

DRAFT

Frost Island

Conservation Area

Ten-Year Area Management Plan

FY 2015-2024



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OVERVIEW

- **Official Area Name and Area Number:** Frost Island Conservation Area, #9601
- **Year of Initial Acquisition:** 1996
- **Acreage:** 1,233 acres
- **County:** Clark
- **Division with Administrative Responsibility:** Wildlife
- **Division with Maintenance Responsibility:** Forestry
- **Statements of Purpose:**
 - A. Strategic Direction**

Frost Island Conservation Area (CA) contains diverse natural communities, including bottomland timber, old fields, native sand prairie and wetlands that support an array of species. Management efforts focus on encouraging healthy populations of turkey, deer, quail, ring-necked pheasants and associated non-game species; conserving and enhancing water quality, bottomland timber, old fields, native sand prairie and wetlands; and concurrently offering the public compatible outdoor recreational opportunities.
 - B. Desired Future Condition**

The desired future condition of Frost Island CA is an area with fewer non-native and invasive species; expanded bottomland forest areas; and an improved quality and quantity of sand prairie. The desired future condition also includes stable, wooded stream corridors; wetlands that improve water quality; and more public use opportunities.
 - C. Federal Aid Statement**

This area, or a portion thereof, was acquired with Emergency Wetland Reserve Program (EWRP) funds as part of a buy-out of eligible farmland affected by the Great Flood of 1993 to provide wetland habitat.

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:** Sand Prairie (Steyermark Prairie)

III. Existing Infrastructure

- 3 parking lots
- 2 small wetland units with small fiberglass water control structures
- 1 large wetland unit with a concrete water control structure
- ~ 12,500 feet of degraded levee along the Des Moines River
- 5,400 feet of levee adjoining the south edge

IV. Area Restrictions or Limitations

- A. **Deed Restrictions or Ownership Considerations:** A total of 918 acres are enrolled in the Emergency Wetlands Reserve Program (EWRP), a program of the Natural Resources Conservation Service.
- B. **Federal Interest:** The wetland conservation easements permanently prohibit use of the affected land as cropland and require permanent maintenance of the wetland conditions, except in the case of natural disaster. After the easement has been perfected, no change will be made in the easement without a written request by the participant and the written consent of the Natural Resources Conservation Service Chief. Federal funds may also 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:** There is a 1968 easement in favor of the Gulf Central Pipeline Company and a 1983 easement in favor of the Public Water Supply District No.1 of Clark County.
- D. **Cultural Resources Findings:** Yes, records kept with the Missouri Department of Conservation (the Department) Environmental Compliance Specialist. Managers should follow Best Management Practices for Cultural Resources found in the Department 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:** None

MANAGEMENT CONSIDERATIONS

V. Terrestrial Resource Management Considerations

Challenges and Opportunities:

- 1) Restoration of bottomland forest communities is a priority for this area. Since the acquisition of this land, many bottomland acres that were previously row-cropped, have succeeded to forest through natural tree regeneration. The EWRP easement requires that 232 acres are maintained in a forested condition. Additional conversion of bottomland acres to forested communities will increase wildlife habitat diversity and improve riparian corridor functions.
- 2) The 918-acre EWRP easement lies entirely within the bottomland area. The easement allows 606.1 acres of the area, not including wetland units, to be maintained as herbaceous vegetation. Approximately 190 acres of bottomland and 115 acres of upland are not included in the EWRP easement. Land use restrictions on the EWRP acres, such as food plot acres and required vegetation types, are listed in the *EWRP Conservation Plan Schedule of Operation* (NRCS, 2006).
- 3) The soils on Frost Island CA range from very sandy in the upland areas to heavy Wabash soils in the wetland areas. Soil erosion by water is not a concern at the area because of the area's flat topography. These conditions make cropping an effective option for maintaining open land and providing additional food resources for wildlife. The encroachment of undesirable cottonwood, willow, and reed canary grass are a continuing challenge to maintaining high-quality open land habitat.
- 4) The large open bottomland area currently supports quail and pheasants, despite its flood frequency. These species and other non-game species would benefit from shrub plantings that would provide edge habitat and break up the 606.1 acres of herbaceous vegetation.
- 5) Species of conservation concern occur on Frost Island CA. Many species use multiple habitats as they complete various life cycles. Therefore, the management of these species requires both the protection of these species and their multiple habitats. The main challenge is the timing of management activities, such as prescribed burning and disking in the uplands, with species' life cycles. The active season and habitat requirements of species should always be considered when planning management activities. Furthermore, management of uplands for rare species benefits other non-game and game species.
- 6) There is a 16-acre remnant sand prairie named Steyermark Prairie on the conservation area. It is small, but has a unique and diverse plant community. Encroachment by sumac, plum and other woody species presents a challenge for maintaining the sand prairie. The surrounding cropland areas are sandy and may

