



## Deer Island Forest Wildlife Stewardship Plan



**Plan Written January 2023**

**Developed by Sarah Bell, District 9 Forester, Doug Chafa, Wildlife Biologist,  
and Matt Shanklin, Natural Resource Technician 2 of the Missouri River  
Wildlife Unit**

# Table of Contents

Forest Stewardship Plan History & Objectives.....	3
Site Description.....	4
Site Maps.....	5
Stand Descriptions and Recommended Management.....	10
Stand Maps.....	11
Stand 1.....	14
Stand 2.....	18
Stand 3.....	22
Stand 4.....	23
Stand 5.....	24
Stand 6.....	25
Stand 7.....	26
Summary of Forest Stands.....	27
Management Considerations.....	28

## Forest Stewardship Plan History & Objectives

To fully understand the objectives of this forest stewardship plan, some history of the Deer Island Wildlife Management Area (WMA) must be explained. The timeline below shows key events that contribute to the objectives of this plan.

**Early to mid 1900:** United States Army Corps of Engineers (USACE) Bank Stabilization and Navigation Project (BSNP). The project aimed to narrow the broad natural channel area of the Missouri River. Structures built in this time allowed for a degrading river bed along with deposition of sediment into what is now Deer Island.

**1952:** Major flood spread far over the landscape but retreated quickly to the river basin.

**1960s:** Wing dikes were constructed along the Deer Island side of the river to maintain a narrow channel and prevent channel migration. Revetments were also constructed on the Nebraska side.

**2011:** Record flooding of the Missouri River caused water to reach beyond the river banks and into the surrounding area (but not as far as the 1952 flood). Land was underwater for several weeks, causing permanent changes to the landscape.

**2012:** The US Army Corps of Engineers implemented the Deer Island Shallow Water Habitat Project (SWHP) in which a shallow bench zone was excavated to create shallow water habitat adjacent to the main channel of the Missouri River. Just over 100 acres of land were converted to shallow water habitat.

Over the past century, the channelization and construction of six mainstem dams on the Missouri River to provide flood control and navigation have greatly altered the natural flood regime and floodplain ecosystem. Historically, periodic “ebb and flow” floods accentuated by occasional severe floods maintained a mosaic of floodplain ecosystems like sandbars, side channels, wetlands, bottomland prairies, savannas, and woodlands. With the construction of levees and the blocking of natural side channels, flooding is now irregular, unpredictable, and often on a severe, landscape-damaging level. This has led to the current conditions of the forest at Deer Island: a mature and dying cottonwood overstory, a mid and understory filled with species that typically would not thrive on a floodplain, and a complete lack of regeneration of native floodplain tree species like cottonwood and black willow. Forested sites like Deer Island along the Missouri River provide critical inputs of large woody debris during flood events that drive the fish community. These challenges require attention to ensure that Deer Island is managed in a way that is scientifically sound and gives consideration to past, present, and future conditions.

**The primary objective of this forest wildlife stewardship plan is to achieve a native, diverse, and resilient forest that provides habitat for both huntable species and species of greatest conservation need using sound forest management practices while maintaining recreational opportunities for public users.**

## **Site Description**

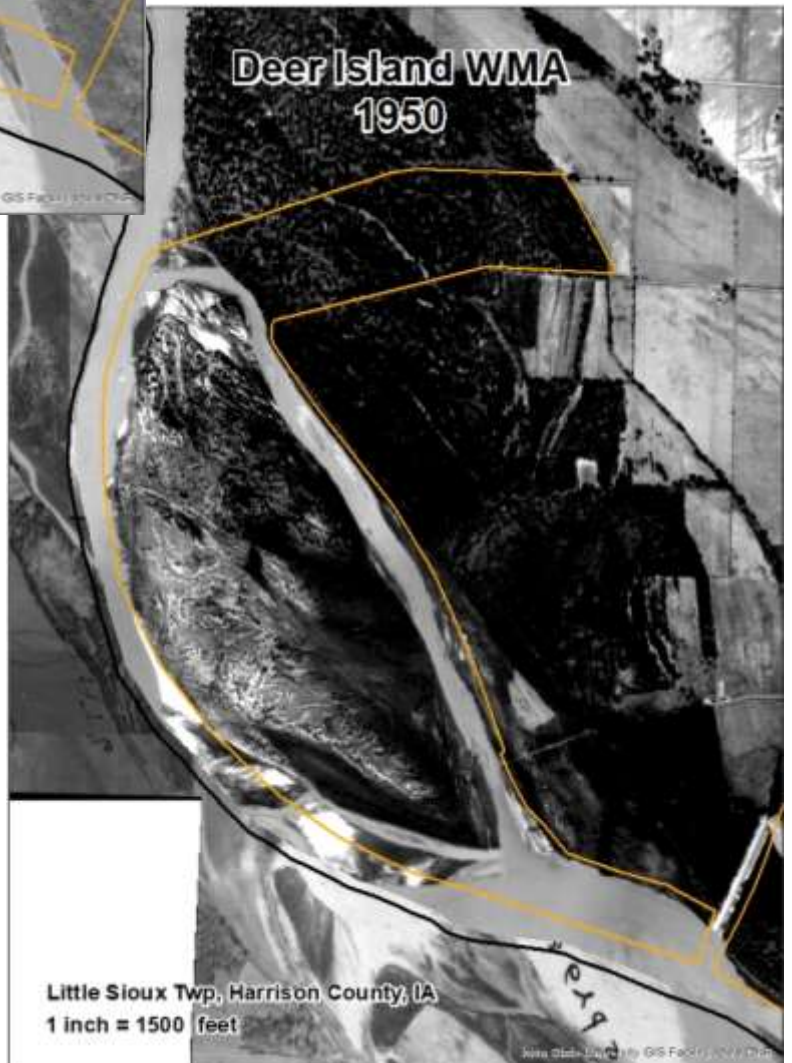
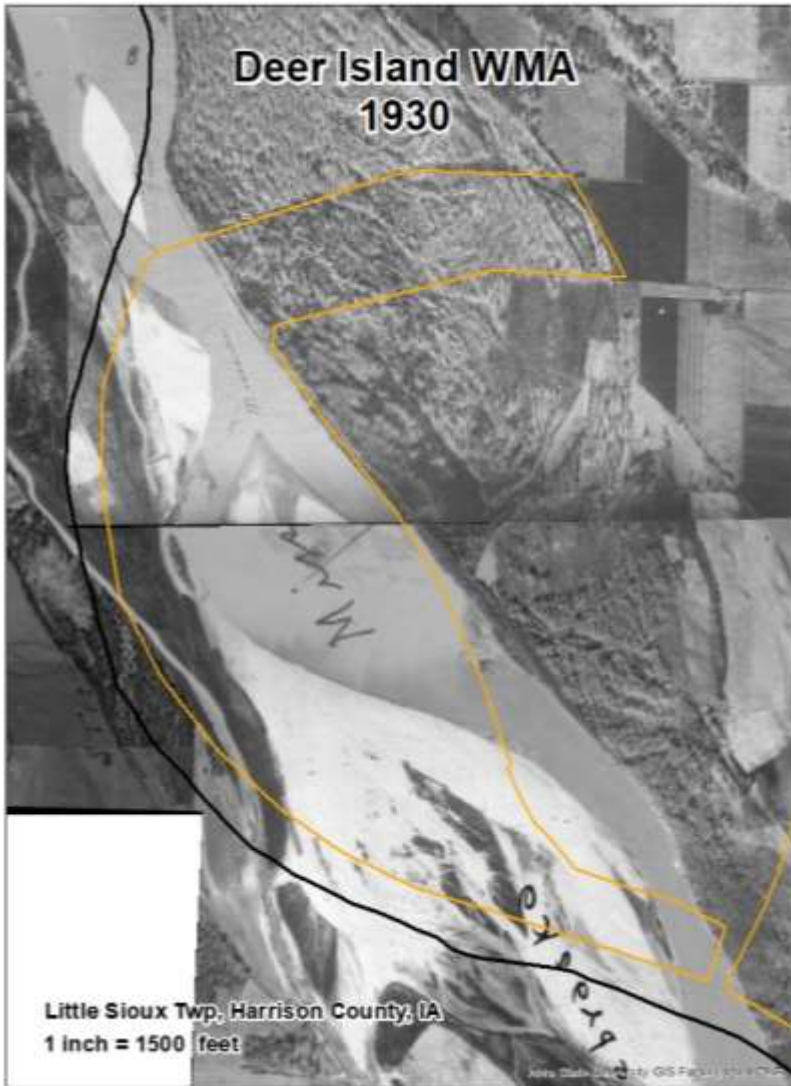
**Acres in plan:** 804

