

# Bushwhacker Lake Conservation Area

## Ten Year Area Management Plan FY 2013 – 2022



*Jennifer Patterson*  
Wildlife Division Chief

*1/14/14*  
Date

## Bushwhacker Lake Conservation Area Management Plan Approval Page

### PLANNING TEAM

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## **OVERVIEW**

- **Official Area Name:** Bushwhacker Lake Conservation Area, #7826
- **Year of Initial Acquisition:** The original purchase for this area was 1,739 acres in 1978. Following purchases in 1982, 1984, 1989, 1990, 1995, 2005, 2006, and 2007 have brought the entire area to the current 4,790 acres. All tracts were purchased with Department Commission Funds. This area was purchased to conserve and enhance the natural resources of the area and provide quality outdoor recreation.
- **Acreage:** 4,790 acres
- **County:** Vernon and Barton
- **Division with Administrative Responsibility:** Wildlife Division, Southwest Region
- **Division with Management Responsibility:** Wildlife Division, Southwest Region
- **Statement of Purpose:**
  - A. Strategic Direction**
  - B.** To have healthy, sustainable, and diverse grassland, woodland, cropland, old-field, and aquatic communities for future generations to use and enjoy. To increase Missouri citizens' awareness of the values and benefits of diverse and native grasslands and demonstrate various management techniques to manage them properly. To promote and provide quality use of the area.
  - C. Desired Future Condition**

The desired future condition of Bushwhacker Lake Conservation Area (CA) is a prairie/grassland/woodland landscape.
  - D. Federal Aid Statement**

N/A

## GENERAL INFORMATION AND CONDITIONS

### I. Special Considerations

- A. Priority Areas:** Bushwhacker Lake Conservation Area is within the Western Cherokee Grasslands Conservation Opportunity Area (COA). This COA is identified as being one of the best places in Missouri to manage and restore functioning tallgrass prairie landscapes. Additionally, Bushwhacker Lake CA is within the Little Drywood Creek Priority Watershed, The Nature Conservancy Portfolio Site, and a Prairie Chicken Focus 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

### III. Existing Infrastructure

| Item                          | Description  | Location   |
|-------------------------------|--|--|
| Boat Ramp                     | Concrete slab.   | On the west shoreline of Bushwhacker Lake, approx. ½ mile south of the dam.  |
| Bulk Fuel Tank w/ containment | 500 gallon tank with electric pump and fuel containment on a gravel pad.   | Next to well house and metal shop in the northwest portion of the area.  |
| Camping Area                  | Primitive camping area with informational kiosk, dumpster service, gravel parking for trailers, and open grassy area for tents.                | On the west shoreline of Bushwhacker Lake, approximately ½ mile southwest of the dam.  |
| Creek Crossings (3)           | Unimproved creek crossings that were graveled at one time. These are in poor condition and only the central one is functional (tractors only). | Northern one is just south of the northern boundary, the central one is approx. ½ mile north of the lake dam, and the south one is approx. ¼ mile southeast of the parking area on Zebulon Road. |

|                        |   |   |
|------------------------|---|---|
| Fishing Jetty-North    | 60' gravel/rip rap fishing jetty.   | On the northwest shore of Bushwhacker Lake, approx. ¼ mile south of the lake dam. |
| Fishing Jetty-South    | 60' gravel/rip rap fishing jetty.   | On the south end of Bushwhacker Lake, on the west shoreline                       |
| Floating Dock          | Handicapped accessible, prefabricated dock with walkway, metal roof and metal railings.   | Next to boat ramp.  |
| Horse Trail            | 6.6 mile looped trail that is routinely mowed and traverses along woodlands, crop fields, old fields and grasslands. Parking area was enlarged to accommodate horse trailers. | South and east of the lake, starting at a parking area along Zodiac Road.         |
| Latrine- South         | Prefabricated ADA privy, single stall, pit latrine.   | On the south end of Bushwhacker Lake, just west of the shoreline.                 |
| Latrine-Boat Ramp area | Prefabricated ADA privy, single stall pit latrine.  | Located in the camping area next to boat ramp.                                    |
| Latrine-North          | Prefabricated ADA privy, single stall, pit latrine.   | On the northwest shore of Bushwhacker Lake, approx. ¼ mile south of the dam.      |
| Parking Areas (22)     | Graveled parking areas, with information Bulletin Boards.   | Scattered throughout the entire area.   |
| Radio Tower            | MDC owned radio transmission tower.   | Along Younger Road in the NW portion of area.                                     |
| Shop                   | Enclosed Metal Building, wooden framed, with a concrete slab and electricity. Building is used for storing equipment. Renovated by D&D Division in 2007. Property # 1971      | In the northwest portion of the area. Access via Younger Road.                    |
| Well House             | 8'x8' wood frame structure with metal siding and roof. Used to house electric pump. Built by D&D Division in 2007.  | Next to metal shop in the northwest portion of the area.                          |

**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:** Utility and road easements exist on several locations on the area.
- D. Cultural Resource Findings:** Yes, records kept with MDC Environmental Compliance Specialist. Managers should follow Best Management Practices for Cultural Resources found in the MDC Resource Policy Manual.
- E. Hazards and Hazardous Materials:** None observed.
- F. Endangered Species:** Endangered Species are known from this area. Area Managers should consult the Natural Heritage Database annually and review all management activities with the Natural History Biologist.
- G. Boundary Issues:** There are two portions of the area boundary in question on this area. Both boundaries in question have been submitted to the MDC Survey Crew for proper surveys to be completed.

**MANAGEMENT CONSIDERATIONS**

**V. Terrestrial Resource Management Considerations**

**Challenges and Opportunities:**

- 1) **Exotic Species:** The native prairies on this area are a priority habitat. The biggest threat to the plant and animal diversity on these native grasslands is the spread and dominance of exotic species. *Sericea lespedeza* is currently the most aggressive and threatening exotic species on the area, while tall fescue is the most widespread. Priority for control should be given to the most diverse prairies on the area. Funding and labor should also be focused on control/eradication of these invasive plants in old field sites, waterways and roadsides that act as a reservoir and seed source that can further spread seed and contaminate the area.
- 2) **Woody Vegetation Management:** Historically, fires were the natural force that kept woody vegetation from becoming established in the native prairies and grasslands. However, such natural fires are no longer a normal occurrence on this landscape. Prescribed burning is a management tool that is used, but often conditions conducive for eliminating woody stems are not within acceptable parameters in prescribed fire planning. Subsequently, the reduction of woody vegetation must be done by mechanical, chemical, and via prescribed fires under approved conditions. Unacceptable growth of trees and shrubs jeopardizes not

only plant diversity, but more significantly it affects survival of many grassland birds that require early succession grass land habitats. Reduction of perch sites for avian predators and mammalian travel routes will also improve survival and nesting success of many species of grassland birds that use this area. Priority should be given to maintaining the woody vegetation to the accepted density and height.