present an opportunity to expand the sand prairie. This area is outside the EWRP easement boundary.

Management Objective 1: Restore bottomland forest communities.

Strategy 1: Identify 100 acres to convert to forest. (Forestry)

Strategy 2: Establish mast-producing tree species in the land use-conversion areas. Use tree planting or direct seeding. (Forestry)

Management Objective 2: Provide food and cover for wildlife, and maintain early successional vegetation.

Strategy 1: Use permittee farmers to plant approximately 105 acres of crops and 25 acres of sunflowers each spring, outside the EWRP easement. (Wildlife)

Strategy 2: Using permittee farmers and area staff, plant approximately 20 acres of food plots annually, both on and off the easement area. Those areas on the easement must be established in accordance with the *EWRP Conservation Plan Schedule of Operation* (NRCS, 2006). (Wildlife)

Strategy 3: Manage old fields to combat invading cottonwood and willow trees. Maintain early successional habitat. Activities must be in accordance with the EWRP plan because the majority of these acres are included in the easement area (NRCS, 2006). (Wildlife)

Strategy 4: Plant 12,000 feet of flood-tolerant shrubs to provide edge, food and cover for wildlife in the large bottomland. (Wildlife)

Management Objective 3: Reduce exotic species invasions.

Strategy 1: Reduce reed canary grass and garlic mustard. Be attentive to new occurrences of invasive species. Treat invasive species if/when they appear. (Wildlife)

Management Objective 4: Improve and expand the sand prairie.

Strategy 1: Discourage woody plant invasions. Use a wide variety of practices on invasive species that are not susceptible to fire. (Wildlife)

Strategy 2: Expand the sand prairie by harvesting seed on-site and converting the 19.1-acre crop field in the south. (Wildlife)

VI. Aquatic Resource Management Considerations

Challenges and Opportunities:

- 1) The wetlands of Frost Island CA provide habitat for rare species, waterfowl and invertebrates. The EWRP easement plan requires 79.9 acres of existing wetlands to be maintained in an herbaceous state. Two small wetland structures were

installed in the late 1990s to form two units. They were designed to catch runoff and hold shallow water during wet periods. The soils in these two units are so permeable that they only hold water for a few days when the water control structures are closed. The remaining portion of the acreage in the EWRP plan is part of a large slough along the southern boundary of the area. This area is believed to be an old oxbow of the Des Moines River. It is unknown when the area became a part of the active river. Notes from explorations done by Marquette and Joliet in the 1600s suggest that it was a slough at the time. The lower portion of this slough typically holds water and is known locally as McGuire's Hole.

