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Environmental Assessment

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**Additional Public Use of Sugar Island Unit, Detroit
River International Wildlife Refuge**

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Chapter 1. Purpose and Need

1.1 Purpose

The purpose of this Environmental Assessment (EA) is to consider alternatives for additional public use of Sugar Island Unit of the Detroit River International Wildlife Refuge (Detroit River IWR).

1.2 Need

Sugar Island is opened to the public for hunting as set forth in Title 50, Code of Federal Regulations, and described in the Refuge Hunting Map and Regulations Brochure. Additional public use of the island deemed compatible with the Refuge's mission must be evaluated as required by the National Environmental Protection Act of 1969 (NEPA) through an Environmental Assessment.

On June 18, 2012, the Service held a Sugar Island Public Forum to articulate the Service's position on Sugar Island and obtain input. Points of emphasis from public participants included:

- Sugar Island represents the only sand beaches on the U.S. side of the lower Detroit River;
- Many people spend time with family on Sugar Island and picnicking and partying has been cultural on the island for decades;
- The public, to date, feels that they have had no voice in the decisions for Sugar Island;
- Forum participants noted that there has been confusion over enforcement regarding the location of the water's edge;
- The public wants consistency in enforcement – the U.S. Fish and Wildlife Service reiterated their position of enforcement to the water's edge (the public was given assurance that standing in the water and anchoring a boat in the water was legal and acceptable);
- Members of the public felt that they were taxpayers and that it was inconsistent that the U.S. Fish and Wildlife Service intends to allow hunting, but not picnicking;
- The boating community feels disenfranchised (by losing public access to Sugar Island);
- The public asked why Sugar Island couldn't be opened (dawn to dusk, no campfires, no camping, etc.) similar to Celeron Island (also located at the mouth of the Detroit River) that is owned by the Michigan Department of Natural Resources;
- Forum participants requested the process of developing a Visitor Services Plan be expedited, including the exploration of a "win-win" solution for Sugar Island where wildlife and habitats were protected, and some responsible public access was offered; and
- Participants requested that the Service obtain a legal opinion (i.e., Solicitor's opinion) regarding whether or not the public has a right to public access on Sugar Island up to the ordinary high water mark.

On September 25, 2012, the Service held a Sugar Island Public Use Workshop at the Grosse Ile Middle School to receive public input on public use of Sugar Island. Over 60 people attended and participated in nine breakout sessions.

1.3 Background

The Detroit River IWR was established by an Act of Congress which became Public law 107-91 on December 21, 2001. Section 4 of the Act states the following purposes for the new Detroit River IWR:

1. To protect the remaining high-quality fish and wildlife habitats of the Detroit River before they are lost to further development and to restore and enhance degraded wildlife habitats associated with the Detroit River
2. To assist in international efforts to conserve, enhance, and restore the native aquatic and terrestrial community characteristics of the Detroit River (including associated fish, wildlife, and plant species) both in the United States and Canada
3. To facilitate partnerships among the United States Fish and Wildlife Service, Canadian national and provincial authorities, State and local governments, local communities in the United States and in Canada, conservation organizations, and other non-Federal entities to promote public awareness of the resources of the Detroit River

Upon establishment in 2001, all lands within the former Wyandotte National Wildlife Refuge were incorporated into Detroit River IWR. The Wyandotte National Wildlife Refuge was established by an Act of Congress known as Public Law 87-119, 75 Stat. 243, 87th Congress, H.R. 1182, dated August 3, 1961: ... “to be maintained as a refuge and breeding place for migratory birds and other wildlife...”. Mud Island was added to Wyandotte NWR in January 2001 using the authority to accept donations of real property contained in the Fish and Wildlife Act of 1956 (16 U.S.C. 742f). The islands and shoals of the former Wyandotte NWR retain their original legislative purposes, as well as gaining new ones from the 2001 legislation.

Detroit River IWR currently owns nearly 2,000 acres divided into 13 separate units in southeast Michigan along the Detroit River and western basin of Lake Erie in Wayne and Monroe counties. Over 3,700 acres of additional land are divided into five units under cooperative management agreements between the Refuge and other landowners. The Refuge acquisition boundary stretches along 48 miles of Detroit River and western Lake Erie shoreline, from the Rouge River to the Ohio state line. Detroit River IWR is within a 45-minute drive of nearly seven million people in the Detroit Metropolitan Area, the Windsor/Essex County region of Ontario, and the Toledo (Ohio) Metropolitan Area.