**Management Objective 1:** Increase acreage, vegetative diversity and structure of grasslands to provide critical habitat for grassland dependent wildlife (Wildlife).

**Strategy 1:** Identify fields adjacent to existing grassland units and determine a schedule for increasing acreage of grasslands utilizing prairie reconstruction techniques.

**Strategy 2:** Reduce/eradicate exotic species within grasslands without negatively impacting native grasses and broadleaf plants. (Targeting sericea lespedeza, fescue, teasel, and musk thistle).

**Strategy 3:** Maintain woody vegetation on the prairie portion of the area at a height of less than 10 feet.

**Strategy 4:** Prevent native sumac from dominating grassland units.

**Management Objective 2:** Increase and maintain the herbaceous plant and grassland component in existing woodlands to include at least seven indicator plant species typically found in quality upland Missouri woodlands (Table 1). (Wildlife)

**Strategy 1:** Define specific woodland management units on the area.

**Strategy 2:** Write a specific woodland management plan for all defined woodland management units.

**Strategy 3:** Reduce canopy cover to desired levels.

**Strategy 4:** Conduct vegetation monitoring to determine species composition of the woodland management units.

**Management Objective 3:** Maximize usable space in grasslands, crop fields, and old fields for bobwhite quail and grassland and wetland birds (Wildlife).

**Strategy 1:** Manage for 5-15% open ground.

**Strategy 2:** Provide adequate escape cover (covey headquarters).

**Strategy 3:** Increase plant species diversity of old fields and planted grasslands by eliminating exotic species (specifically sericea lespedeza and tall fescue).

**Management Objective 4:** Maintain and/or reduce the potential for surface runoff and the reduction of soil erosion (Wildlife).

**Strategy 1:** Through assistance from the NRCS, develop a soil conservation plan that identifies sources of erosion entering, occurring or leaving the area.

**Strategy 2:** Provide recommendations to modify management practices to correct soil erosion within the area's watersheds at or below T (the soil replacement level).

**Management Objective 5:** Maintain forest cover in a healthy, productive and aesthetically attractive condition (Forestry/Wildlife).

**Strategy 1:** Inventory Ecological Land Types (ELT) 8 and 9 (See ELT map, Figure 4).

**Strategy 2:** Harvest and Timber Stand Improvement (TSI) areas as identified in the inventory.

**Strategy 3:** Plant trees in the "North 120".

**Management Objective 6:** Manage natural communities (prairies, woodlands, etc.) as part of a larger landscape by cooperating with/assisting nearby landowners (Wildlife/Private Land Services).

**Strategy 1:** Use ELT/Land Type Association (LTA) methods and staff knowledge/observation of nearby properties to identify private lands with good restoration and management potential.

**Strategy 2:** Offer technical assistance and cost share funding to adjacent landowners interested in natural resource management.

**Strategy 3:** As possible, coordinate with cooperating private landowners to manage landscapes that extend beyond MDC boundaries (e.g., coordinating prescribed burns with adjacent landowners).

## **VI. Aquatic Resource Management Considerations**

### **Challenges and Opportunities:**

- 1) Invasive and nuisance plant species in lakes and ponds. Eurasian watermilfoil is an invasive non-native plant that can reach nuisance levels. Control and suppression of this plant is important to managing the fisheries in area impoundments. Other plants can reach nuisance levels including Southern Naiad, coontail and filamentous algae.
- 2) Managing landscape within Little Drywood Creek Priority Watershed to reach its potential diversity of native fish species in streams on the area and in downstream reaches. Land management within a watershed affects conditions locally and downstream of the site. Protecting riparian areas and leaving filter strips greatly help protect water quality and habitat in streams.

**Management Objective 1:** Increase fishing opportunities close to home (Fisheries/Wildlife).



**Strategy 1:** Periodically assess sport-fish populations in all fishing lakes and ponds on the area as identified and named on Figure 1 (Vicinity Map). Management emphasis will be to provide a balanced fishery for largemouth bass relative to other sunfish. Bushwhacker Lake and Willow Lake will be sampled at approximately 2-3 year intervals. Smaller ponds will be sampled on an as needed basis. Supplemental stocking and regulation changes will be utilized when appropriate for all fishing lakes and ponds. Channel catfish will be stocked approximately every third year in all fishing lakes and ponds.

**Strategy 2:** Maintain public access to boat ramp, fishing dock and a few bank fishing areas at Bushwhacker Lake.

**Management Objective 2:** Protecting clean and healthy waters (Fisheries/Wildlife).

**Strategy 1:** If livestock are placed on the area, a grazing plan will be designed and approved in collaboration with Wildlife and Fisheries staff prior to introduction of the animals.

**Management Objective 3:** Conserving plants, animals and their habitats (Fisheries).

**Strategy 1:** Monitor aquatic vegetation conditions in all fishing impoundments, and provide appropriate control measures when necessary. This especially means monitoring the expansion of Eurasian watermilfoil in all impoundments.

## **VII. Public Use Management Considerations**

### **Challenges and Opportunities**

- 1) Bushwhacker Lake Conservation Area is an area experiencing increased activity due to the growing population in the Joplin and surrounding communities. With this growth comes more use by the public and more likelihood of misuse and conflicts. Protection Division personnel target the area during periods of high use, such as teal and waterfowl seasons, with special group patrols. Routine patrols are conducted during other periods of use during summer and fall.
- 2) Bushwhacker Lake Conservation Area lends itself to educational and interpretive opportunities. The main education/interpretive focus should be to promote recreational use (e.g., fishing, hiking, hunting, camping, nature observations). The 5.6 mile self-guided trail winds hikers through various habitat communities providing opportunities for wildlife observation and wildlife management practices used to improve existing wildlife habitat. A designated horse trail permits riding from May 15<sup>th</sup> to September 15<sup>th</sup>. Opportunities exist to inform the

public on the importance of protecting prairie landscapes and species of special concern.

