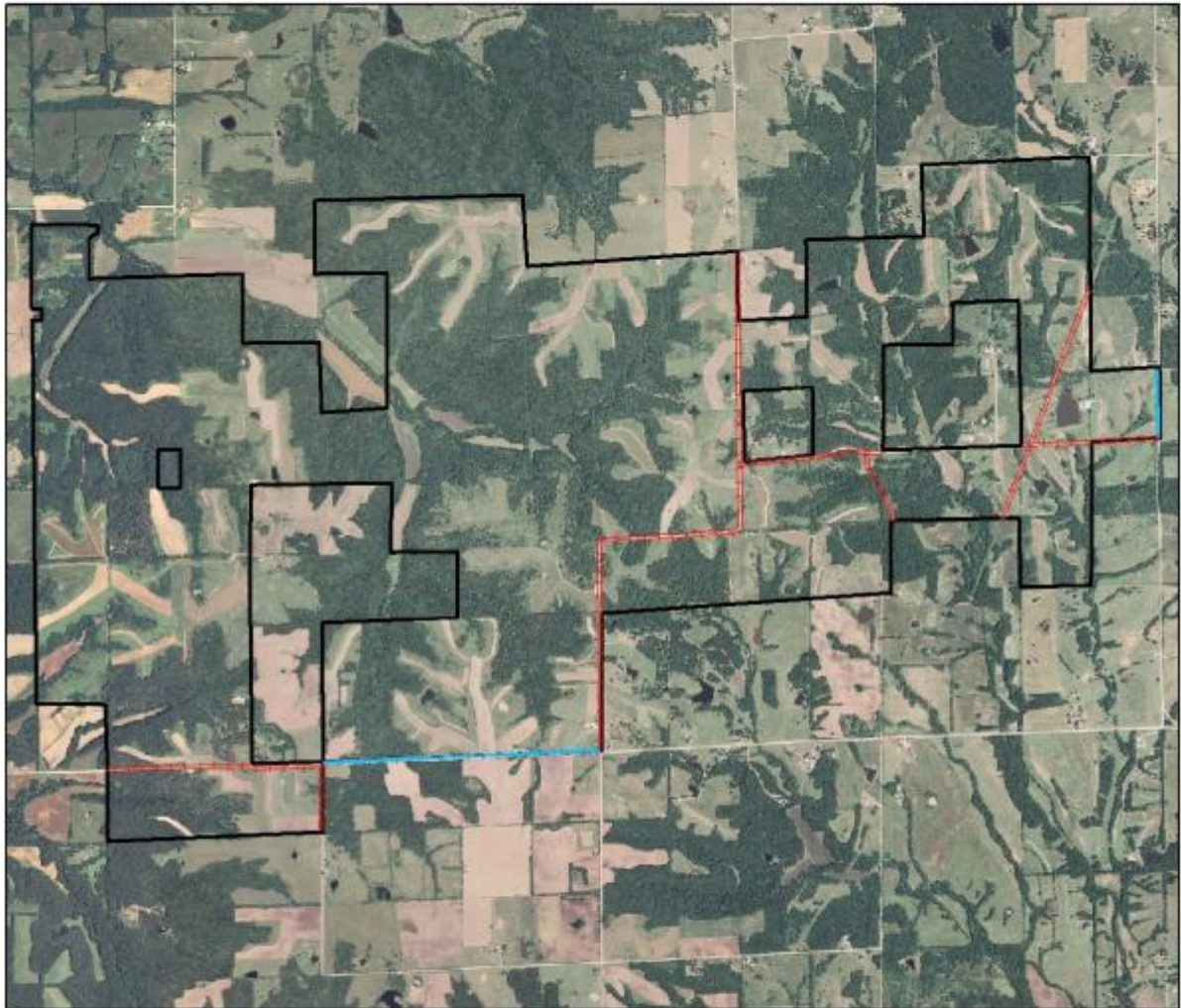


**Legend**

-  BUNCH HOLLOW CA
-  Bunch Hollow Landowner Coop
-  2c Quail Landowner Coop
-  2c Quail Focus Area- Carroll County