Through the Comprehensive Conservation Plan process completed in 2005, all six priority wildlife dependent recreational uses, including hunting, fishing, wildlife observation and photography, and environmental education and interpretation, were found to be compatible. Current annual Refuge visitation is less than 10,000, but is projected to increase to over 100,000 annually. In addition, the Refuge participates in numerous annual offsite events and programs, including:

- Pointe Mouillee Waterfowl Festival (8,000-10,000);
- Hawkfest at Lake Erie Metropark (4,000-7,000);

- Detroit River Days at the Detroit RiverWalk (over 1,000,000); and
- World Wetlands Day at Gibraltar Carlson High School (2,000).

1.4 Decision Framework

The Regional Director for the Midwest Region (Region 3 of the U.S. Fish and Wildlife Service) will select one of the alternatives analyzed in detail and will determine, based on the facts and recommendations contained herein, whether this Environmental Assessment is adequate to support a Finding of No Significant Impact (FONSI) decision, or whether an Environmental Impact Statement (EIS) will need to be prepared.

1.5 Authority and Legal Compliance

The National Wildlife Refuge System includes federal lands managed primarily to provide habitat for a diversity of fish, wildlife, and plant species. National Wildlife Refuges are established under many different authorities and funding sources for a variety of purposes. The purposes for Detroit River IWR were derived from several federal statutes, including the Detroit River International Wildlife Refuge Establishment Act, Migratory Bird Conservation Act, and Refuge Recreation Act.

In 2005 a Comprehensive Conservation Plan for Detroit River IWR, which involved an Environmental Assessment, was approved. This plan addressed the future management of the Refuge with goals, objectives, and strategies in six categories including visitor services. One of the goals is to provide a wide variety of wildlife-dependent recreational and educational opportunities to allow the public to enjoy the resources of the Refuge and support the National Wildlife Refuge System. Exposing more people to the Service and the National Wildlife Refuge System and providing information through exhibits and interpretive opportunities is a priority for the Refuge.

Chapter 2. Description of Alternatives

2.1 Formulation of Alternatives

Alternatives for additional public access to Sugar Island were written by refuge staff based on input from the public. The Alternatives presented include “no action” to “full island access” and two intermediate alternatives based on recommendations from the September 25, 2012 Sugar Island Public Use Workshop.

2.2 Alternatives

Alternative 1 – No Action: Under this alternative, no public recreational use of Sugar Island beaches or uplands would be offered, with the exception of hunting following the rules and

regulations of the Refuge's Hunt Program. Research, citizen science, and island cleanups would be allowed under special use permits.

Alternative 2 – Full Island Public Access: Under this alternative, unrestricted public use would be offered throughout the entire island.

Alternative 3 – East and West Beach Access with a Trail Linking the Beaches: Under this alternative, both the east and west beaches on Sugar Island would be opened during daylight hours, the Saturday prior to Memorial Day through Labor Day. The areas opened for public use would be clearly marked with signs. Single panel kiosks would be located at both the east and west beaches to: inform visitors about the rules and regulations; interpret the Detroit River International Wildlife Refuge in the context of the National Wildlife Refuge System; educate visitors about the ecological significance of Sugar Island; and inform visitors about the island's unique history. Prohibitions on the island would include: fires, alcohol, camping, glass containers, fireworks, public access to concrete piers, staging for scuba diving, and unleashed pets. No bathroom facilities would be provided. A "tip line" telephone number will be provided on the kiosk to report problems and violations.

Alternative 4 – West Beach Public Access Only (Preferred Alternative): Under this proposed alternative, public use of the west beach on Sugar Island would be opened during daylight hours, the Saturday prior to Memorial Day through Labor Day. The west beach area opened for public use would be clearly marked with signs. A single panel kiosk would be located at the west beach to: inform visitors about the rules and regulations; interpret the Detroit River IWR in the context of the National Wildlife Refuge System; educate visitors about the ecological significance of Sugar Island; and inform visitors about the island's unique history. Prohibitions on the island would include: fires, alcohol, camping, glass containers, fireworks, public access to concrete piers, staging for scuba diving, and unleashed pets. No bathroom facilities would be provided. A "tip line" telephone number will be provided on the kiosk to report problems and violations.