**Location:** Little Sioux Township, Sections 8, 9, 16, 17, 20 & 21, Harrison County, Iowa

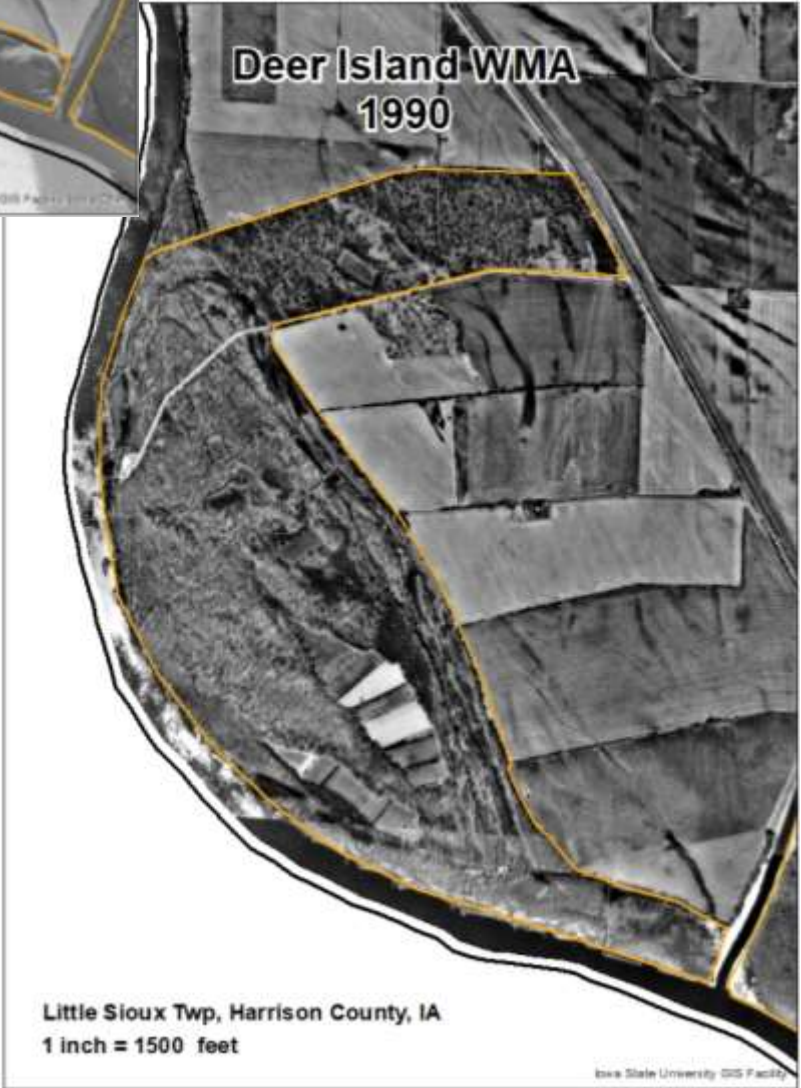
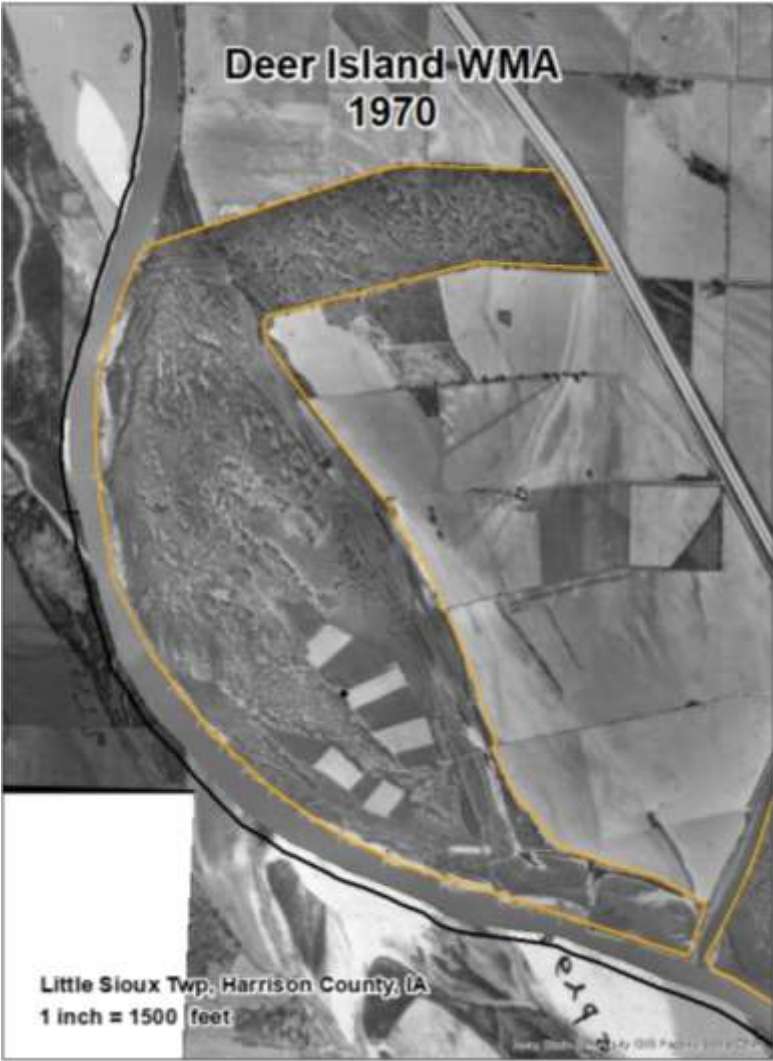
Deer Island is located in northwestern Harrison county. It is bordered by the Missouri River to the south and west and rowcrop to the north and east. Interstate 29 runs along the northeastern edge of the property and continues south along the edge of the state. Terrain in Deer Island is typical of a floodplain: mostly flat with slight variations in elevation including a number of small humps in the west and north parts of the property. A deeper backchannel cuts through the north section of Deer Island from the Missouri River and follows the east edge to the southern tip where it again joins the Missouri, essentially separating the main body of Deer Island from the surrounding land – hence the name.

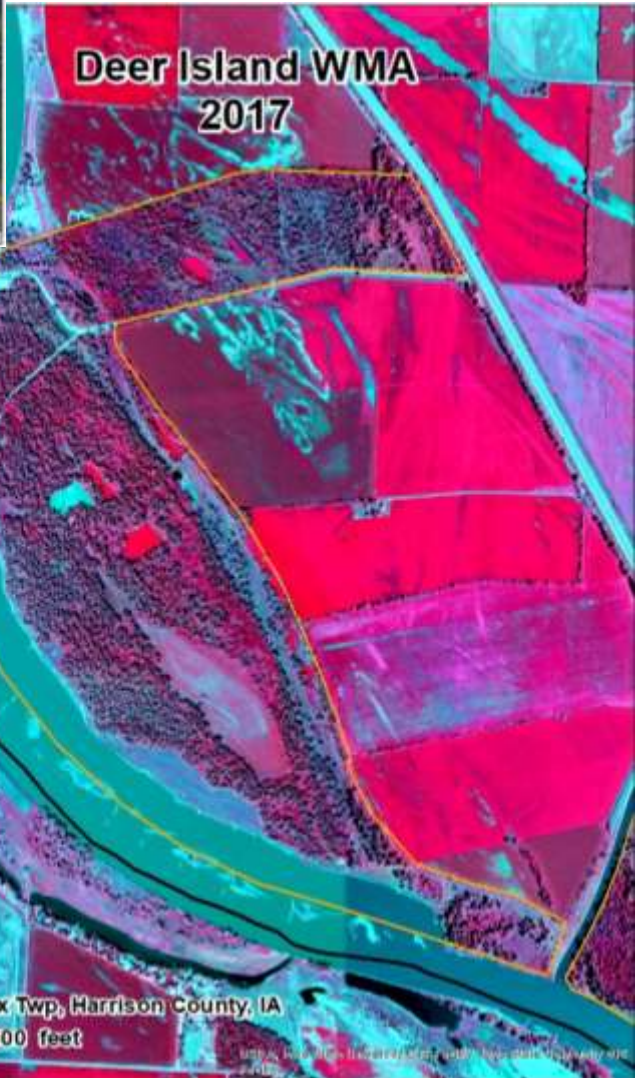
The two most prominent soil types present are Sarpy and Percival. Sarpy soils formed in sandy alluvium, so they are composed mostly of fine sand and are excessively drained. As such they have low available water capacity. The native vegetation on these soils is thin stands of native grasses and sandburs or cottonwood and willow. Percival soils are formed in clay alluvium and underlying sandy alluvium and have a much higher clay content with very little sand content. Due to the higher clay component, these soils are somewhat poorly drained. The native vegetation on Percival soils is tallgrass prairie. Other more minor soil types include Blake, Onawa, and Haynie. These are also common soils found in floodplains that range from somewhat poorly drained to moderately well drained.