Figure 6. Area Easements



**Legend**




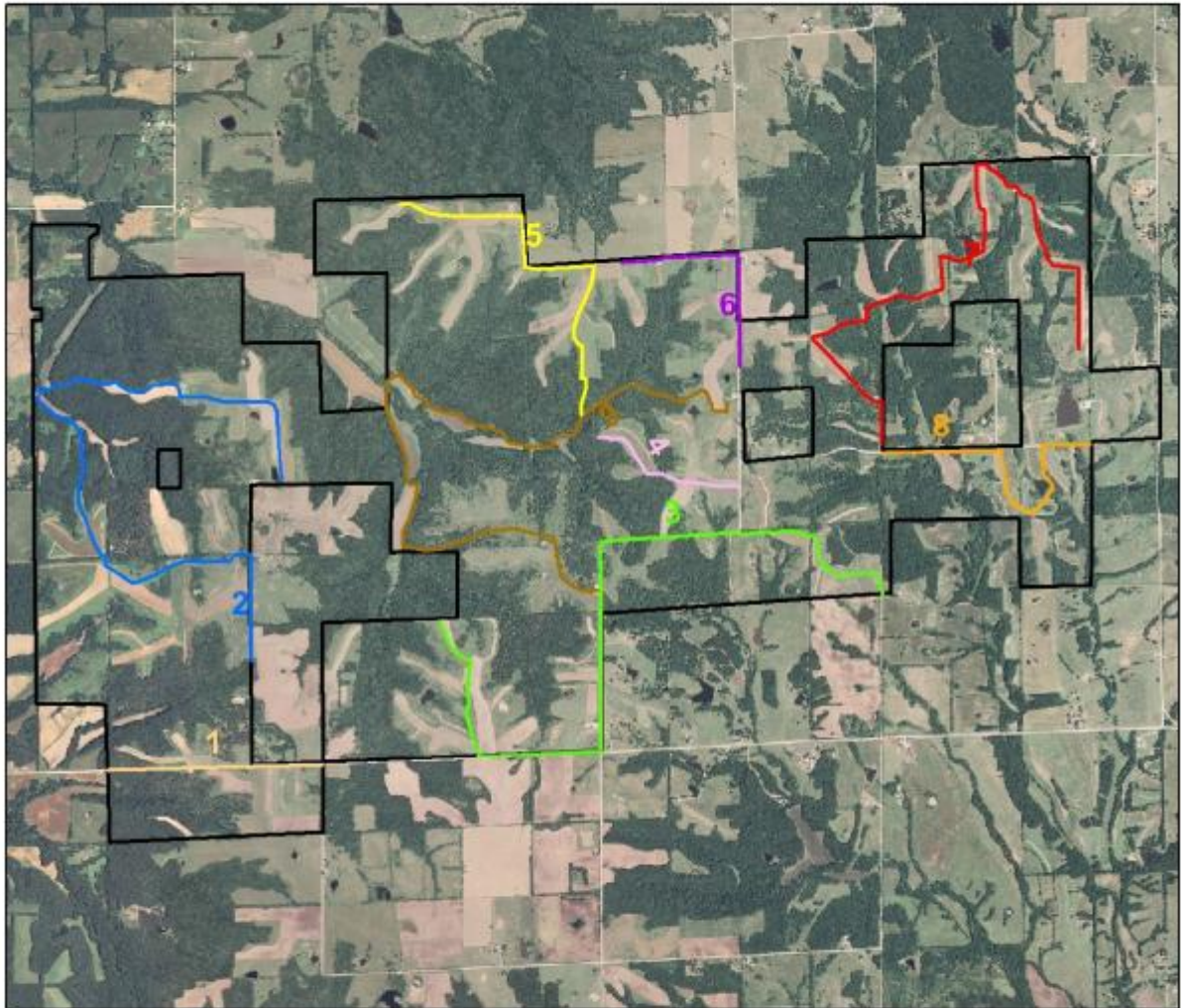
- Utility Easements
- |  |   |
|--|---|
| Type   |  BHCA Boundary |
|  Electric Pole/Line |   |
|  Water Line         |   |