2.3 Summary of Alternatives

Actions	Alternative 1 (No Action)	Alternative 2 (Full Island Access)	Alternative 3 (Both Beaches Accessible with Trail)	Alternative 4 (Preferred- West Beach only)
Provide additional public use	No	Yes	Yes	Yes
Provide access to a beach	No	Yes	Yes	Yes
Provide additional information via kiosk	No	Yes	Yes	Yes
Additional trail maintenance required	No	Yes	Yes	No

Chapter 3. Affected Environment

3.1 Geographic Setting

Sugar Island is approximately 30 acres located near the southeast end of Grosse Ile at the mouth of the Detroit River as it enters Lake Erie (Figure 1). The island is 115 meters west of the Livingstone Channel-Sugar Island cross dike which was completed in 1937 to help maintain water levels for the shipping channels upstream (Bennion and Manny 2011) and 300 meters from the closest Grosse Ile shoreline. It is within Grosse Ile, Township Michigan and is 1.6 km (1 mile) from Boblo Island to the east and approximately 4 km (2.5 miles) from Gibraltar and Trenton, Michigan to the west.

3.2 Socioeconomic Setting

The regional population is nearly seven million (including Ontario), so the economic landscape is complex and varies geographically. The 5-year estimates from 2006-2010 of median household income in the nearby Michigan communities are as follows (U.S. Census Bureau 2012): Grosse Ile Township (81,118); Trenton (54,841); City of Gibraltar (60,250); Wyandotte (50,065); City of Monroe (42,673); Frenchtown Township (52,111); and Monroe Township (46,718; U.S. Census Bureau 2012). The City of Detroit is 25 miles from the site with an estimated 5-year median income of 28,357. Michigan's median income is 48,432. The residents in the City of Trenton are 93.1% non-hispanic white, 1.3% African American, 0.5% Native American, 0.7% Asian, and 3.2% Hispanic or Latino. The State of Michigan contains 76.6%

non-hispanic white, 14% African American, 0.6% Native American, and 2.4% Asian and 4.4% Hispanic or Latino. Based on these most recent census data, there is no disproportionate minority or low income populations in the immediate project vicinity.

There will be a high demand for access to Refuge land for compatible recreational uses. The recreational use of the lower Detroit River and western Lake Erie alone are important to the local economy. Fishing (March through October), boating (Memorial Day through Labor Day), and waterfowl hunting (October and November) are significant sources of business for restaurants, lodging, sporting goods stores, and fishing and hunting guides. The Michigan Department of Natural Resources has estimated that walleye fishing alone generates \$1 million to the local economy each spring. For example, FLW Outdoors, one of the largest tournament fishing organizations in the world, has traditionally scheduled major bass and walleye tournaments offering up to \$1.5 million in prize money. In addition, the Professional Walleye Trail has offered Walleye Tour events on the Detroit River. The Downriver Walleye Federation annually hosts numerous tournaments in the Detroit River and Lake Erie.

Wildlife viewing, especially birdwatching, has become increasingly important in drawing visitors to the area's public lands. The Refuge is recognized as one of the best sites in North America to watch raptor migration. Passerine and waterbird migration is heavy during spring and fall, drawing birders into the region to see migration fallouts, hawk kettles, and specific species such as Swainson's hawk and golden eagle.



Figure 1. Sugar Island, Detroit River International Wildlife Refuge.

3.3 Sugar Island Ecosystem

Soils on the island are alfisols composed of blount and Pewamo loam (formed in till) with some scattered boulders and cobbles. This soil structure results in relatively poorly drained conditions with some forested wetland areas where water is perched for longer periods. Although there is no information on the amount of tiling, some are seen continuing to drain surface water. After the latest glacial retreat following a period of low Great Lake water levels (approx. 9,500 years ago), much of the western Lake Erie basin was dewatered with the islands connected to the mainland until lake levels rose 4,000 years ago (Forsythe 1988; Sommers 1977). The island was formed because water levels rose around this higher morainic ridge that remained above the water level, and was emphasized by stream action and Lake Erie.