Written records provide insight on the changes that have taken place on the Missouri River and Deer Island over the decades, and aerial photography records going as far back as the 1930s allow these changes to be visualized. The most striking changes are seen in the 1930 vs 1950 map; this time period is when the BSNP took place and the landscape transformed from natural river channel to heavy sedimentation deposits. 1950 imagery is also when the first tree cover is seen in the main body of Deer Island, indicating that the current overstory trees are approximately 70-90 years old (the average lifespan of Eastern cottonwood is 70-100 years). The addition of wing dikes is visible in the 1970s, and the USACE Top Width Widening Project results are apparent in 2017. In the 2011 photo, flood waters are still visible on the landscape.











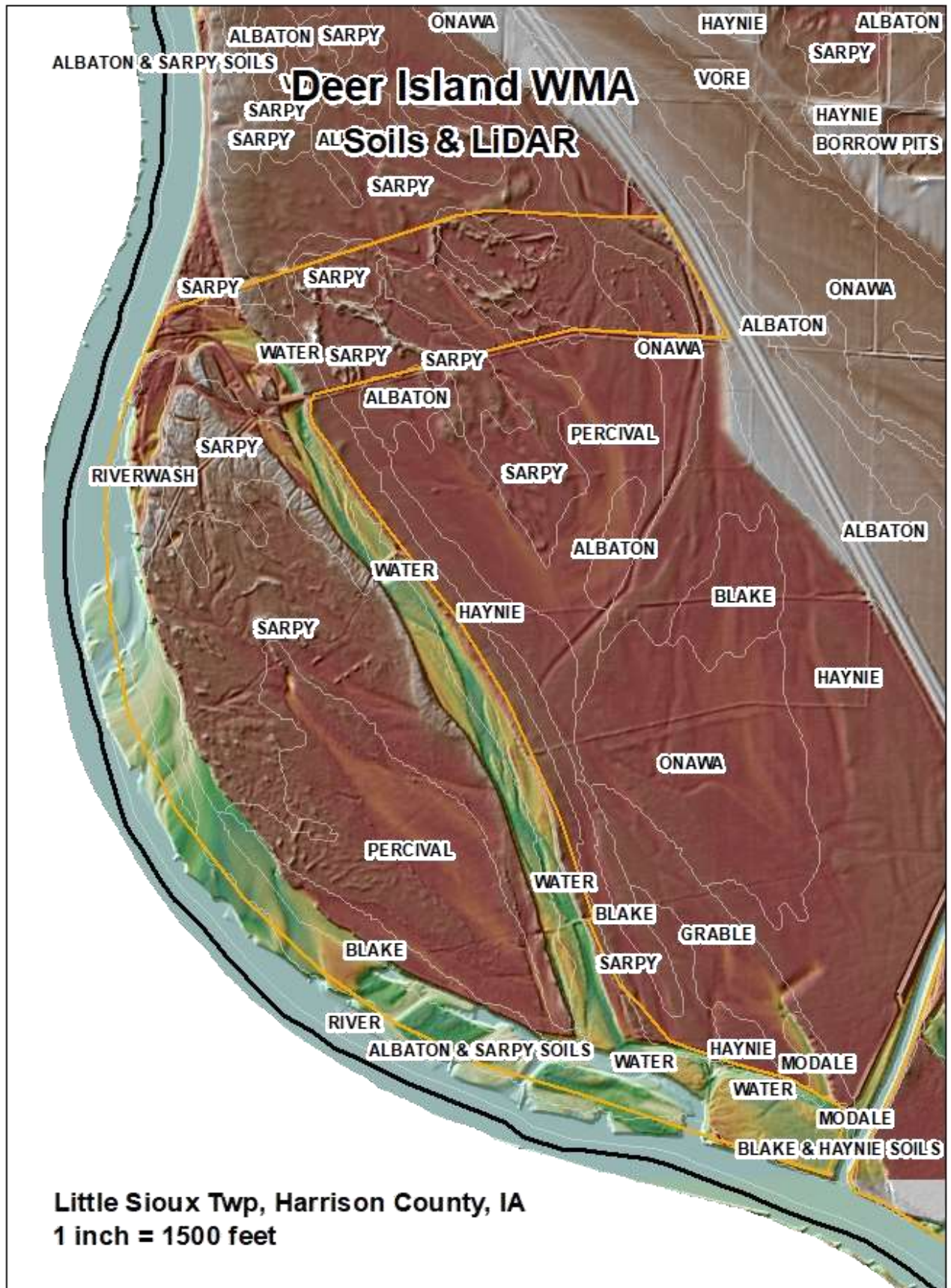
# Deer Island WMA 2021



Little Sioux Twp, Harrison County, IA  
1 inch = 1500 feet

USDA, Iowa State University GIS Facility





## Stand Descriptions & Recommended Management

A forest “stand” is a community of trees with relatively uniform characteristics such as species, size, age, etc. Trees will be classified according to size:

- Seedling - <1” in diameter, and less than 4.5 feet tall
- Sapling – 1-5” in diameter, and greater than 4.5 feet tall
- Pole – 5 to 12” in diameter at breast height (dbh)
- Small sawtimber – 12-18” dbh
- Large sawtimber – 18”+ dbh

Deer Island has been divided into 8 stand types which are listed below and labeled on the maps in the next pages. A description of each stand will be given followed by recommendations to improve or maintain stand conditions and meet stewardship goals.

**Stand 1A:** Eastern Cottonwood with Mixed Hardwood Midstory - 185 ac

**Stand 1B:** Eastern Cottonwood with Eastern Red Cedar Midstory - 113 ac

**Stand 2A:** Mixed Hardwoods, North Deer Island - 114 ac

**Stand 2B:** Mixed Hardwoods, Main Body of Deer Island - 17 ac

**Stand 2C:** Mixed Hardwoods, East Edge - 15 ac

**Stand 3:** Cedar Ridges - 26 ac

**Stand 4:** Bottomland Hardwoods - 27 ac

**Stand 5:** Cottonwood Regeneration - 16 ac

**Stand 6:** Back Channel - 97 ac

**Stand 7:** Agricultural Fields, 14 Units - 64 ac

**Stand 8:** Sandbar Complex - 130 ac







# Deer Island WMA Stands



Little Sioux Twp, Harrison County, IA  
1 inch = 1375 feet

USDA, Iowa State University GIS Facility



# Deer Island WMA Stands



Little Sioux Twp, Harrison County, IA  
1 inch = 1375 feet

**Stand 1A:** Eastern Cottonwood with Mixed Hardwood Midstory - 185 ac

*Overstory:* Large sawtimber-sized cottonwood

*Midstory:* Dense gray dogwood, punctuated by sapling to pole-sized hackberry, American elm, Siberian elm, green ash, and invasive white mulberry

*Understory:* Open to moderately dense hackberry, white mulberry, and dogwood seedlings, coralberry, gooseberry, honeysuckle, raspberry, prickly ash, poison ivy, river grape, greenbrier, grasses/herbaceous species in openings, and an equisetum patch just southeast of Stand 7.11

**Stand 1B:** Eastern Cottonwood with Cedar Midstory – 113 ac

*Overstory:* Pole to large sawtimber-sized cottonwood

*Midstory:* Dense, sapling to pole-sized Eastern red cedar and dogwood, and scattered green ash, hackberry, American elm, and invasive white mulberry

*Understory:* Open - cedar, white mulberry, and dogwood seedlings, coralberry, honeysuckle, poison ivy, grasses/herbaceous species in openings – including some bottomland/sand prairie indicator species on sandy humps such as thimbleweed, switchgrass, and panic grass

Stands 1A and 1B are both dominated by a mature and visibly declining cottonwood overstory that varies in density across both stands. Overstory trees have shown significant damage in the years after the 2011 flood with dead and dying canopies, dropped branches, and exposed trunks with peeled bark. Measurements taken indicate that the overstory ranges mostly from understocked to fully stocked. Both stands contain a very dense, mature gray dogwood midstory that limits access and visibility and prevents desirable tree and herbaceous growth in the understory. Large woody debris from damaged and declining cottonwoods is scattered across the forest floor. Observation of wildlife tracks in both stands after a snowfall showed that while deer move through much of the forest, their movement is focused in the more open areas.