- 2) The southern portion of McGuire's Hole is bound by the levee that is owned and managed by the Des Moines/Mississippi Levee District. The levee district is concerned about water on the toe of the levee. The levee, and the soils under it, contain some sand and allow seepage from the slough onto neighboring cropland to the south. The levee district is also concerned that prolonged elevated water levels will damage the integrity of the levee. In 2008, a large pipe, draining the slough to the Des Moines River, was replaced. The levee district agreed to let the Department replace the pipe and add a water-control structure, provided that the Department would not hold water on the toe of the levee, causing seepage during the farming season. The levee district has worked cooperatively with the Department. They have provided the Department and public with access to the discharge area for management and recreational activities (at this popular fishing spot). Water levels are a challenge to manage without negatively affecting low-lying croplands outside the levee.
- 3) Frost Island CA includes 3.2 miles of Des Moines River frontage. While this river has been heavily impacted by past floods, a fishery does exist in it and provides some public fishing opportunities.
- 4) Two scour holes from past flooding events on Frost Island CA do not provide viable sport fisheries. Due to flooding, the larger scour hole does provide habitat for some riverine, non-game species of fish. The other scour hole provides an additional water source for wildlife and a fish-free environment for reptiles and amphibians.

Management Objective 1: Manage area wetlands in an herbaceous state to accommodate waterfowl and other wetland wildlife with an emphasis on rare species.

Strategy 1: Maintain water levels no higher than 1 foot over the top of the tube in the water control structure in McGuire's Hole during the growing season. The elevation should be monitored and adjusted in response to the amount of seepage that is occurring through the levee. Water levels may be increased when fall harvest is complete. Drawdown should begin by March 1, or when spring

fieldwork is initiated. Managers must be aware of the issues associated with prolonged high water elevations against the levee to ensure good relations with neighbors and the Des Moines/Mississippi Levee District. To conserve the aquatic communities, do not intentionally de-water the wetland unit completely. (Wildlife)

Strategy 2: Maintain the wetlands in an herbaceous condition. Apply chemicals with care; some wetland species are sensitive to chemicals. (Wildlife)

Strategy 3: Explore the feasibility of constructing a low-elevation earthen berm that would hold water in the upper end of the slough to provide more permanent wetland conditions without affecting the Des Moines/Mississippi Levee District levee. This would allow the option for leaving water in the pool for extended periods, promoting the growth of emergent vegetation, and providing permanent water for wetland species that require such conditions. (Wildlife)

Strategy 4: Conduct a mussel survey in the wetland units and the Des Moines River to document species' presence and relative abundance. (Wildlife)

Management Objective 2: Establish or maintain a forested corridor along all streams on the area.

Strategy 1: Maintain a forested corridor through natural regeneration or planting with a minimum width of 200 feet, from top of bank along the Des Moines River. (Forestry)

Strategy 2: Inspect riparian corridors along all agricultural fields every three years to determine the need for field adjustments. (Wildlife)

Strategy 3: All management activities on Frost Island CA should follow the *Watershed and Stream Management Guidelines for Lands and Waters Managed by the Missouri Department of Conservation* (Missouri Department of Conservation, 2009). (Wildlife)

VII. Public Use Management Considerations

Challenges and Opportunities:

- 1) Frost Island CA offers numerous public use opportunities, including fishing, hunting, camping, picnicking and hiking. Hunting is one of the main reasons many people visit Frost Island CA in the fall. The dove season opener is the busiest time of the year with more than 200 hunters using the area, when weather and dove numbers are good. The archery/muzzle loader-only regulation implemented in 2004 has made the area attractive to archery hunters as well. Spring and fall turkey seasons also attract hunters to the area with good numbers of turkeys present. Waterfowl hunting is available on the wetland units during

wet years. Small game hunting opportunities exist for quail, rabbits and pheasants.

- 2) Primitive camping is permitted in three graveled parking areas with grassy adjacent areas. Pack-in camping is allowed any time except during firearms deer and turkey seasons. No amenities are provided. The south parking lot is a popular fishing area by local users.

Management Objective 1: Provide quality hunting for mourning doves.

Strategy 1: Continue to provide quality fields for dove hunting on the upland sandy terrace.

Management Objective 2: Provide quality hunting for quail, pheasants, deer and turkey. Manage for a variety of small game species and waterfowl, where appropriate habitat exists.