**Management Objective 1:** Provide unharvested grain, legumes and/or grasses (food plots) or native seed plants for area users to readily observe deer, turkey, and quail, and also provide food and cover for various wildlife species. (Wildlife).

**Strategy 1:** Using the agricultural crop system for wildlife viewing opportunities.

**Strategy 2:** Plant approximately 10 acres of grasses/grains/legumes in old field habitat throughout the area and/or disk approximately 10 acres of old field sites in various seasons to provide native plants utilized by wildlife.

**Management Objective 2:** Provide a quality primitive camping experience (Wildlife).

**Strategy 1:** Submit capital improvement projects for consideration to expand camping opportunities.

**Strategy 2:** Designate a portion of the camping sites as “no generators allowed”.

**Management Objective 3:** Improve educational and interpretive opportunities on Bushwhacker Lake Conservation Area (Wildlife, Outreach and Education).

**Strategy 1:** Market recreational opportunities to the general public (e.g., fishing, hiking, hunting, camping and wildlife viewing).

**Strategy 2:** Conduct programs and workshops (e.g., short-eared owl/bird hikes, upland game, and ecology field trips) for local students and teachers, scout groups, and youth groups. Programs: Fishing, Introduction to Archery, Camping, Bird Hikes, Owl Prowls, Prairie Ecology and Prairie Restoration.

**Management Objective 4:** Determine the feasibility of installing a 2-3 target archery range near the camping area by the boat ramp (Outreach and Education/Wildlife).

**Strategy 1:** The Outdoor Skills Specialist will conduct a safety evaluation of the area near the camping area and provide recommendations for possible archery target locations. The managing division will be responsible for submitting capital improvement projects for consideration to expand archery shooting opportunities.

**Management Objective 5:** Ensure statewide game and fish laws are enforced at Bushwhacker Lake Conservation Area and provide citizens a safe environment for outdoor recreational use (Protection).

**Strategy 1:** Enforce 10:00PM to 4:00AM closure regulations.

**Strategy 2:** Through personal contacts, invoke the help of area landowners in observing and reporting unauthorized use of the area.

**Management Objective 6:** Develop and promote public uses compatible with the resources of the area (Protection).

**Strategy 1:** Closely regulate and enforce all wildlife regulations, allowing for equal opportunities for all people on the area.



## **APPENDICES**

### **Area Background**

**Soils:** There are 13 soil series represented on this area. Approximately 50% of the soil is from the Barco-Barden-Coweta association, defined as shallow to deep, gently sloping to strongly sloping, well-drained and moderately well-drained soils that have a surface layer of fine sandy loam to silt loam and a subsoil of loam to silty clay loam on uplands. These soils along with the Liberal and Parsons series are found mostly on the area west of the lake in the open prairie/grassland part of the area. These soils historically were dominated by native prairie. The Bolivar and Hector soils found on the upland slopes of the basin of the Little Drywood Creek are considered transitional soils that historically had scattered trees and native prairie. Hepler, Radley and Verdigris soils are found in the lower woodland areas.

**Wildlife Resources:** The Wildlife species on the Bushwhacker Lake Conservation Area range from eastern wild turkeys along Little Dry Wood Creek to several grassland birds on the western portions of the area. Quail and rabbits are abundant and white-tailed deer are common. Short-eared owls, upland sandpipers and northern harriers are commonly seen. Ducks, geese and other waterfowl are common on the lakes and ponds during both the spring and fall migrations. Coyotes are common and badgers and bobcats are not unusual occurrences.

**Bushwhacker Lake:** The 157-acre Bushwhacker lake site was included in the original 1978 purchase of 1659 acres. The watershed is 2640 acres for a 17:1 ratio. Maximum depth when constructed was 27 feet. The water structure was equipped to allow for draw-downs of 4 feet or 8 feet. Only minimal clearing of the basin was conducted to provide abundant vertical cover in the lake. Boat lanes were created connecting the boat ramp with deeper water. Additional boat lanes were created to access several of the coves and selected shoreline areas. The lake filled in 1982. Species stocked include grass carp, largemouth bass, bluegill, redear sunfish and channel catfish. A number of other fish species have become established in the lake including golden shiner, bullhead, green sunfish and crappie probably originating from bait bucket introductions or private ponds above the lake. The lake opened to fishing in 1985. Growth of largemouth bass has been poor, but growth of bluegill and redear has been very good. In the early 2000s gizzard shad found their way into the lake. The presence of gizzard shad compromises the long term trend of good growth of these sunfish species.

**Willow Lake;** The fish community in 29-acre Willow Lake was renovated in 1981. The standard complement of fingerling largemouth bass, bluegill and channel catfish were stocked that same year. Crappie, common carp, and gizzard shad have also invaded this lake. However, the lake currently has a good population of crappie up to 11 inches in length. At some time after 2001, Eurasian watermilfoil became established in Willow Lake. The method of introduction is not known. Possible sources of introduction include movement of plant fragments adhered to

angling equipment or migrating waterfowl. Harmony Mission Lake in Bates County and Radio Springs Lake in Nevada have infestations of Eurasian watermilfoil and may represent the original source for spread of the plant. Both lakes have been aggressively treated to suppress the density of the plant. Control measures seem to be working in these two lakes. This plant is known to displace native aquatic plants in as little as a year or two. Eurasian watermilfoil is highly undesirable in ponds and lakes and should be suppressed or eradicated when possible.

**Ponds:** The area has numerous small ponds. Three of these are suitable for fisheries management. Jump Shoot Pond is the largest at 5.3 acres. Little Italy Pond is next at 4.7 acres. Wasp Pond is the smallest fishing pond at 0.3 acres (Figure 2). The other ponds are managed as wildlife/livestock or amphibian ponds.

**Streams:** There are approximately 17.9 miles of "blue-line" streams on the conservation area as identified on USGS 1:24000 topographic maps.

**Forest & Woodland Descriptions:** The forest and woodland units described in this section correspond to the units (4-9) depicted on the Ecological Land Type Map (Figure 4).