The differences between Stands 1A and 1B - though subtle - are notable. In addition to the dogwood, the midstory of Stand 1A contains a significant amount of species like green ash, white mulberry, hackberry, and American elm, while the midstory of Stand 1B is limited primarily to Eastern red cedar. The south and western areas of Stand 1B also have numerous small, sandy “humps,” which are mainly populated by cedars but also contain certain prairie indicator species like thimbleweed, switchgrass, and panic grass.





The dense dogwood midstory is distinct in both stands (1A left, 1B right). The prominent cedar midstory is visible in Stand 1B.



Dense dogwood and a shaded understory with heavy woody debris in Stand 1

## Management

The forest of Stand 1 is the most prominent cover type at Deer Island. Currently, the succession of this altered ecosystem is toward a very dense, low diversity, and lower quality stand of dogwood and invasive white mulberry with an overstory comprised of white mulberry, green ash, hackberry, and American elm. While these species do have some ecological importance, they alone do not offer the same ecological value that traditional floodplain species, like eastern cottonwood, american sycamore, silver maple, and black willow, would along a major river, nor do they offer up valuable hard mast like more upland species. For these reasons, Stand 1 offers a unique opportunity to implement or even experiment with different

management practices to shift succession toward a higher quality, resilient ecosystem that will provide habitat for a variety of wildlife as well as recreational opportunity for public users.

Because of the presence of invasive honeysuckle and the very thick dogwood and white mulberry midstory, management involving the clearing of these species must be followed up by further management to maintain and/or capture project sites. Without follow up management, the above species are likely to rapidly repopulate opened areas.

*Stand 1A:* It is recommended to establish a new age class of suitable tree species to increase diversity and resiliency of the forest. To achieve natural regeneration of cottonwood, selected project sites should be mechanically cleared of undesirable cover, leaving 6-10 snags /acre of undesirable trees of varying sizes standing as snag habitat, then disked during the period of the year in which cottonwood seeds are dispersing (May-June). Scattered, mature cottonwoods can be left as seed trees, creating a cottonwood shelterwood system in which remaining mature trees would provide shelter to new seedlings. Cottonwood seeds carried by wind or water lose viability very quickly and must soon make contact with a suitable seedbed to survive. A suitable site is one with exposed sand or silt, adequate moisture, and full sunlight. If not in a drought year, these conditions should be achievable in this stand by disking herbaceous material under and exposing mineral soil. After natural regeneration is achieved, the project site can be maintained by careful application of mechanical methods or by chemical means to keep undesirable species at bay until the cottonwoods capture the site (shade out competition).

Artificial regeneration is another way in which new trees can be added to the forest. Selected project areas should be cleared of undesirable cover – either a clearcut over at least a few acres, or individual openings several feet in diameter. Seedlings should then be planted at a suitable rate. Species options include traditional, native bottomland species like Eastern cottonwood, American sycamore, silver maple, and black willow. Due to altered historical flooding regimes, the chance could be taken to also incorporate high-value native species that would typically grow on elevations above a flood plain such as bur or bottomland bur oak, red oak, some swamp white oak, black walnut, Kentucky coffee tree, black cherry, or bitternut hickory.

*Stand 1B:* Recommendations for this stand are based on the small sandy humps and prairie indicator species as well as the lack of mixed midstory species aside from cedar. These factors make the stand a potential site to establish a cottonwood savanna, with very scattered overstory trees and an understory filled with prairie grasses and forbs. Historically, cottonwood savannas were maintained by fire (both wild and anthropogenic) and periodic flooding. The biggest challenge establishing this ecosystem type at Deer Island may be keeping undesirable species at bay without a reliable flooding regime. A cottonwood savanna system, especially one with large trees, would benefit species like tri-colored and little brown bats that like to forage in forest opening near rivers, and roost in large tree cavities.

SGCN birds like northern flicker, baltimore oriole, eastern screech owl, barn owl, and eastern wood-pewee will respond positively to a more open canopy. To achieve the conditions of a cottonwood savanna, undesirable species must first be killed in the midstory and understory of the project area. To keep removed species at bay, methods such as repeated mechanical

removal, chemical treatment, or prescribed fire can be implemented. After achieving an open mid and understory, the overstory trees should be evaluated for a thinning. Savanna-like conditions (basal area of 20-30 ft<sup>2</sup>/ac) may be achieved by leaving approximately 5-10 trees per acre, but more trees may need to be removed if this proves to be too much shade to support the prairie species. Because a few prairie species were located during inventory, it is possible that a seed bank is present and will respond when desirable conditions are achieved. If desirable conditions are achieved and maintained for a handful of years and a flush of prairie species is not observed, it may be necessary to seed them in.

There are certain challenges that will require consideration if this management is to be implemented. First, thinning the stand too quickly or too much can cause wind throw in remaining overstory cottonwoods. There is also potential for prescribed fire to damage overstory cottonwoods, especially those that have been damaged in previous floods and now have exposed wood. Finally (as with any type of thinning), allowing more sunlight into the stand carries potential for invasive or undesirable species to run rampant without careful monitoring. Though they require consideration, these factors can be addressed and management still implemented to achieve a unique ecosystem type at Deer Island.



Right: A cottonwood savanna located in Nebraska. Photo taken by Chris Helzer of The Nature Conservancy



**Stand 2A:** Mixed Hardwoods, North Deer Island - 114 ac

*Overstory:* Scattered to moderately dense, large sawtimber-sized cottonwood, and moderately dense to dense, small to large sawtimber-sized green ash, American elm, hackberry, white mulberry, Kentucky coffee tree, black walnut

*Midstory:* Pole to small sawtimber-sized green ash, American elm, hackberry, boxelder, white mulberry, Kentucky coffee tree, Eastern red cedar, gray dogwood

*Understory:* Hackberry and dogwood seedlings, prickly ash, coralberry, gooseberry, raspberry, river grape, greenbrier, and sedges/grasses/herbaceous species in openings

There is considerable variation across Stand 2A in regards to species composition and density. Variations in vegetative cover include open areas where scattered overstory trees stand tall over grassy cover, very dense and scrubby areas of shade tolerant trees, patches of thick dogwood and brome with no trees, and mixed-aged stands of diverse native tree species. The overstory composition of second bench species (species such as black walnut and Kentucky coffee tree that are typically located above the floodplain) on the east side of the stand is likely due to the slightly higher elevation and inland location of the stand - these factors could contribute to reduced flooding severity and length.



Variation of cover types in Stand 2A



**Stand 2B:** Mixed Hardwoods, Main Body of Deer Island - 17 ac

*Overstory:* Moderately dense, small to large sawtimber-sized green ash, white mulberry, hackberry, black willow, scattered large sawtimber cottonwood, a few silver maples

*Midstory:* Moderately open to moderately dense, sapling to pole-sized white mulberry, hackberry, Siberian and American elm, gray dogwood

*Understory:* Coralberry, grasses/herbaceous species

Aerial photography records show that this stand was slower to grow woody vegetation than the surrounding stand, 1A. It is unknown if this is due to natural or manmade causes, but the difference has led to a different species composition than Stand 1A. It also differs from Stand 2A in that some second bench species are not present such as black walnut and Kentucky coffee tree, while certain first bench species are present like black willow and silver maple (it is possible that the silver maples were planted, as there are only a few). The most prominent overstory species is white mulberry. Dogwood does not grow as densely in this stand, allowing for a more open midstory and an understory filled with coralberry shrubs and herbaceous species.



Left: A more open midstory in Stand 2B. Right: Thick coralberry in the understory of Stand 2B.



**Stand 2C:** Mixed Hardwoods, East Edge - 15 ac

*Overstory:* Moderately scattered, small sawtimber to large sawtimber-sized cottonwood, white mulberry, green ash

*Midstory:* Moderately dense to dense, sapling to pole-sized white mulberry, hackberry, gray dogwood, smooth sumac

*Understory:* Moderately dense to dense, white mulberry seedlings, gooseberry, river grape, greenbrier, raspberry, herbaceous spp including garlic mustard

This stand consists of the thin strip between the east shoulder of Stand 6 (the back channel) and the east fence of Deer Island. Shrub and vine species are prevalent, making the stand very thick and brushy.



A thick area of Stand 2C

**Management**

*Stand 2A:* The variation in vegetative cover across this stand creates a mosaic of habitat types for wildlife and for recreational usage. As such, the minimum level of recommended management is to monitor for the presence of invasive species and remove as necessary to keep a diverse, native species composition. A further management recommendation is to maintain diversity by preserving the portions of the stand (mainly on the east side) in which second bench species like black walnut and Kentucky coffee tree are more prevalent, since these species are not present in the rest of Deer Island. Stand 2A also has the potential to host a variety of smaller-scale project sites for various types of management such as cottonwood savanna establishment/restoration or stand conversion in areas where cover is low quality, like the dogwood and brome patch.