Figure 7. Spotlight Deer Survey Routes



**Legend**

 BHCA Boundary

**Deer Survey Routes**

 1

 2

 3

 4

 5

 6

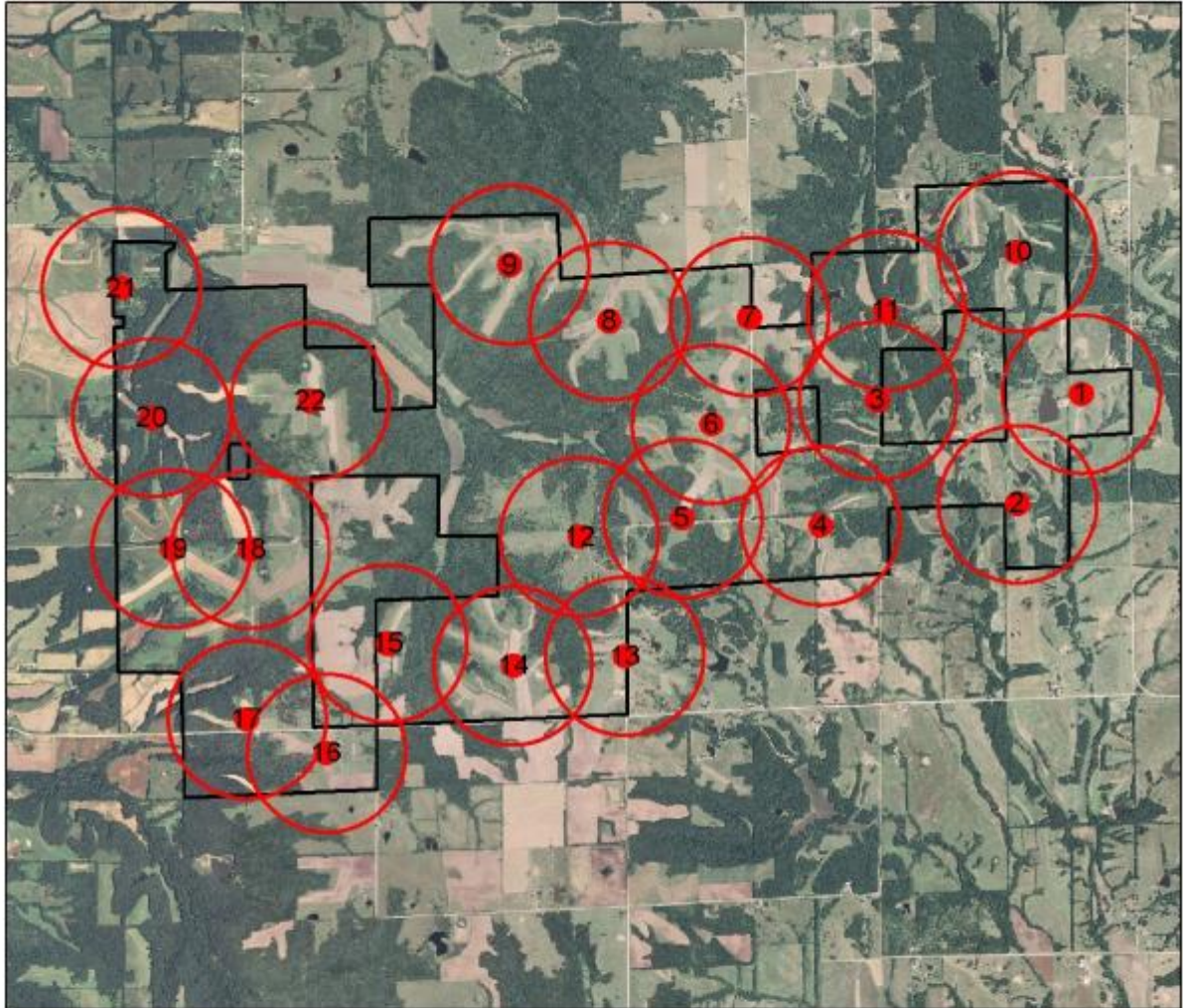
 7

 8

 9