#### (8) Wet-mesic High Floodplain Forest

These areas are low wetlands adjacent to Little Dry Wood Creek. They consist of a high floodplain oak forest type. The major tree species present is pin oak. Other species present include river birch, green ash, boxelder, bitternut hickory, American elm, slippery elm, American sycamore, bur oak, and Shumard oak. Vines present include poison ivy, wild grape, Virginia creeper, and greenbrier. We found overstocked, small to large pole size pin oak stands below, north and east of the Bushwhacker Lake dam. These areas most likely had been crop fields prior to MDC ownership. Much of the remaining high floodplain forest is mature to over-mature bottomland forest. We found a high percentage of mortality among the old growth pin oak.

#### (9) High Floodplain Oak (forest) Woodland

These areas are also adjacent to Little Dry Wood Creek and are more rolling and less swampy than the Wet-mesic areas. Species present include Shumard oak, bur oak, black oak, white oak, hackberry, green ash, sassafras, black walnut, honey locust, American sycamore, red elm, American elm, bitternut hickory, boxelder, red mulberry, mockernut hickory, and bitternut hickory. Woody understory shrubs include spice bush, pawpaw, coralberry, and American hazelnut. Vines present include poison ivy, wild grape, Virginia creeper, and greenbrier. Most of this type is a mixed age and size forest.

#### (4 & 5) Sandstone Glade/Savanna/Woodland Upland Complex

These are upland oak-hickory areas. Most of these areas are currently being managed with a combination of mechanical thinning and burning. Tree species present include post oak, black

oak, blackjack oak, bitternut hickory, mockernut hickory, shagbark hickory, hackberry, American elm, persimmon, and red mulberry.

(8 & 9) Open field areas in the “North 120”

Much of the old field areas of the “North 120” are wet and are not conducive to conventional field management. This area could be planted on a 12x12 foot spacing with the following species to reforest these floodplain forest and woodland areas: pin oak, Shumard oak, bur oak, swamp white oak, pecan, shellbark hickory, shagbark hickory and black walnut.

**Current Land and Water Types**

| <b>TYPE</b>                                       | <b>Approximate Acres</b> | <b>% of Area</b> |
|---|--------------------------|------------------|
| Prairie-Native                                    | 1373                     | 29               |
| Woodland  | 1335                     | 28               |
| Old Field   | 628                      | 13               |
| Cropland  | 447                      | 9                |
| Prairie-Degraded                                  | 251                      | 5                |
| WSG Planting                                      | 218                      | 5                |
| Ponds and Lakes                                   | 201                      | 4                |
| Shrub-Prairie                                     | 135                      | 3                |
| Prairie-Reconstruction                            | 113                      | 2                |
| Savanna   | 34                       | >1               |
| Shrub-Old Field                                   | 28                       | >1               |
| Other   | 22                       | >1               |
| <b>TOTAL</b>                                      | <b>4790</b>              | <b>100</b>       |
|   | <b>Miles</b>             |                  |
| Stream Frontage (1 <sup>st</sup> Order and above) | 17.9                     |                  |

**Public Input Summary:**

The draft Bushwhacker Lake Conservation Area Management Plan was available for a public comment period September 1 - September 30, 2013. The Missouri Department of Conservation received no comments during this time period.

**Maps**

- Figure 1: Area Map
- Figure 2: Vicinity Map
- Figure 3: Existing Habitat Types
- Figure 4: Ecological Land Type Map
- Figure 5: Facility Map