*Stand 2B:* The more scattered cottonwood overstory and strong, undesirable white mulberry component make this stand a viable location for stand conversion. Fewer overstory cottonwoods mean less heavy woody material to manage than other stands, and focusing on areas of heavy white mulberry cover will help to remove some seed source from the ecosystem. To implement stand conversion, nearly all of the existing cover must be killed to achieve full sunlight conditions to the forest floor, leaving some dead snags (6-10 per acre) of varying DBH will benefit many wildlife species. When appropriate light levels are achieved (or just before), native bottomland seedlings such as Eastern cottonwood, American sycamore, silver maple, and black willow should be planted at a suitable rate. Since each of these species naturally occurs in monocultures, multiple small (at least a few acres), separate project areas could be selected out of the stand as a whole to make the project more feasible. *Note:* As in Stand 1A, more upland tree species may be planted in this stand instead of traditional bottomland species, options are listed in the management recommendations for Stand 1A.

*Stand 2C:* The brushiness of this stand adds habitat diversity to Deer Island and serves as a sheltered corridor for wildlife. The primary recommendation is to remove honeysuckle from the stand and monitor periodically for invasive species.

**Stand 3: Cedar Ridges – 26 acres**

Located within Stand 2A, the cedar ridges consist of several small, sandy mounds rising above the relatively flat surrounding landscape. Prior to the flood of 2011, cedar cover was more prominent across Stand 2A, but aerial imagery shows that much of the cedars died after the flood except for those located on the small ridges and mounds. Those that remain grow very densely and shade the understory so that no other vegetation can grow and bare soil is exposed.



An area of a Stand 3 in which exposed, sandy soil is visible

**Management**

1930s aerial photography shows that nearly 100 years ago, these sandy ridges were much more open and woody vegetation was light to moderate where present. Over the next several decades, woody vegetation continued to encroach until complete canopy closure was achieved. It is possible that before woody encroachment, the ridges were vegetated by sand prairie. Sand prairies are a unique ecosystem type that could very well thrive on the sandy Sarpy soils that primarily make up this stand. Percival soils, which have a higher clay content, make up a lesser part of the stand.

It is recommended to manage these ridges for sand prairie by mechanically removing cedars and other woody vegetation, followed by repeated mechanical or chemical maintenance to keep woody species at bay. Prescribed fire is a tool that may also be used to discourage woody growth while encouraging prairie grasses and forbs. If a desirable flush of prairie species is not observed after some time of maintaining the project area, this route of management should be reevaluated to determine the next step.

#### **Stand 4: Bottomland Hardwoods - 27 ac**

The most densely forested portion of this stand is composed of a similar species mix to that of Stand 1A, with large sawtimber-sized cottonwoods as the primary overstory tree. A thicket of dense silver maple saplings is present along the southwest corner of the stand. A significant number of seedlings of first bench species are scattered across the stand and are heavy on the edges. This includes cottonwood, black willow, silver maple, and green ash. In areas void of mature tree cover, cucumber vines and tall herbaceous species create a dense ground layer that is difficult to navigate.



Thick cucumber vines in the foreground make navigation difficult. A small stand of mature cottonwoods can be seen in the background.

#### **Management**

This stand is lowest in elevation at Deer Island and sits at the corner of where the Monona-Harrison Ditch joins the Missouri River. It is also the youngest part of Deer Island, with the land emerging from the water by the 1960s photography (the rest of Deer Island had been visible for some time by the 1950s photography). The lower elevation likely allows for more frequent and long-term flooding, which may be the cause for the lack of mature tree cover across the stand. Because the stand is so difficult to access due to its thick ground cover and distance from any roads or trails, and because it is most likely to be disturbed in a flooding event, the priority for management is low. The most important management at this time is periodic monitoring for the presence of invasive species, since seed can be carried and deposited by the Missouri River or Monona-Harrison Ditch.



### **Stand 5: Cottonwood Regeneration - 16 ac**

In 2015, a few years after the Shallow Water Habitat Project, cottonwood seedlings were planted in rows on this former food plot. Today, less than half of the planted seedlings remain, but those that have survived have reached up to 15' tall and appear healthy. The open areas in the rest of the stand are primarily populated by waist-high herbaceous species (though some are nearly as tall as the cottonwood seedlings), while dense thickets of dogwood seedlings grow along the forest edge.



Scattered cottonwood seedlings and tall herbaceous species stand over waist high herbaceous spp.

### **Management**

The original purpose of this planted field was to establish a new age class of cottonwoods at Deer Island after converting 88 acres of land to shallow water habitat. The successful portion of the planting should be evaluated in 5-10 years to determine if a thinning is necessary. To achieve the original goals of this stand and to reestablish a new age class of cottonwoods, the unsuccessful portions of the planting (now populated by herbaceous spp. and dogwood seedlings) should be disked during the period of the year in which cottonwood seeds are dispersing (May-June), assuming the ground is firm enough during this time.

Aiming for natural regeneration over artificial regeneration in this stand has a few benefits. The uneven spacing and size of trees in a natural stand allows for some trees to become dominant, and denser pockets will self-thin over time. This will effectively achieve a younger stand that will continue to produce the ecological benefits of a native cottonwood forest over time - long after the existing cottonwoods die.

## **Stand 6: Back Channel - 97 ac**

The flat bottom of the back channel is void of mature trees and is covered by a thick herbaceous layer that includes raspberry, blue vervain, false boneset, reed canary grass, rice cutgrass, river bulrush, and sedges. This thick cover is punctuated by standing cottonwood snags and large woody debris from fallen snags. The slightly raised portions of the back channel host dense thickets of white mulberry and green ash seedlings. Mature black willow can be periodically found on the edges of the channel. Like many other places on Deer Island, the back channel is heavily traveled with many wildlife trails running along the length of it.



Herbaceous cover and woody debris in the back channel with declining cottonwoods on either side

## **Management**

Previous management on the Missouri River and shorelines has altered the connection of the back channel to the main river. Like the rest of Deer Island, it does not sustain consistent flooding or retain water as it historically would have. This has allowed for woody species to encroach, as can be seen in the dense thickets of white mulberry and green ash seedlings on the slightly raised areas. The back channel should be restored to its previous function to serve the variety of wildlife species that rely on this habitat type. Since this would entail regular water retention in the back channel (thus preventing most tree growth), it is recommended that forestry management be limited to monitoring for and removing undesirable tree species (especially white mulberry) to prevent them from further encroaching into the channel.



**Stand 7:** Agricultural Fields, 14 Units - 64 ac

There are 14 fields across Deer Island ranging in size from 1.2 ac to 36 ac, with most of them around 2 ac. Typical crops include corn and soybeans, and tenants are required to leave 20% of the crops standing on all leases to serve as a food source for wildlife through the winter and disperse hunting opportunity. Due to their location on the floodplain, many of the fields are prone to holding standing water during times of precipitation.



Stand 7.8

**Management**

Scattered agricultural fields add diversity to the landscape at Deer Island and increase hunter success. The fields also alleviate wildlife damage to crops on adjacent private land. The fields, or portions of the fields, may also function as potential locations in which the goals of this plan can be achieved. In forestry, an agricultural field is like a blank canvas for a new tree planting whether it be natural regeneration, a direct seeding, or a seedling plantation. Access is already established to the fields, and heavy site preparation is not necessary due to the lack of woody vegetation. Where feasible, the fields could be the most efficient and effective locations to accomplish forestry goals.

### **Stand 8: Sandbar Complex – 130 ac**

The USACE created a mitigation project at Deer Island which widened the top of the river channel to five feet below the normal summer flows. The project included a pair of shallow chutes that were slightly deeper than the widened bench. Several rock structures were added to maintain flow and energy in the navigation channel. Results have not necessarily been as intended, there has not been enough flow and energy through the side channels to maintain them and they have silted shut. Bank full flows have deposited sand below the rock structures and occasionally removed the willow and cottonwood which were colonizing the sandbar which was expected. The sandbar complex was extensively studied by fisheries research staff from both Nebraska and Iowa. Young of the year sturgeon chub were documented even before the project was finished. Shortly after construction, piping plover and least terns have colonized the site for nesting. Dr. Dinsmore reports this as the largest nesting least tern colony in Iowa in modern times.



Sandbar habitat in mid-June.