Strategy 1: Manage the area's diverse habitats for a variety of wildlife species. (Wildlife)

Management Objective 3: Provide designated basic camping and picnic areas.

Strategy 1: Maintain parking lots and the adjacent grassy areas during the summer. Prior to the hunting seasons, mow these areas so they are user-friendly and aesthetically pleasing. (Forestry)

Management Objective 4: Provide bank-fishing opportunities on the Des Moines River, where feasible.

Strategy 1: Maintain a parking lot along the Des Moines River at the discharge pipe from McGuire's Hole. (Forestry)

VIII. Administrative Considerations

Challenges and Opportunities:

The Department has a relationship of mutual trust and respect with the Des Moines/Mississippi Levee District. Access to the southeast corner of the conservation area is contingent upon maintaining a good relationship with the levee district.

Management Objective 1: Maintain good relationships with neighbors.

Strategy 1: Be conscious of water levels within the wetland unit during the growing season. (Wildlife)

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

All strategies are considered ongoing unless listed in the following table:

	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
Terrestrial Resource Management Considerations										
<i>Objective 1</i>										
Strategy 1										
Strategy 2		X								
<i>Objective 2</i>										
Strategy 4	X		X		X					
<i>Objective 4</i>										
Strategy 1	X									
Aquatic Resource Management Considerations										
<i>Objective 1</i>										
Strategy 3		X								
Strategy 4	X									
<i>Objective 2</i>										
Strategy 2	X			X			X			

APPENDICES

Area Background:

In 1996, 13 tracts from seven different landowners, totaling 918 acres, were acquired as part of the Emergency Wetland Reserve Program, which was initiated after the flood of 1993. This flood damaged the area's farmland by depositing large amounts of silt and sand in some areas and caused scouring in other areas. Flood protection levees were not repaired. Floodwaters were allowed to inundate the area and to, subsequently, reduce flood damage downstream. Several landowners who had enrolled bottomland property in EWRP, opted to sell the remainder of their tracts that were not in the easement. One such tract contained a sand prairie, referred to as Steyermark Prairie, and was purchased in 1996 along with the EWRP tracts. An additional 12 acres was purchased in 2010 along the Des Moines River, bringing the conservation area up to its current size of 1,233 acres.

The area is bound on its north and east sides by the Des Moines River, and by the town of St. Francisville on most of the west side. The flooding that occurred in 1993 left several scour holes as it cut through the levee, leaving some permanent water holes on the area.

According to the General Land Office survey conducted in 1820, prairie communities extended across all of the sandy uplands of Frost Island CA. Julian Steyermark recorded several rare plants that are unique to sand prairies, between 1949 and 1963. The remainder of the area was tree covered and included the following tree species: black walnut, elm, ash, hackberry, cottonwood and pawpaw.

Recent land-use history, prior to Department acquisition in 1996, was mainly crop production. The flat land and rich soils in the bottomland was conducive to farming and very little grazing, if any, occurred on these acres.

Current Land and Water Types

Land/Water Type	Acres	Miles	% of Area
Old Fields	882.6		72
Cropland	142		11
Bottomland Forest	128		10
Wetland	51		4
Grassland	16		1
Upland Forest	12		1
Parking Lots and Roads	1.4		1
Total	1,233		100
Stream Frontage		3.2	

References:

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

Natural Resources Conservation Service (NRCS). (2006). *EWRP conservation plan schedule of operation*. Kahoka, Missouri: United States Department of Agriculture.