**Tables**

- Table 1: Missouri Woodland & Savanna Plant List

Figure 1. Bushwhacker Lake Conservation Area Map

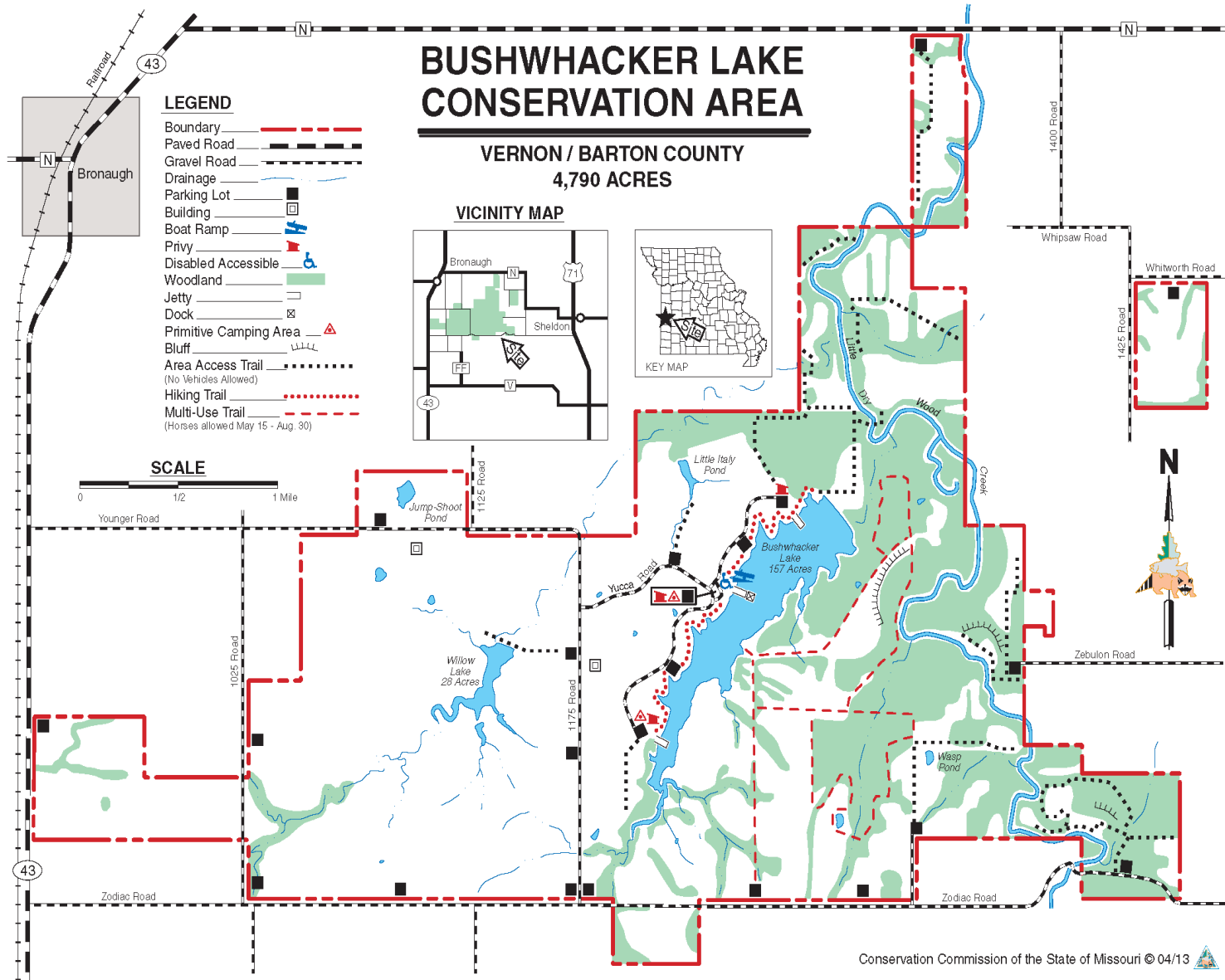