### **Management**

The sandbar complex has been abandoned by the USACOE, they have declined to maintain the rock structures to allow small flows through to maintain the chutes. This eliminates the critical protection from mammalian predators for the tern and plover nests. The chutes may have to be mechanically maintained with periodic silt removal. With the managed flows on the Missouri River, the sandbar may not get flooding disturbance frequently enough to prevent woody encroachment. Mechanical tree removal may be needed periodically to simulate natural flooding effects.



## Summary of Forest Stands

Stand Type	Stand ID	Acres	Recommended Management	Priority
Cottonwood Overstory A) Mixed Midstory B) Cedar Midstory	1A	185	Clear undesirable species in mid and understories for natural or artificial regeneration of desirable spp	Moderate
	1B	113	Removing mid and understories and thin overstory, then maintain conditions to encourage cottonwood savanna	Low
Mixed Hardwoods A) North B) Main Body C) East Edge	2A	114	Monitor for invasives, preserve species diversity especially in east end	Low
	2B	17	Stand conversion to desirable native spp	High
	2C	15	Monitor for invasives	Low
Cedar Ridges	3	26	Remove cedars and maintain conditions to encourage sand prairie	Low
Bottomland Hardwoods	4	27	Monitor regularly for invasives	Moderate
Cottonwood Regeneration	5	16	Evaluate seedlings for thinning in 5-10 years, disk other areas during early to mid summer for natural cottonwood regen	High
Back Channel	6	97	Monitor for and remove invasive spp	Low
Ag Fields	7	64	Potential sites for conversion to native trees	Low
Sandbar Complex	8	164	Maintain open, bare sandbar habitat	Moderate

- The removal of invasive species (honeysuckle, white mulberry, Siberian elm) is a baseline recommendation for every stand.

## **Management Considerations**

### **Soil and Water**

The deep silty, sandy, and clayey alluvial soils of the Missouri Alluvial Plain should be protected from erosion, compaction, and the colonization of invasive species by re-vegetating managed areas as quickly as possible, and by operating machinery only when soil is frozen or dry. Always follow Iowa Forestry Best Management Practices for logging roads, access roads, and associated soil work.

Water quality can be protected by following the soil considerations above. In addition, any chemicals used in woodland improvement activities should be applied according to authorized use, label direction, and other federal or state policies and requirements. Improper use of chemicals can lead to surface and groundwater contamination as well as collateral damage to desirable plants and wildlife.

### **Historical and Cultural**

Efforts must be made before and during forest management work to identify any historical or cultural sites that may be present on the landscape. If discovered, these sites will be preserved, with a plan in place to protect the site from disturbance or avoid it completely during management. Since everything west of the back channel was formerly riverbed, the only historical and cultural sites that could exist would be in stands 2A and 3 on the north end east of the back channel.

### **Aesthetic Quality and Recreation**

There are management recommendations outlined in this plan that can negatively impact the visual appearance and recreational use of portions of this WMA. Aesthetic considerations are less of a concern, as implemented management practices serve to ultimately improve the appearance and health of the forest. Negative impacts to recreation can be lessened by managing smaller units or by adjusting the implementation so that interference does not occur and using visual buffers. In cases of more intensive management, portions of the WMA may need to be temporarily closed for user safety. Where applicable, public meetings and mailings to neighbors and users of the WMA could be used to communicate the goals and strategies of unsightly management, and may reduce public disapproval.



## Biological Diversity

Native tree, shrub, and herbaceous plant species should be retained and promoted wherever feasible. Though the north end of Deer Island contains a variety of native species and age classes, the rest of the forest at Deer Island is lacking in these components. Future management should aim to increase native diversity and add new forest age classes, while simultaneously managing against non-native and undesirable woody species. Managing in this way will improve overall forest health, quality, and vigor, which will increase resiliency against biological forest health issues, natural disasters, and abiotic stressors. Improved forest health will also improve the ecological services that forests are capable of offering.

## Threatened and Endangered Species

Threatened and endangered plant and wildlife species and their habitats should be protected when conducting woodland management activities. The northern long-eared bat (NLEB) is a federally endangered species that is found throughout the state of Iowa. The tri-colored bat is proposed for listing. These species use loose-barked, live trees as well as the sloughing bark from dying trees for their maternity colonies. Deer Island WMA contains mature forest that could benefit these species, especially areas where trees are dead or dying, with cavities and peeling bark. The following applies to the NLEB: Tree removal should not occur within 0.25 miles of known hibernaculum, and no trees within a 150-foot radius of a known, occupied maternity roost tree may be cut or destroyed during the pup season (June 1 – July 31). Known hibernaculum and roost trees in the state can be found at [iowaNLEBHibernaculaAndRoostsByTWPO3May16.pdf](http://iowaNLEBHibernaculaAndRoostsByTWPO3May16.pdf) (fws.gov)

Many common and threatened/endangered species rely on dead trees, trees with cavities or peeling bark, or coarse woody debris in the forest understory. Six to ten standing snags per acre should be retained, wherever feasible, for wildlife habitat.

Deer Island WMA has suitable habitat for a number of threatened and endangered species as well as species of greatest conservation need (SGCN). Multi-species Inventory & Monitoring (MISM) sampling was conducted at Deer Island in 2012, 2014, and 2016. Fifty-three species of greatest conservation need were detected by MISM, fish sampling and staff.

Species detected are in the following tables. SGCN species are denoted with an \*.

Additional species detected by staff and fisheries sampling include:

Blue sucker*	Blue catfish*	Pallid Sturgeon* (fed E)
Sturgeon chub*	Shovelnose sturgeon*	River Shiner*
Slender Madtom*	Tadpole Madtom*	Shoal Chub*
American woodcock*		

**MISM detected birds. (\* indicates SGCN)**

<i>Actitis macularia</i>	Spotted sandpiper	<i>Ceryle alcyon</i>	Belted kingfisher*
<i>Agelaius phoeniceus</i>	Red-winged blackbird	<i>Charadrius vociferus</i>	Killdeer
<i>Aix sponsa</i>	Wood duck	<i>Chondestes grammacus</i>	Lark sparrow
<i>Anas discors</i>	Blue-winged teal*	<i>Chordeiles minor</i>	Common nighthawk*
<i>Anas platyrhynchos</i>	Mallard	<i>Circus cyaneus</i>	Northern harrier*
<i>Archilochus colubris</i>	Ruby-throated hummingbird	<i>Coccyzus americanus</i>	Yellow-billed cuckoo
<i>Ardea herodias</i>	Great blue heron	<i>Colaptes auratus</i>	Northern flicker*
<i>Bombycilla cedrorum</i>	Cedar waxwing	<i>Colinus virginianus</i>	Northern bobwhite*
<i>Branta canadensis</i>	Canada goose	<i>Contopus virens</i>	Eastern wood-pewee*
<i>Buteo jamaicensis</i>	Red-tailed hawk	<i>Corvus brachyrhynchos</i>	American crow
<i>Buteo lineatus</i>	Red-shouldered hawk*	<i>Cyanocitta cristata</i>	Blue jay
<i>Buteo swainsoni</i>	Swainson's hawk*	<i>Dendroica coronata</i>	Yellow-rumped warbler
<i>Calidris melanotos</i>	Pectoral sandpiper*	<i>Dendroica dominica</i>	Yellow-throated warbler
<i>Calidris minutilla</i>	Least sandpiper	<i>Dendroica palmarum</i>	Palm warbler
<i>Calidris pusilla</i>	Semipalmated sandpiper*	<i>Dendroica petechia</i>	Yellow warbler
<i>Cardinalis cardinalis</i>	Northern cardinal	<i>Dryocopus pileatus</i>	Pileated woodpecker
<i>Carduelis tristis</i>	American goldfinch	<i>Dumetella carolinensis</i>	Gray catbird
<i>Cathartes aura</i>	Turkey vulture	<i>Empidonax minimus</i>	Least flycatcher
<i>Catharus fuscescens</i>	Veery*	<i>Eremophila alpestris</i>	Horned lark
<i>Catharus ustulatus</i>	Swainson's thrush	<i>Falco peregrinus</i>	Peregrine falcon*
<i>Geothlypis trichas</i>	Common yellowthroat*	<i>Passerella iliaca</i>	Fox sparrow