Figure 8. Quail and Grassland Bird Monitoring Points



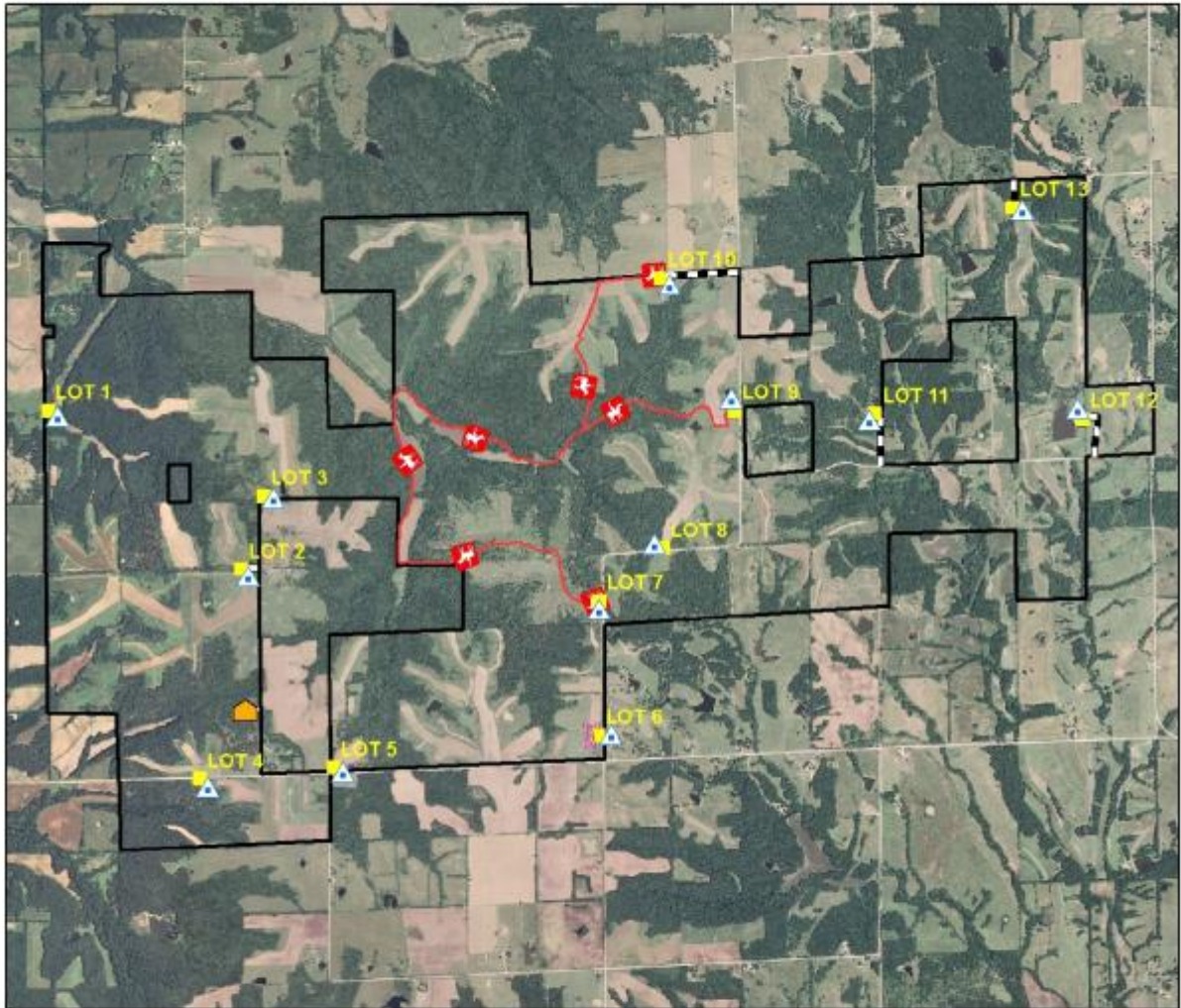
**Legend**

- Quail/Grassland Bird Survey Points
- 500 Meter Variable Distance Circle
- BHCA Boundary