Figure 2. Bushwhacker Lake Conservation Area Vicinity Map

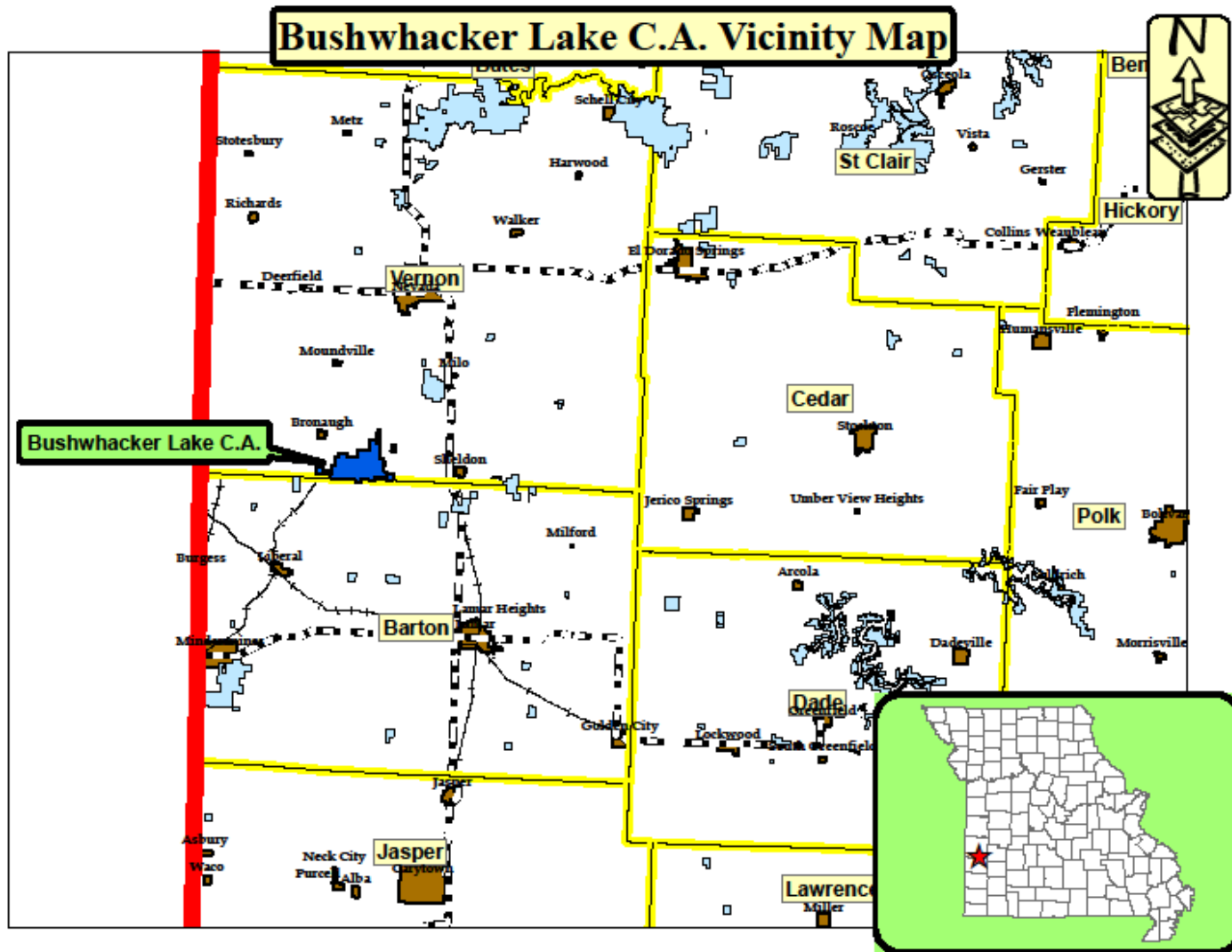


Figure 3. Existing Habitat Types on Bushwhacker Lake Conservation Area

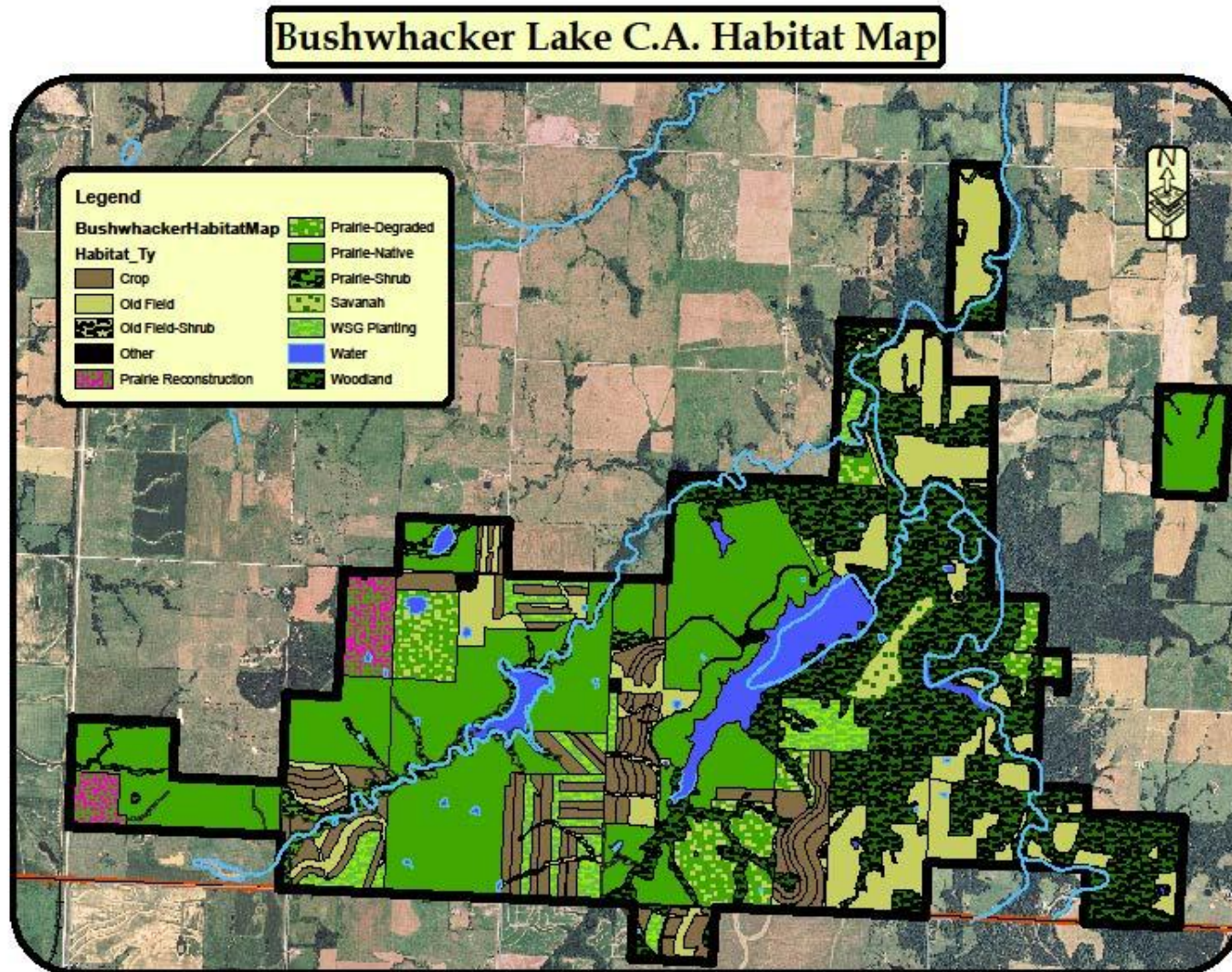