Most of the island is a small patch of forest community surrounded by predominantly urban and agricultural land use. Much of the island was deforested at least by the latter half of the 20th century with heavy development in the 1890s. These factors are stressors to healthy forest structure, composition, and desirable ecosystem processes. In addition, Sugar Island's ecological community today is not only influenced by these stressors, but also by the water barrier. Since species were likely lost during development, they would have differed in their ability to cross the river barrier again, influencing the rate at which new individuals are able to reproduce or interact with those already on the island. However, this barrier is a short distance from forests on adjacent islands and the mainland of Ontario and Michigan, so is not a particularly isolated forest fragment considering others in this urban area. Sugar Island's isolated setting does not currently contribute to known sources of rare species or unique populations.

3.4 Plant Communities

Soils generally consist of poorly drained stiff clay and silt (till) within the A horizon and generally level topography with some lower elevational areas where water is perched for longer duration. The current forest canopy is made up of shagbark hickory, red oak, American elm, northern hackberry, black walnut, black cherry, hawthorn, mulberry, and some patches of young sugar maple (Figure 2) and sparse ironwood. Especially poorly drained sites consist of silver maple, box elder, American elm, and northern catalpa (especially along the shoreline). The understory is comprised of naturalized cool season grasses and Virginia wild rye in open light or mottled light gaps, and the following grasses in poorly drained sites: Muskingum sedge, fowl manna grass, white grass, and other unidentified *Carex* species. Significantly large patches of jumpseed exist and *Geums* during the time of the visit. Of note is the presence of a number of mature red oak and shagbark hickories which were spared during clearing and grazing over the last couple of centuries.

Parts of the island were developed beginning in the 1800s by the John P. Clark estate. There is introduced fill and concrete ruins and abundant ornamental plant species, especially privet (*Ligustrum* sp.) and a moderate infestation of bush honeysuckles (*Lonicera* spp.). Garlic mustard (*Allaria petiolata*), a noxious invasive weed, was present on the island.

The island has a history of heavy human use and development and has never been managed for healthy forest stand structure and composition. Forest restoration will need to occur in order to

reach desirable forest conditions. For example, privet (*Ligustrum* sp.) may have been planted intentionally on the island, giving it an advantage in concert with high deer browse, reducing competition from other tree and shrub species. Today, privet captures the sunlight that would otherwise get to the forest understory, reducing dozens of other species leading to poor soil development and may lead to erosion.



Figure 2. Sugar maples of Sugar Island

The beaches consist of willows (*Salix* sp.), silverweed (*Potentilla anserina*; Figure 3), common milkweed (*Asclepias syriaca*), horsetails (*Equisetum* sp.), with threesquare (*Schoenoplectus pungens*), and rufous bulrush (*Scirpus pendulus*) common along the shoreline with some infestations of invasive reed (*Phragmites australis*). The southeastern shore is adjacent to rapids between the island and the Cross Cut, where there is a significant deposition of boulders.



Figure 3. Silverweed on the east beach of Sugar Island.

3.5 Animal Communities

Fish and Mussels

Fish in the shallow waters around Sugar Island are diverse, including largemouth, small mouth, and white bass, bowfin, bullhead, gar, pike, rock bass, blue gill, pumpkinseed, emerald shiner, and yellow perch. Of note is the presence of the channel darter, a Michigan endangered species (Latta 1994). The Refuge underwater habitats contain slow flowing wild celery beds, and faster currents around cobble, rip-rap, and boulders. The diversity of habitats makes many shallow water zones critical for spawning and nursery for many species.

Six species of mussels were detected in 2006 at four sites around Sugar Island (Badra 2006). Low silt and high current speed with sand and gravel substrate are good habitats for listed species of mussels, however, the abundance of silt, presence of Dreissenid mussels, and heavy wave action likely prohibit establishment of listed species.

Mammals

No mammal surveys have been conducted on Sugar Island.