Figure 9. Infrastructure and Public Use Facilities



**Legend**








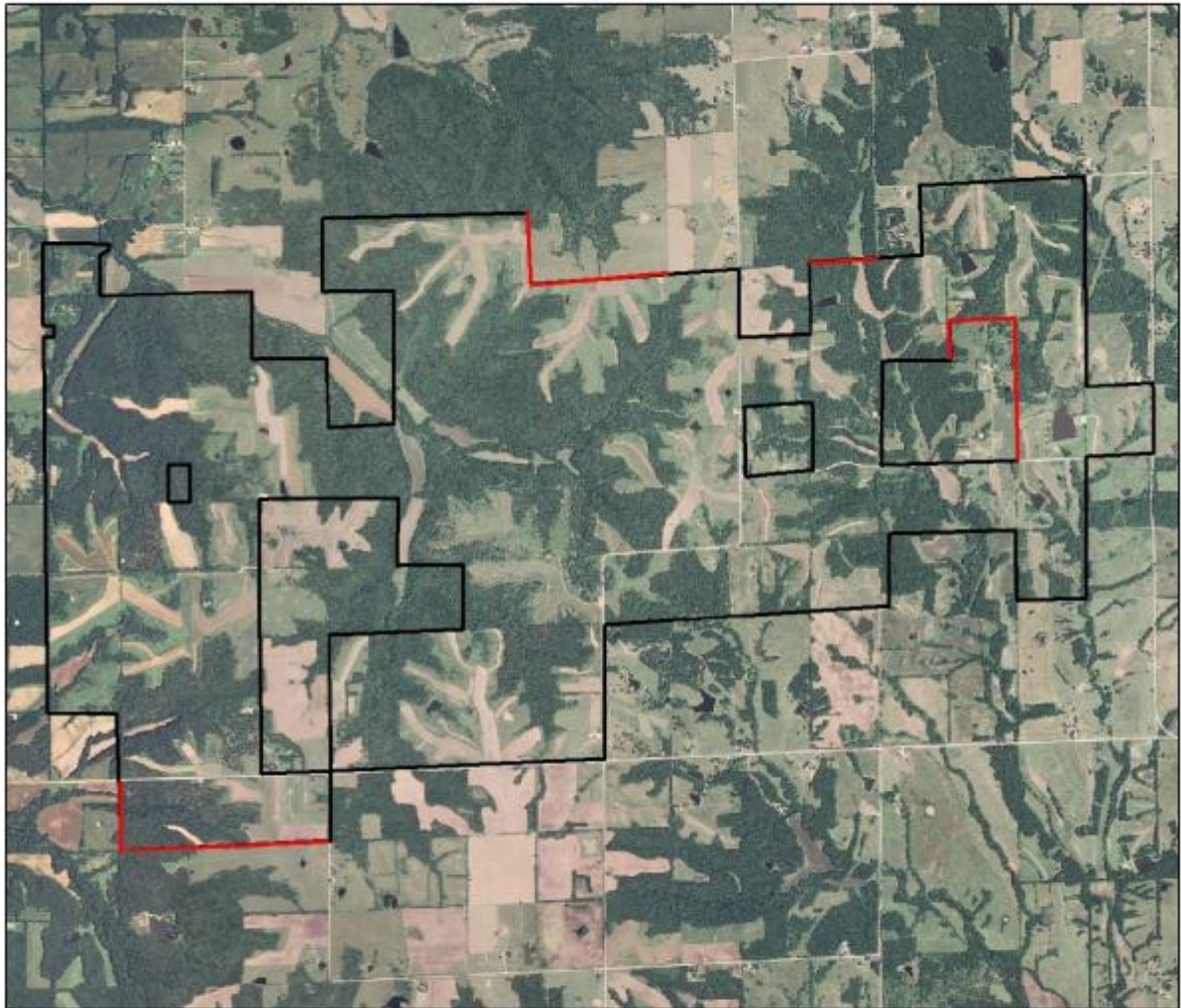
- |  |   |
|--|---|
|  Primitive Camping    |  Multi-Use Trail |
|  Parking Lot          |  MDC Gravel Road |
|  MDC Maintenance Shed |  BHCA Boundary   |
|  MDC Radio Tower      |   |