Figure 4. Ecological Land Type Map of Bushwacker Lake Conservation Area

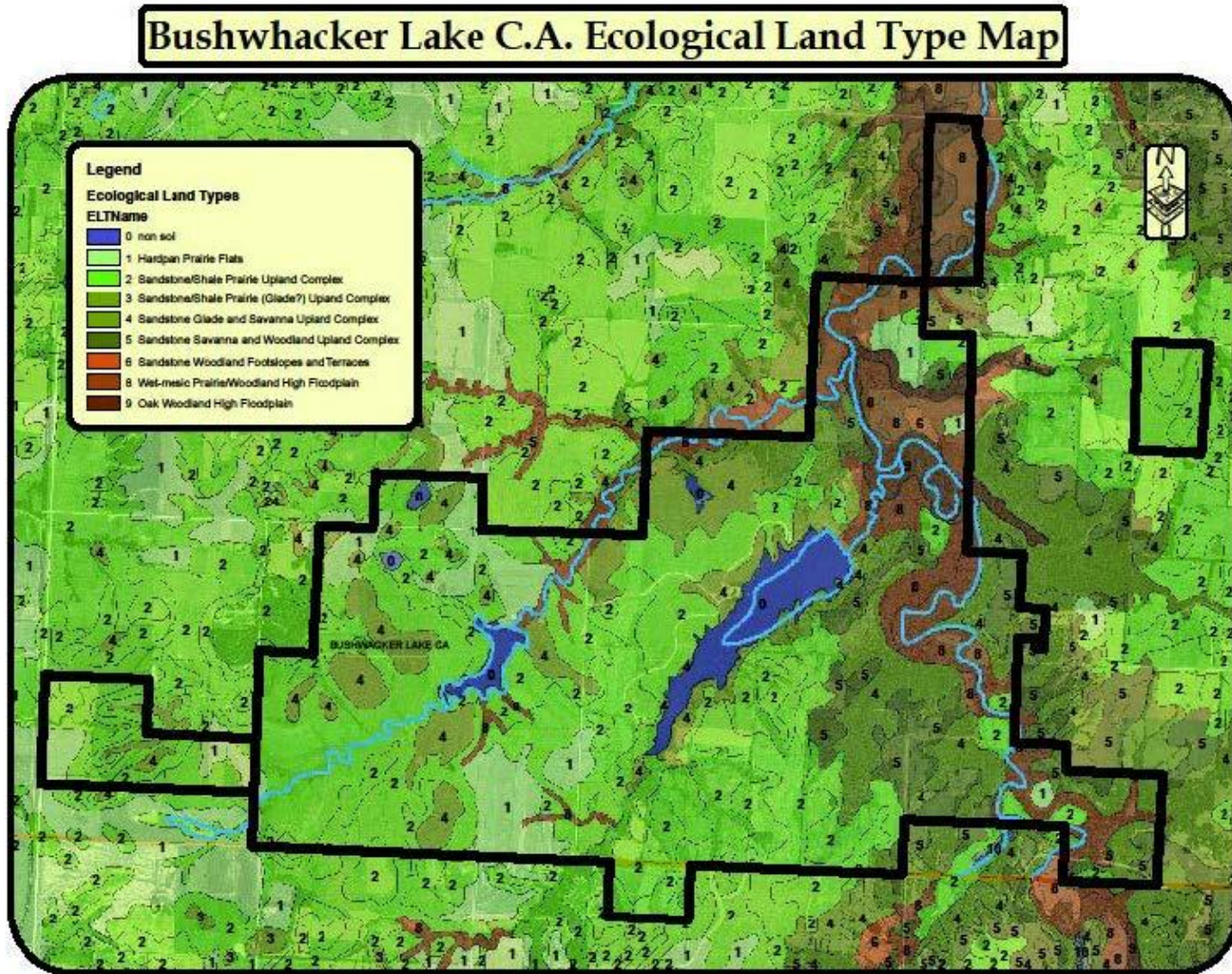
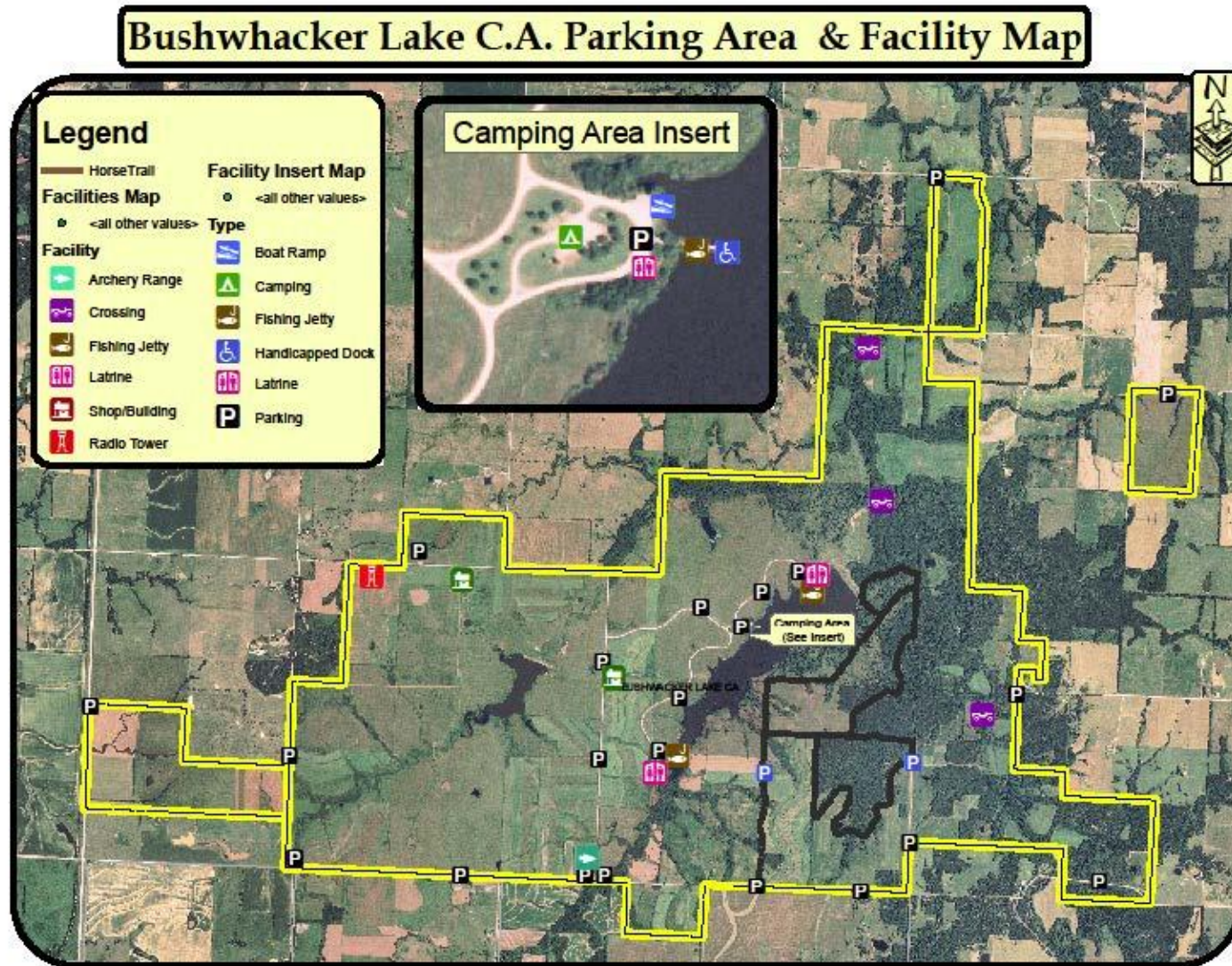