<i>Guiraca caerulea</i>	Blue grosbeak	<i>Passerina cyanea</i>	Indigo bunting
<i>Haliaeetus leucocephalus</i>	Bald eagle*	<i>Pelecanus erythrorhynchos</i>	American white pelican*
<i>Hirundo pyrrhonota</i>	Cliff swallow	<i>Phasianus colchicus</i>	Ring-necked pheasant
<i>Hirundo rustica</i>	Barn swallow	<i>Pheucticus ludovicianus</i>	Rose-breasted grosbeak
<i>Hylocichla mustelina</i>	Wood thrush*	<i>Picoides pubescens</i>	Downy woodpecker
<i>Icterus galbula</i>	Baltimore oriole*	<i>Picoides villosus</i>	Hairy woodpecker
<i>Icterus spurius</i>	Orchard oriole	<i>Pipilo erythrophthalmus</i>	Eastern towhee
<i>Junco hyemalis</i>	Dark-eyed junco	<i>Piranga rubra</i>	Summer tanager
<i>Larus delawarensis</i>	Ring-billed gull	<i>Polioptila caerulea</i>	Blue-gray gnatcatcher
<i>Melanerpes carolinus</i>	Red-bellied woodpecker	<i>Quiscalus quiscula</i>	Common grackle
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker*	<i>Riparia riparia</i>	Bank swallow*
<i>Meleagris gallopavo</i>	Wild turkey	<i>Sayornis phoebe</i>	Eastern phoebe
<i>Melospiza melodia</i>	Song sparrow	<i>Sialia sialis</i>	Eastern bluebird
<i>Mergus serrator</i>	Red-breasted merganser	<i>Sitta canadensis</i>	Red-breasted nuthatch
<i>Mniotilta varia</i>	Black-and-white warbler	<i>Sitta carolinensis</i>	White-breasted nuthatch
<i>Molothrus ater</i>	Brown-headed cowbird	<i>Spiza americana</i>	Dickcissel*
<i>Myiarchus crinitus</i>	Great crested flycatcher	<i>Spizella pusilla</i>	Field sparrow*
<i>Nycticorax nycticorax</i>	Black-crowned night-heron*	<i>Stelgidopteryx serripennis</i>	N. Rough-winged swallow
<i>Parus atricapillus</i>	Black-capped chickadee	<i>Sterna antillarum</i>	Least tern*
<i>Passer domesticus</i>	House sparrow	<i>Sturnus vulgaris</i>	European starling
<i>Tachycineta bicolor</i>	Tree swallow	<i>Vermivora ruficapilla</i>	Nashville warbler
<i>Toxostoma rufum</i>	Brown thrasher*	<i>Vireo flavifrons</i>	Yellow-throated vireo



<i>Tringa flavipes</i>	Lesser yellowlegs*	<i>Vireo gilvus</i>	Warbling vireo
<i>Tringa solitaria</i>	Solitary sandpiper	<i>Vireo olivaceus</i>	Red-eyed vireo
<i>Troglodytes aedon</i>	House wren	<i>Wilsonia citrina</i>	Hooded warbler
<i>Turdus migratorius</i>	American robin	<i>Zenaida macroura</i>	Mourning dove
<i>Tyrannus tyrannus</i>	Eastern kingbird*	<i>Zonotrichia albicollis</i>	White-throated sparrow
<i>Vermivora celata</i>	Orange-crowned warbler	<i>Zonotrichia querula</i>	Harris's sparrow*
<i>Vermivora peregrina</i>	Tennessee warbler		

**MISM detected herptiles. (\* denotes SGCN)**

<i>Acris crepitans</i>	Blanchard's cricket frog*	<i>Pseudacris triseriata</i>	Western chorus frog
<i>Apalone spinifera</i>	Spiny softshell turtle*	<i>Rana catesbeiana</i>	Bullfrog
<i>Bufo americanus</i>	American toad	<i>Rana pipiens</i>	Northern leopard frog*
<i>Bufo woodhousii woodhousii</i>	Woodhouse's toad*	<i>Rana sp.</i>	Unknown Ranid
<i>Chelydra serpentina</i>	Snapping turtle*	<i>Storeria dekayi</i>	Brown snake
<i>Chrysemys picta</i>	Painted turtle	<i>Thamnophis proximus</i>	Western ribbon snake*
<i>Graptemys pseudogeographica</i>	False map turtle*	<i>Thamnophis radix</i>	Plains garter snake*
<i>Hyla chrysoscelis</i>	Cope's gray treefrog*	<i>Thamnophis sirtalis</i>	Eastern garter snake
<i>Hyla versicolor</i>	Eastern gray treefrog*	<i>Thamnophis sp.</i>	Unknown Garter Species
<i>Lithobates</i>	Unknown Leopard Species	<i>Tropidoclonion lineatum</i>	Northern lined snake*

**MISM detected mammals (\* denotes SGCN)**

<i>Blarina brevicauda</i>	Northern short-tailed shrew	<i>Mid frequency bat</i>	Mid frequency bat call
<i>Canis familiaris</i>	Domestic Dog	<i>Myotis lucifugus</i>	Little Brown Myotis*
<i>Canis latrans</i>	Coyote	<i>Nycticeius humeralus</i>	Evening Bat
<i>Castor canadensis</i>	Beaver	<i>Odocoileus virginianus</i>	White-tailed deer
<i>Didelphis virginiana</i>	Virginia opossum	<i>Perimyotis subflavus</i>	Tri-colored Bat or Eastern Pip
<i>Eptesicus fuscus</i>	Big Brown Bat	<i>Peromyscus sp</i>	Deer White footed P Complex
<i>Lasionycteris noctivagans</i>	Silver-haired Bat*	<i>Procyon lotor</i>	Raccoon
<i>Lasiurus borealis</i>	Red Bat	<i>Scalopus aquaticus</i>	Eastern mole
<i>Lasiurus cinereus</i>	Hoary Bat	<i>Sciurus carolinensis</i>	Gray squirrel
<i>Low frequency bat</i>	Low frequency bat call	<i>Sciurus niger</i>	Fox squirrel
<i>Lynx rufus</i>	Bobcat	<i>Sylvilagus floridanus</i>	Eastern cottontail
<i>Mephitis mephitis</i>	Striped skunk	<i>Taxidea taxus</i>	Badger

**MISM detected fish (\*denotes SGCN)**

<i>Ameiurus melas</i>	Black bullhead	<i>Lepomis macrochirus</i>	Bluegill
<i>Aplodinotus grunniens</i>	Freshwater drum	<i>Lepomis sp.</i>	Unidentified Lepomis
<i>Carpionodes carpio</i>	River carpsucker	<i>Micropterus salmoides</i>	Largemouth bass
<i>Cyprinidae sp.</i>	Unidentified Cyprinidae (minnows)	<i>Pomoxis annularis</i>	White crappie
<i>Lepomis cyanellus</i>	Green sunfish	<i>Stizostedion vitreum</i>	Walleye

**MISM Detected Odonates. (\* denotes SGCN)**

<i>Aeshna constricta</i>	Lance-tipped Darner	<i>Lestes unguiculatus</i>	Lyre-tipped Spreadwing
<i>Anax junius</i>	Common Green Darner	<i>Libellula luctuosa</i>	Widow Skimmer
<i>Archilestes grandis</i>	Great Spreadwing	<i>Libellula pulchella</i>	Twelve-spotted Skimmer
<i>Argia apicalis</i>	Blue-fronted Dancer	<i>Pachydiplax longipennis</i>	Blue Dasher
<i>Argomphus submedianus</i>	Jade Clubtail	<i>Pantala flavescens</i>	Wandering Glider
<i>Enallagma antennatum</i>	Rainbow Bluet	<i>Perithemis tenera</i>	Eastern Amberwing
<i>Enallagma aspersum</i>	Azure Bluet	<i>Plathemis lydia</i>	Common Whitetail
<i>Enallagma civile</i>	Familiar Bluet	<i>Stylurus notatus</i>	Elusive Clubtail*
<i>Erythemis simplicicollis</i>	Eastern Pondhawk	<i>Sympetrum corruptum</i>	Variiegated Meadowhawk
<i>Gomphus externus</i>	Plains Clubtail	<i>Sympetrum costiferum</i>	Saffron-winged Meadowhawk
<i>Gomphus vastus</i>	Cobra Clubtail	<i>Sympetrum obtrusum</i>	White-faced Meadowhawk
<i>Ischnura hastata</i>	Citrine Forktail	<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk
<i>Ischnura verticalis</i>	Eastern Forktail	<i>Tamea lacerata</i>	Black Saddlebags
<i>Lestes australis</i>	Southern Spreadwing	<i>Tamea onusta</i>	Red Saddlebags
<i>Lestes congener</i>	Spotted Spreadwing*		