Figure 10. Fencing Agreements



**Legend**

— Fencing Agreements

□ BHCA Boundary



Figure 11. Streams and Fishing Ponds



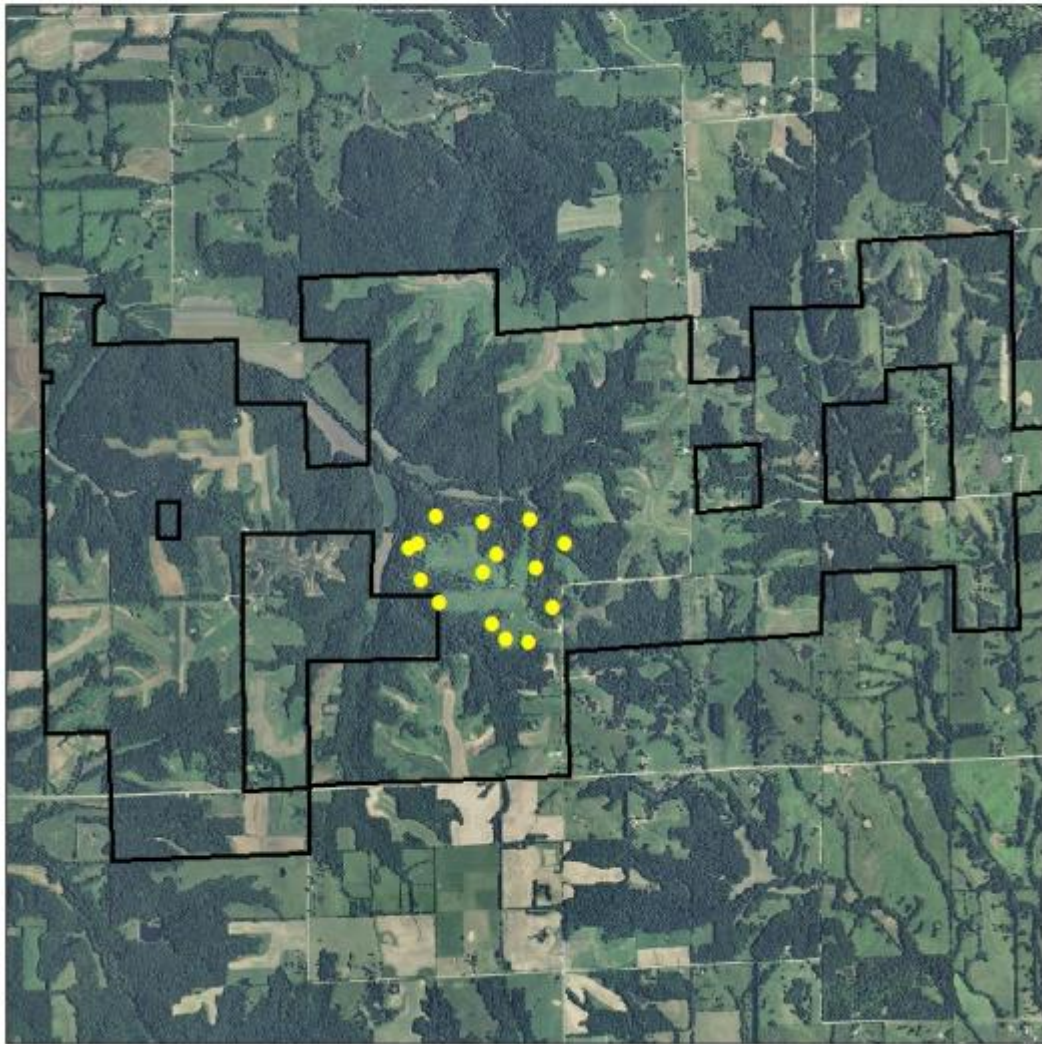
**Legend**

**Ponds**

-  Stocked Ponds
-  Non-stocked Ponds/Wildlife Watering Holes
-  STREAMS
-  BHCA Boundary