Figure 5. Facility Map of Bushwhacker Lake Conservation Area



**Table 1. Missouri Woodland & Savanna Plant List**

|   |   |
|---|---|
| ___ <i>Agrimonia pubescens</i> (Downy Agrimony)             | ___ <i>Heliopsis helianthoides</i> (Ox-Eye)                 |
| ___ <i>Amelanchier arborea</i> (Serviceberry)               | ___ <i>Juniperus virginiana</i> (Eastern Red Cedar)         |
| ___ <i>Amorpha canescens</i> (Lead Plant)                   | ___ <i>Lespedeza hirta</i> (Hairy Bush Clover)              |
| ___ <i>Amphicarpaea bracteata</i> (Hog Peanut)              | ___ <i>Lespedeza procumbens</i> (Trailing Bush Clover)      |
| ___ <i>Andropogon gerardii</i> (Big Bluestem)               | ___ <i>Lespedeza virginica</i> (Slender Bush Clover)        |
| ___ <i>Anemone virginica</i> (Thimbleweed)                  | ___ <i>Lespedeza violacea</i> (Prairie Bush Clover)         |
| ___ <i>Antennaria plantaginifolia</i> (Pussytoes)           | ___ <i>Liatris aspera</i> (A Blazing Star)                  |
| ___ <i>Apocynum cannabinum</i> (Indian Hemp)                | ___ <i>Liatris squarrosa</i> (A Blazing Star)               |
| ___ <i>Arabis canadensis</i> (Sicklepod)                    | ___ <i>Monarda bradburiana</i> (Beebalm)                    |
| ___ <i>Asclepias purpurascens</i> (Purple Milkweed)         | ___ <i>Northoscodum bivalve</i> (False Garlic)              |
| ___ <i>Asclepias tuberosa</i> (Butterfly Weed)              | ___ <i>Orbexilum pedunculatum</i> (Sampson's Snakeroot)     |
| ___ <i>Asclepias viridiflora</i> (Green Milkweed)           | ___ <i>Oxalis violacea</i> (Violet Wood Sorrel)             |
| ___ <i>Aster anomalus</i> (An Aster)                        | ___ <i>Panicum virgatum</i> (Switch Grass)                  |
| ___ <i>Aster oolentangiensis</i> (Azure Aster)              | ___ <i>Panicum</i> _____ (Panic Grass)                      |
| ___ <i>Aster laevis</i> (Smooth Aster)                      | ___ <i>Parthenium integrifolium</i> (American Feverfew)     |
| ___ <i>Aster lateriflorus</i> (White Woodland Asters)       | ___ <i>Penstemon tubiflorus</i> (A Beard-Tongue)            |
| ___ <i>Aster patens</i> (Spreading Aster)                   | ___ <i>Phlox pilosa</i> (Prairie Phlox)                     |
| ___ <i>Aster turbinellus</i> (An Aster)                     | ___ <i>Pycnanthemum pilosum</i> (Hairy Mountain Mint)       |
| ___ <i>Aureolaria grandiflora</i> (Big-Flowered Gerardia)   | ___ <i>Pycnanthemum tenuifolium</i> (Slender Mountain Mint) |
| ___ <i>Berchemia scandens</i> (Supple-Jack)                 | ___ <i>Quercus alba</i> (White Oak)                         |
| ___ <i>Blephila ciliata</i> (Ohio Horse Mint)               | ___ <i>Quercus marilandica</i> (Black Jack Oak)             |
| ___ <i>Bouteloua curtipendula</i> (Sideoats Grama)          | ___ <i>Quercus prinoides</i> (Dwarf Chestnut Oak)           |
| ___ <i>Brickellia eupatorioides</i> (False Boneset)         | ___ <i>Quercus stellata</i> (Post Oak)                      |
| ___ <i>Carex cephalophora</i> (A Sedge)                     | ___ <i>Quercus velutina</i> (Black Oak)                     |
| ___ <i>Carex complanata</i> (A Sedge)                       | ___ <i>Ratibida pinnata</i> (Grayhead Prairie Coneflower)   |
| ___ <i>Carex muhlenbergii</i> (A Sedge)                     | ___ <i>Rhamnus caroliniana</i> (Carolina Buckthorn)         |
| ___ <i>Carex retroflexa</i> (A Sedge)                       | ___ <i>Rhus aromatica</i> (Fragrant Sumac)                  |
| ___ <i>Carex</i>  | ___ <i>Rhus copallina</i> (Winged Sumac)                    |
| ___ <i>Chamaecrista fasciculata</i> (Showy Partridge Pea)   | ___ <i>Rudbeckia subtomentosa</i> (Sweet Coneflower)        |
| ___ <i>Chamaecrista nictitans</i> (Sensitive Partridge Pea) | ___ <i>Ruellia humilis</i> (Wild Petunia)                   |
| ___ <i>Carya texana</i> (Black Hickory)                     | ___ <i>Salix humilis</i> (Prairie Willow)                   |
| ___ <i>Ceanothus americanus</i> (New Jersey Tea)            | ___ <i>Schizachyrium scoparium</i> (Little Bluestem)        |
| ___ <i>Comandra umbellata</i> (A Bastard Toadflax)          | ___ <i>Schrankia nuttallii</i> (Sensitive Briar)            |
| ___ <i>Cornus florida</i> (Flowering Dogwood)               | ___ <i>Scleria triglomerata</i> (Tall Nut Grass)            |
| ___ <i>Coreopsis palmata</i> (Finger Coreopsis)             | ___ <i>Silene stellata</i> (Starry Campion)                 |
| ___ <i>Cunila organoides</i> (Dittany)                      | ___ <i>Silphium integrifolium</i> (A Rosinweed)             |
| ___ <i>Cuphea viscosissima</i> (Clammy Cuphea)              | ___ <i>Silphium terebinthinaceum</i> (Prairie Dock)         |
| ___ <i>Dalea candida</i> (White Prairie Clover)             | ___ <i>Sisyrinchium campestre</i> (Prairie Blue-Eyed Grass) |
| ___ <i>Dalea purpurea</i> (Purple Prairie Clover)           | ___ <i>Solidago hispida</i> (A Goldenrod)                   |
| ___ <i>Danthonia spicata</i> (Poverty Grass)                | ___ <i>Solidago petiolaris</i> (A Goldenrod)                |
| ___ <i>Desmodium rotundifolium</i> (Dollarleaf)             | ___ <i>Solidago radula</i> (Rough Goldenrod)                |
| ___ <i>Desmodium</i>  | ___ <i>Solidago speciosa</i> (Prairie Goldenrod)            |
| ___ <i>Dichanthelium acuminatum</i> (A Panic Grass)         | ___ <i>Solidago</i>   |
| ___ <i>Dichanthelium linearifolium</i> (A Panic Grass)      | ___ <i>Sorghastrum nutans</i> (Indian Grass)                |
| ___ <i>Echinacea pallida</i> (Pale Purple Coneflower)       | ___ <i>Taenidia integerrima</i> (Yellow Pimpernel)          |
| ___ <i>Echinacea purpurea</i> (Purple Coneflower)           | ___ <i>Tephrosia virginiana</i> (Goat's Rue)                |
| ___ <i>Erigeron</i> _____ (Fleabane)                        | ___ <i>Tradescantia ohiensis</i> (A Spiderwort)             |
| ___ <i>Eryngium yuccifolium</i> (Rattlesnake Master)        | ___ <i>Trifolium reflexum</i> (Buffalo Clover)              |
| ___ <i>Eupatorium altissimum</i> (Tall Thoroughwort)        | ___ <i>Vaccinium pallidum</i> (Lowbush Blueberry)           |
| ___ <i>Eupatorium</i>                                       | ___ <i>Vaccinium stamineum</i> (Highbush Blueberry)         |
| ___ <i>Euphorbia corollata</i> (Flowering Spurge)           | ___ <i>Verbesina helianthoides</i> (Yellow Crownbeard)      |
| ___ <i>Fragaria virginiana</i> (Wild Strawberry)            | ___ <i>Verbesina alternifolia</i> (Yellow Ironweed)         |
| ___ <i>Fraxinus americana</i> (White Ash)                   | ___ <i>Veronicastrum virginicum</i> (Culver's Root)         |
| ___ <i>Galactia regularis</i> (Downy Milkpea)               | ___ <i>Viola pedata</i> (Bird's Foot Violet)                |
| ___ <i>Galium</i> _____ (Bedstraw)                          | ___ <i>Viola triloba</i> (Cleft Violet)                     |
| ___ <i>Gentiana puberulenta</i> (Downy Gentian)             | ___ <i>Vitis aestivalis</i> (Summer Grape)                  |
| ___ <i>Gentiana flavida</i> (Pale Gentian)                  | ___ <i>Woodsia obtusa</i> (Blunt-Lobed Cliff Fern)          |

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| <p>___ <i>Gillenia stipulata</i> (Indian Physic)</p> <p>___ <i>Hedyotis longifolia</i> (Long-Leaved Bluets)</p> <p>___ <i>Helianthus hirsutus</i> (Bristly Sunflower)</p> | <p>___ <i>Zizia aurea</i> (Golden Alexander's)</p> |
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