Maps:

Figure 1: Area Map of Frost Island Conservation Area

Figure 2: Landcover Map

Figure 3: Easement Boundaries

Figure 4: Restoration and Potential Wetland Levee Location

Figure 1: Area Map of Frost Island Conservation Area

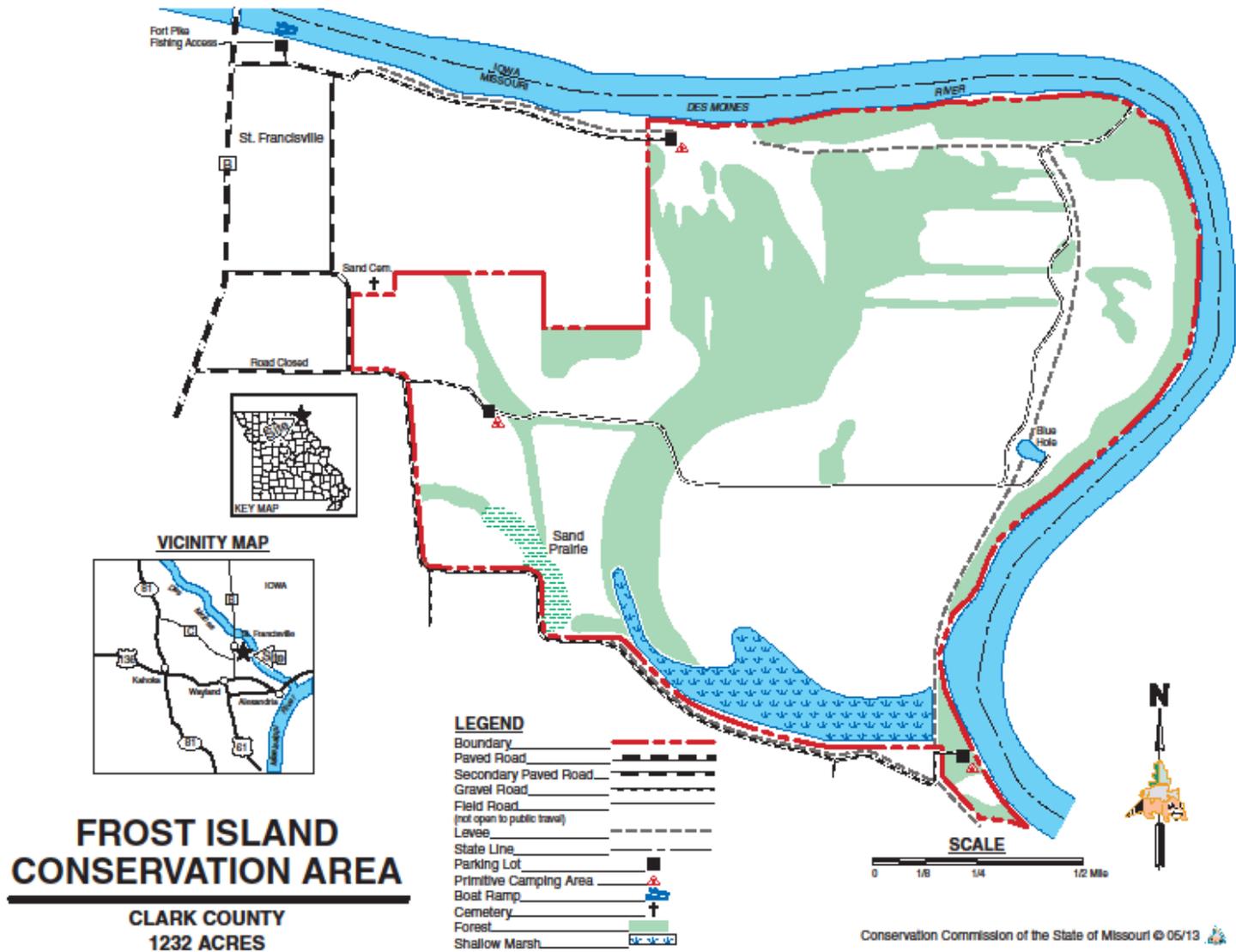


Figure 2: Landcover Map

Frost Island 2012 Landcover Map