Figure 12. Photostations

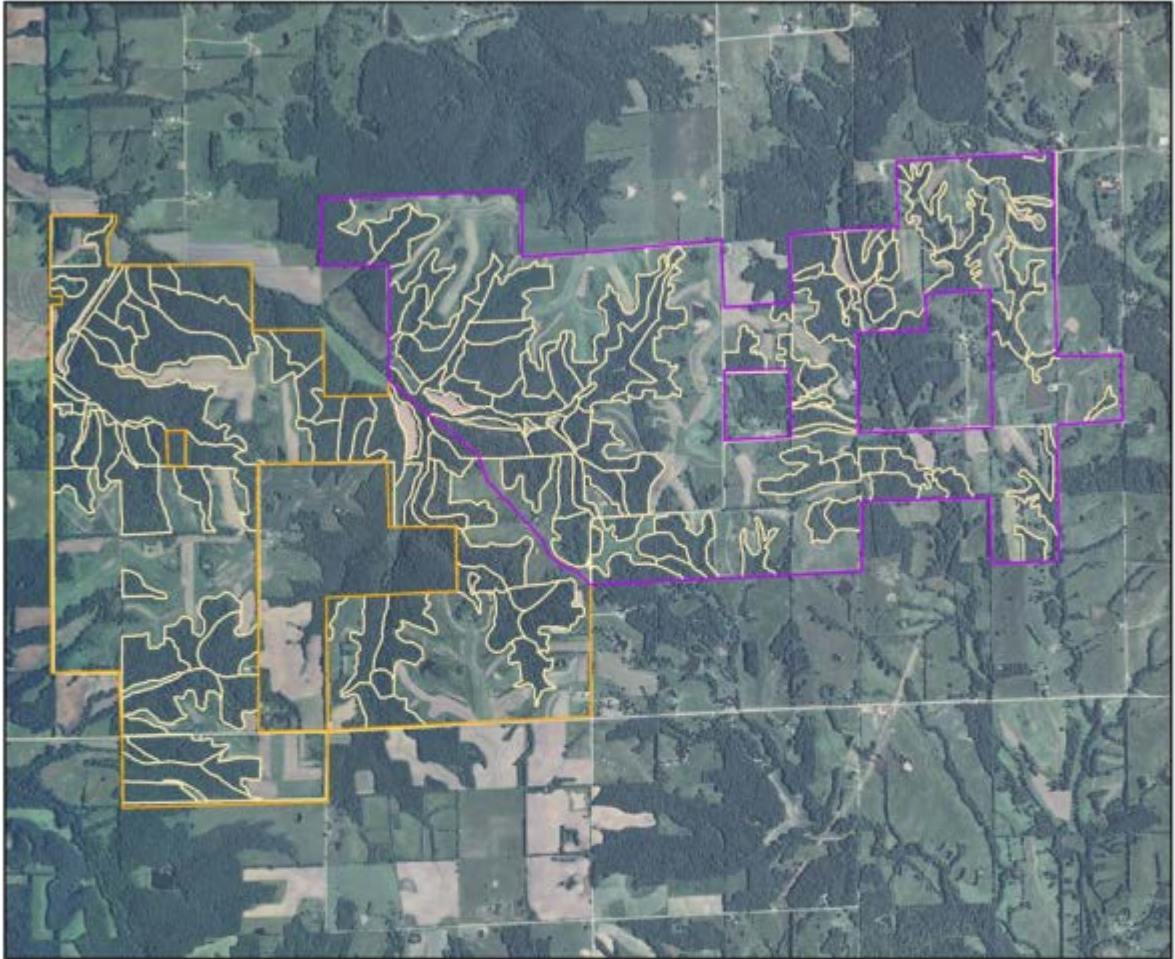


**Legend**

- BHCA photostations
- BHCA Boundary




Figure 13. Forest Compartment and Stand Boundaries



**Legend**

 Stand Boundaries

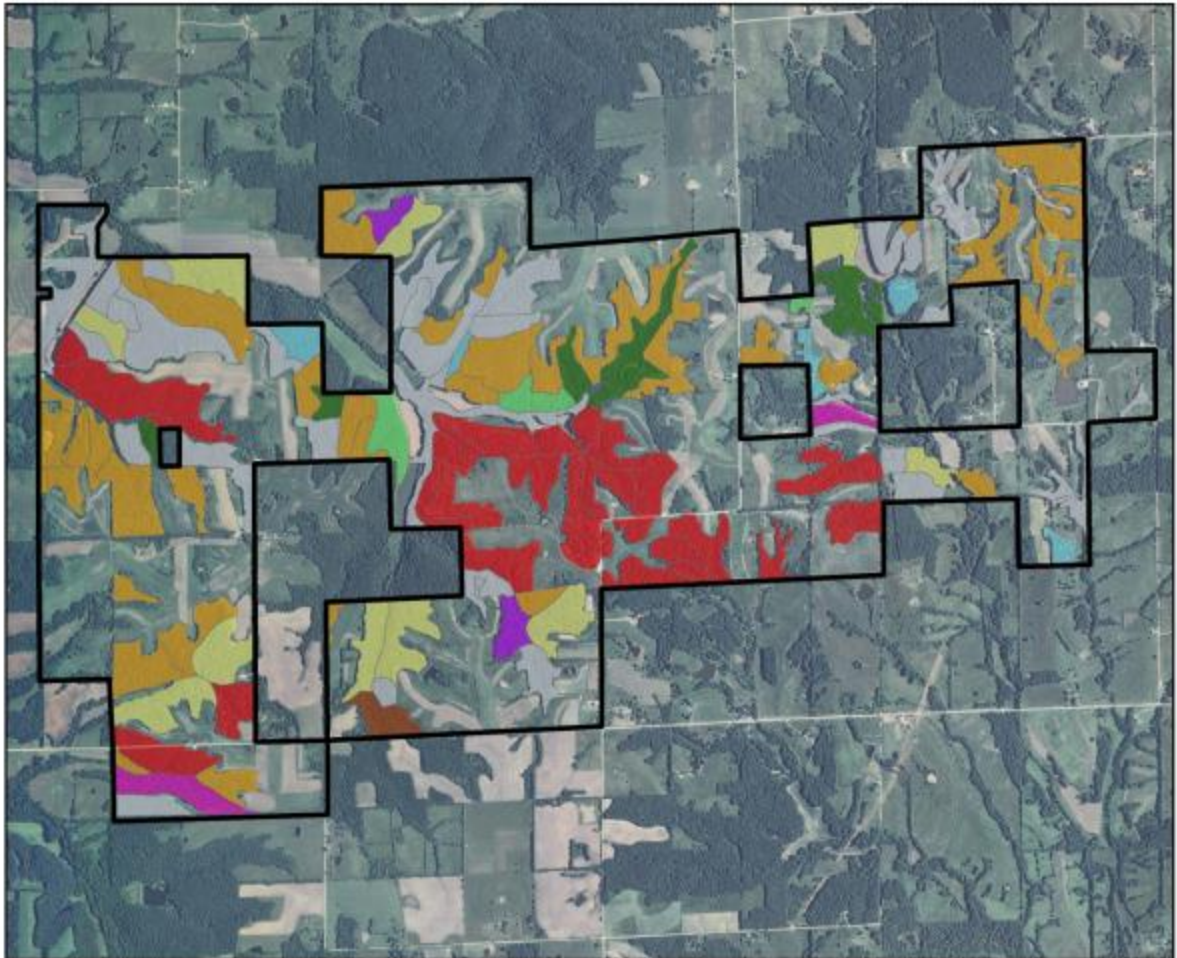
**forest mngt compartments**

 1

 2



Figure 14. Forest Mngt Prescriptions FY2007-14




**Legend**

 Area Boundary

**prescriptions**

 Rx fire - glade mngt

 Intermediate harvest


 Leave


 Old growth


 Clearcut harvest

 Shelterwood harvest

 Timber stand improvement

 Unevenage mngt commercial

 Unevenage mngt precommercial

 Rx fire - woodland mngt