**MISM detected butterflies (\* denotes SGCN)**

<i>Ancyloxypha numitor</i>	Least Skipper	<i>Nymphalis antiopa</i>	Mourning Cloak
<i>Celastrina ladon</i>	Spring Azure	<i>Papilio glaucus</i>	Eastern Tiger Swallowtail
<i>Celastrina neglecta</i>	Summer Azure	<i>Phoebis sennae</i>	Cloudless Sulphur
<i>Colias eurytheme</i>	Orange Sulphur	<i>Phyciodes tharos</i>	Pearl Crescent
<i>Colias philodice</i>	Clouded Sulphur	<i>Pieris rapae</i>	Cabbage White
<i>Enodia anthedon</i>	Northern Pearly-eye	<i>Polygonia comma</i>	Eastern Comma
<i>Euptoieta claudia</i>	Variegated Fritillary	<i>Polygonia interrogationis</i>	Question Mark
<i>Eurema lisa</i>	Little yellow	<i>Pyrgus communis</i>	Common Checkered-Skipper
<i>Everes comyntas</i>	Eastern Tailed-Blue	<i>Speyeria cybele</i>	Great Spangled Fritillary
<i>Hylephila phyleus</i>	Fiery Skipper	<i>Speyeria idalia</i>	Regal Fritillary*
<i>Junonia coenia</i>	Buckeye	<i>Vanessa atalanta</i>	Red Admiral
<i>Limenitis archippus</i>	Viceroy	<i>Vanessa cardui</i>	Painted Lady

**Timber Harvest**

Timber harvesting is not a high priority within the scope of this plan, though it may be considered as a viable tool where it can help achieve management goals and improve the long-term health of a stand. If timber removals are considered in the future, harvesting and removal activities must be done in accordance with current state-owned-land harvesting/removal policies which include T&E review. The harvesting/removal work must be done under the supervision of the DNR District Forester and DNR Wildlife Biologist. Any income generated from timber harvesting, removal, or salvage operations is reinvested into forest management statewide to regenerate trees, control invasive species, convert areas to more desirable/native species, and to perform other forest management recommendations such as prescribed in this plan.

## **Forest Health and Invasive Species**

As written in this plan, Deer Island WMA should be monitored regularly for new or unusual impacts to forest health. Existing invasive species should be removed as time and budget allows. Managing for forest health and invasive species now will help future land managers have more effective and efficient outcomes. The following forest health concerns were identified at Deer Island during inventory for this plan:

- Amur honeysuckle
- White mulberry
- Siberian elm
- General overstory cottonwood decline (likely due to flood damage and maturity)
- Symptoms of Emerald Ash Borer were not observed at this time, but ash trees are very likely to show symptoms within the next few years

## Re: Deer Island FWSP review

**Seago, Jeff** <[jeffrey.seago@dnr.iowa.gov](mailto:jeffrey.seago@dnr.iowa.gov)>

Sep 24,  
2024,  
10:36 AM

to me, Sarah

Done did!

 [\\_Deer\\_Island\\_WMA\\_FWSP\\_\(Seago\\_review\).docx](#)

### **Jeff Seago**

#### **Area Forester**

206 Polk St., Pisgah, IA 51564

712-456-2924

[jeffrey.seago@dnr.iowa.gov](mailto:jeffrey.seago@dnr.iowa.gov)

[www.iowadnr.gov](http://www.iowadnr.gov)

## Re: Deer Island FWSP

**Dollison, Matt** <[matt.dollison@dnr.iowa.gov](mailto:matt.dollison@dnr.iowa.gov)>

Sep 24,  
2024,  
3:44 PM

to me, Sarah

Here you go Doug and Sarah. Just a few inconsequential comments.

Cottonwood savannas and sand prairies. I like it,

 [\\_Deer\\_Island\\_WMA\\_FWSP,\\_MD\\_comments.docx](#)

Good work!

Matt

### **Matt Dollison**

#### **Nishnabotna Wildlife Unit Biologist**

Wildlife Bureau

Iowa Department of Natural Resources

2321 330th Ave

Riverton, IA 51650

(712) 350-0147 cell

[matt.dollison@dnr.iowa.gov](mailto:matt.dollison@dnr.iowa.gov)

[www.iowadnr.gov](http://www.iowadnr.gov)



## Re: Deer Island FWSP

**Poole, Kelly** <kelly.poole@dnr.iowa.gov>

Oct 6,  
2024,  
2:13 PM

to me

Hi Doug,

Thanks for the opportunity to review the plan. I learn something new with each plan. I really appreciated all the ground level photos!

I have only a few comments and recommendations for your consideration (see attached). I'll be out of the office this week but happy to discuss if you have any questions.

 [\\_Deer\\_Island\\_WMA\\_FWSP\\_KP.docx](#)

Take care.

## Re: Deer Island FWSP

**Buckardt, Anna** <anna.buckardt@dnr.iowa.gov>

Oct 1,  
2024,  
1:56 PM

to me

Hi Doug,

Thanks for the opportunity to review. I appreciate your inclusion of MSIM data! Let me know if you have any questions.

Cheers,

Anna

 [\\_Deer\\_Island\\_WMA\\_FWSP\\_AB.T.docx](#)

**Anna Buckardt Thomas, MS, CPM**

**Avian Ecologist**

Wildlife Research Section

Department of Natural Resources

1436 255th St., Boone, IA 50036

515-823-3945

[anna.buckardt@dnr.iowa.gov](mailto:anna.buckardt@dnr.iowa.gov)

[www.iowadnr.gov](http://www.iowadnr.gov)

## Re: Deer Island FWSP review

**Barney, Lindsey** <lindsey.barney@dnr.iowa.gov>

Fri, Apr 28,  
2023,  
4:06 PM

to me, Tom, Bryan, Megann, Brian, Matthew

Good Afternoon, and good weekend to you all,

This plan looks great! I like the way it is written and organized, I like the photos and the soil/lidar map combination (which I might have to copy), and the silviculture prescribed. The one question I had about cottonwood savanna management was answered in the paragraph following my question, so I have no additional comments.

Again, great job, and if you need additional historic nerdy info on the site pre 1930's, check out this link (or use the Andreas Atlas layer on GIS):

<https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~22237~720112:Map-of-Harrison-County,-State-of-Io>

Lindsey

## Re: Deer Island FWSP review

**Hickman, Brian** <brian.hickman@dnr.iowa.gov>

Tue, Apr 4,  
2023,  
4:42 PM

to me, Sarah

Doug and Sarah- Attached are my comments/suggestions.

Brian

 [\\_Deer\\_Island\\_WMA\\_FSP\\_\(1\).BH\\_Comments.docx](#)

## Re: Deer Island FWSP review

**Hayes, Bryan** <bryan.hayes@dnr.iowa.gov>

Tue, Apr 4,  
2023,  
9:54 AM

to me, Sarah

I reviewed the Deer Island WMA Forest Stewardship Plan. It was interesting to read and see how much goes into a plan like this. I don't have any comments or additions to this plan. I am surprised at how short the detected fish species list is. Channel Catfish, Flathead Catfish, Paddlefish, Gar Sp., Sauger, Bighead Carp, and Silver Carp come to mind as not listed. Did they just not show up in MISM sampling or does the list not include mainstem Missouri River species. Thanks

## Re: Deer Island survey results (fish survey data)

**Hupfeld, Ryan** <ryan.hupfeld@dnr.iowa.gov>

Oct 24,  
2023,  
1:35 PM

to me

Yes, I do! See attached and let me know if you need anything else or have any questions!

When we going to shoot some birds this year?!

Ryan

## Re: Deer Island FWSP review

**Litchfield, Tom** <tom.litchfield@dnr.iowa.gov>

Apr 25,  
2023,  
8:59 PM

to me

 [\\_Deer\\_Island\\_WMA\\_FWSP\\_trl\\_comments.docx](#)

Hello Doug,

Attached is the Deer Island WMA FWSP file with my comments. They are mostly just typos that I noted. I apologize for it taking me longer than normal to get this back to you.

I hope your week is off to a good start.

Take Care,

Tom



## Re: Deer Island FWSP review

Wed, Apr 19,  
**Schmidt, Megann** <megann.schmidt@dnr.iowa.gov> 2023, 5:32 PM

to me

Hey Doug!

Sorry that I am getting this back to you a few days later than you had asked, but attached is the document with some comments from me included. If you download the word document, I think you should be able to view the comments. Let me know if you can't see them, and I will try to send them in a different format.

I did have one question that I couldn't really fit into a comment on the document: Stands 1B and 3 are the only stands where the plan specifically addressed prescribed fire as a management strategy, so I was curious if it is because prescribed fire is an assumed management strategy for most stands? Or is fire not as much of a necessity in floodplain forests like it is for other ecosystems? I could see where it would probably be tough to get fire to carry through floodplain timber, but I thought that if it was possible, it might be a good way to keep invasives at bay.

I hope some of my comments/questions are helpful! I learned a TON while reading the document, so I appreciate the opportunity!

Thanks!