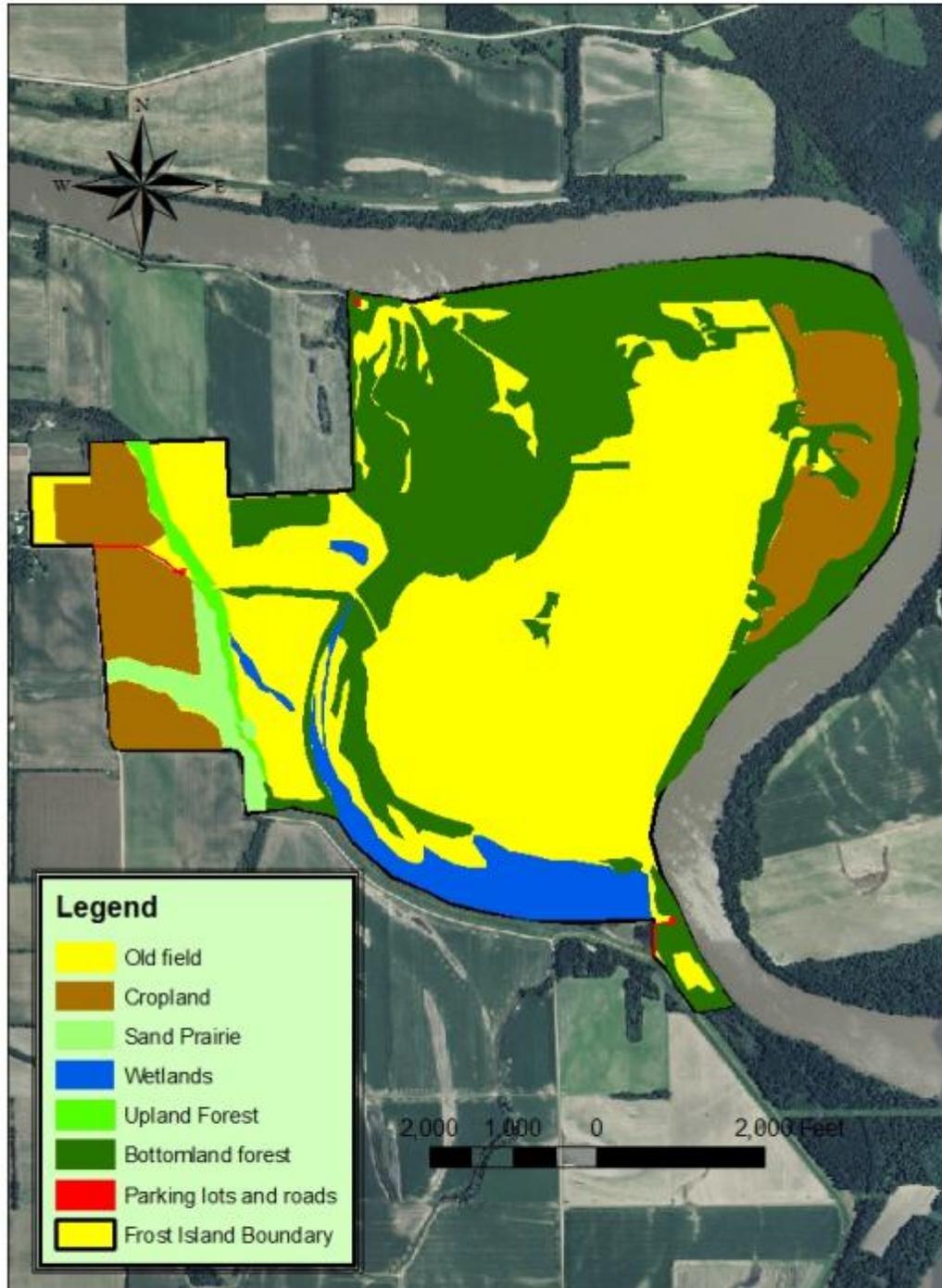


Figure 3: Easement Boundaries

Frost Island Easement Boundaries

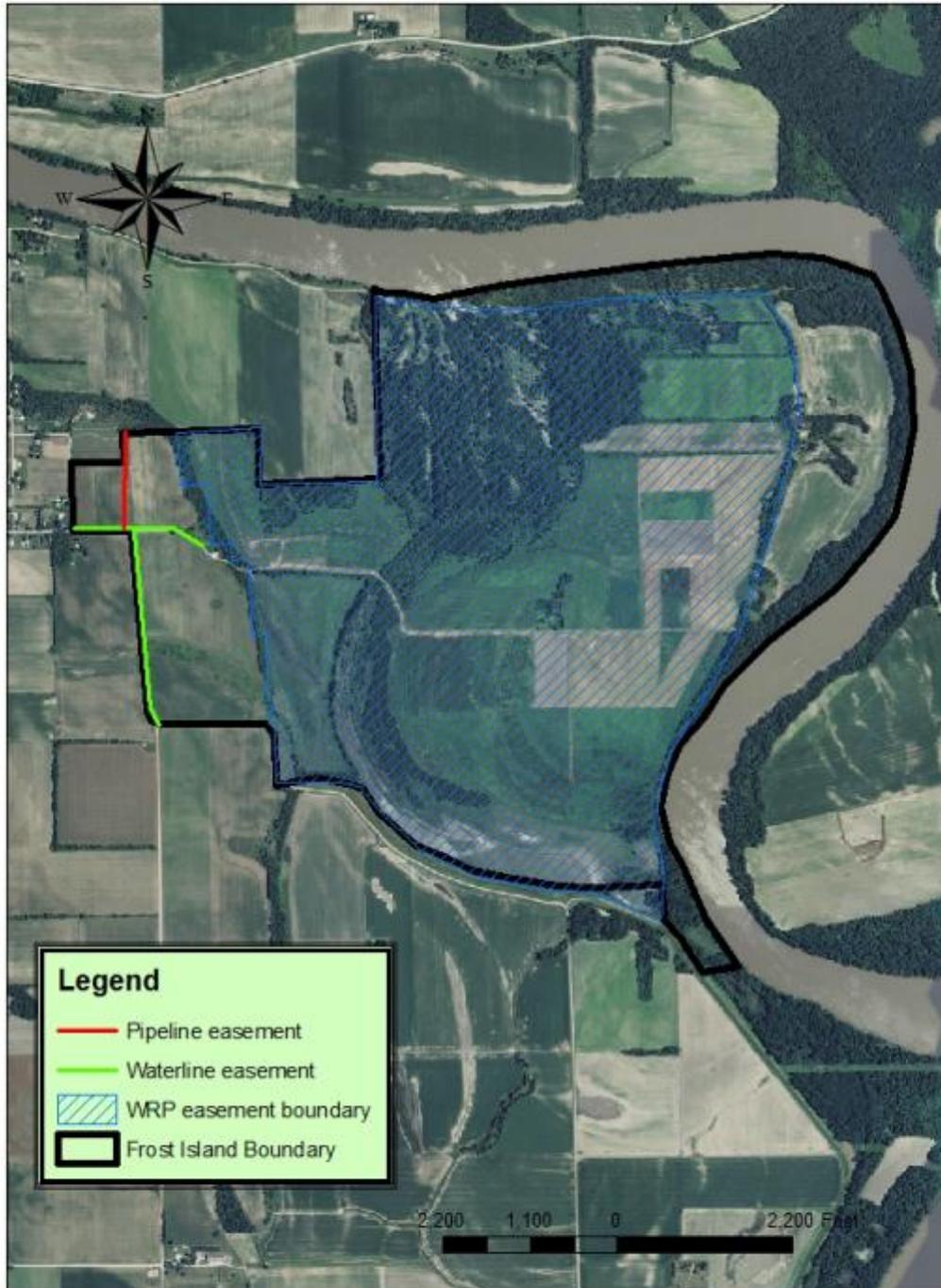
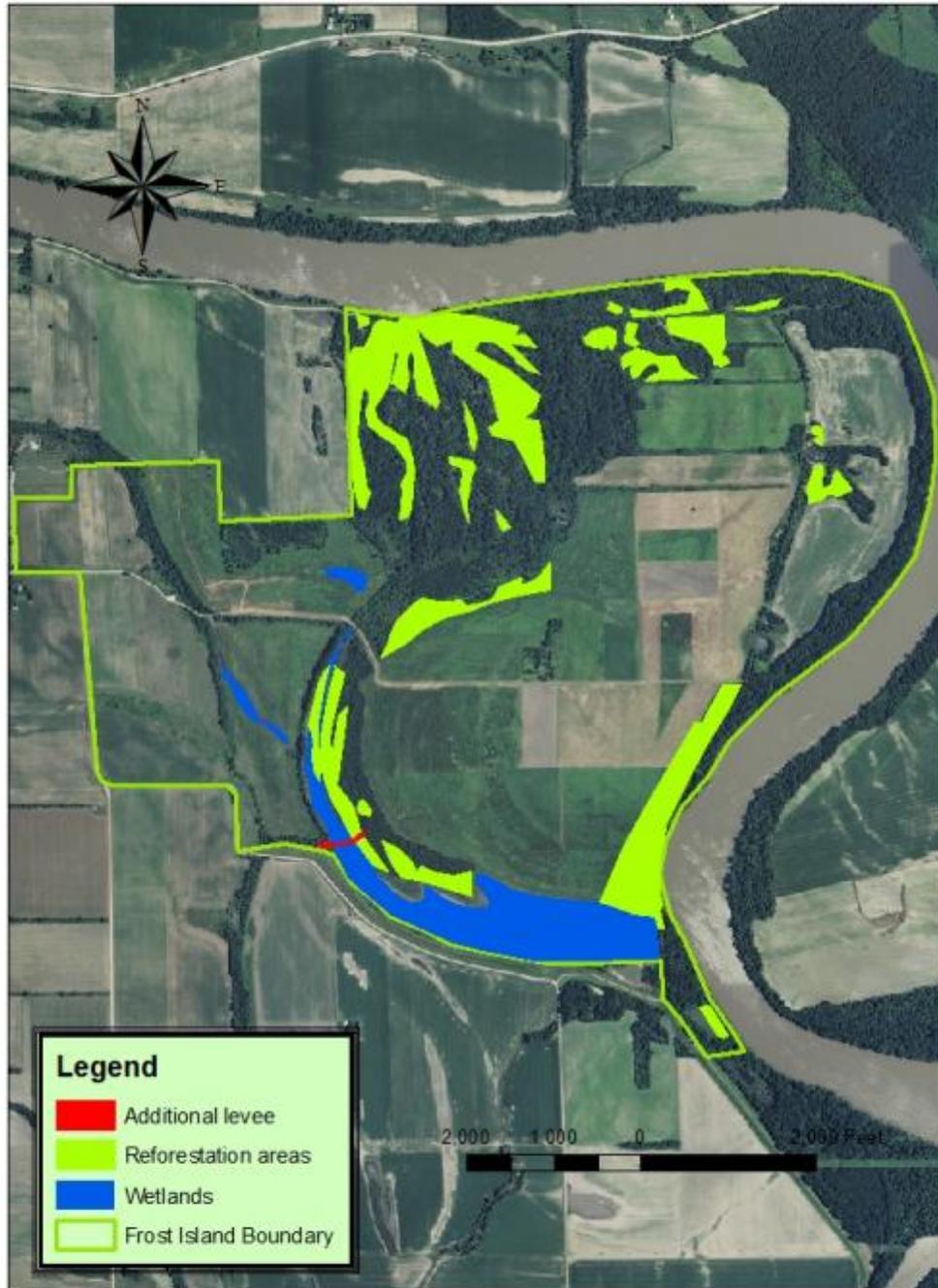


Figure 4: Restoration and Potential Wetland Levee Location

Frost Island Reforestation and Potential Wetland Levee Location



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