Birds

The island is a stopover site during migration for a wide range of species. The Detroit River is a known migration corridor for many birds and insects. Forests, like that on Sugar Island, are especially important for dozens of species of neotropical migrant passerines (Ewert et al. 2005; Figure 4). Heavy use of the island in spring and fall by sparrows and kinglets (March/April/October) and warblers, vireos, orioles, and tanagers (May/August/September) has been frequently observed and consists of much of the same migration as documented at the Holiday Beach Migration Observatory and the Detroit River Hawk Watch (Detroit River Hawk Watch 2012). Hundreds of thousands of blue jays annually travel over this area around western Lake Erie. With the occurrence of a concentrated number of migrant songbirds, the well-documented and monitored migration of raptors would utilize this concentration of migrant songbirds as prey. During morning and evening hours when raptors are not migrating, individuals are using these habitats to hunt. The following species use forested habitats like Sugar Island: sharp-shinned hawk, Cooper's hawk, northern goshawk, broad-winged hawk, and red-shouldered hawk. The sand beaches are used for hunting by merlin, red-tailed, bald eagle, and northern harrier.

Breeding bird species are much more limited in number. Essentially, the breeding bird community would comprise of species nesting in small forest patches, such as red-eyed and warbling vireos, Eastern wood-pewees, house wren, ruby-throated hummingbird, indigo bunting, Cooper's and sharp-shinned hawk, numerous woodpeckers, and blue-gray gnatcatchers. Other possible nesters are rose-breasted grosbeak, brown creeper, yellow-billed cuckoo and others.



Figure 4. Typical forest of Sugar Island showing scattered mature red oaks with American elm, black walnut, black cherry, silver maple, sugar maple, shagbark hickory, and northern hackberry. Forests like this provide habitat for migratory songbirds in the Detroit River corridor.

Reptiles and Amphibians

Nearby Refuge units with similar habitat contain American toads, northern leopard frogs and western chorus frogs. Turtles could include midland painted turtle, common snapping turtle, common map turtle, and eastern spiny softshell. Snakes could include eastern fox snake, northern water snake, brown snake, eastern garter snake, and Butler's garter snake.

Insects

No insect surveys have been conducted on Sugar Island. The Rouge River Bird Observatory has surveyed the dragonflies, damselflies, and butterflies at nearby Humbug Marsh Unit (4 km; 2.5 miles) and the adjacent Refuge Gateway (Craves 2008). Forty-six species of Odonata were recorded in 2007 and 2008: fifteen species of damselflies and 31 species of dragonflies. There have been 38 species of adult butterflies and skippers identified at Humbug Marsh. Generally, many Lepidopteron host plant species available at Humbug Marsh are also available at Sugar Island.

3.6 Federally Threatened and Endangered Species

The Indiana bat (*Miotis sodalis*), northern riffleshell (*Epioblasma torulosa rangiana*), and rayed bean (*Villosa fabalis*) are Federally endangered species that have the potential to be on the Refuge in the future, but are not currently known to be present. The eastern prairie fringed-orchid (*Platanthera leucophaea*) is Federally threatened and is known to occur only at Pointe Mouillee State Game Area and Cedar Point and Ottawa National Wildlife Refuges at this time. Sugar Island is not known to have this species and does not likely contain the requisite conditions. The eastern massasauga (*Sistrurus catenatus*) is a candidate for listing under the Endangered Species Act and has the potential to be on Sugar Island, but is not currently known to be present.

Indiana Bat (Endangered)

The range-wide population of the Indiana bat has declined by nearly 60% since it was listed as endangered in 1967. Several factors have contributed to its decline, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, forest fragmentation, and particularly, loss of forest stands with large, mature trees.

Indiana bats may summer in a wide range of habitats, from agricultural landscapes to intact forests. Female Indiana bats exhibit strong site fidelity to summer roosting and foraging areas, tending to return to the same summer range annually to bear their young. These traditional summer sites are essential to the reproductive success and persistence of local populations.

Indiana bats are known to use a wide variety of tree species for roosting, but structure (i.e., crevices or exfoliating bark) is probably most important in determining if a tree is a suitable roost site. Roost trees are generally dead, dying or live trees (e.g., shagbark hickory [*Carya ovata*] and oaks [*Quercus* sp.]) with peeling or exfoliating bark which allows the bat to roost between the bark and bole of the tree. Indiana bats will also use narrow cracks, split tree trunks and/or branches as roosting sites. Southern Michigan maternity roost trees are typically in open areas exposed to solar radiation. Roost trees vary considerably in size, but those used by Indiana bat maternity colonies usually are large relative to other trees nearby and typically greater than 9 inches in diameter. Male Indiana bats have been observed roosting in trees as small as 3 inches in diameter. This species is not known to be present on Sugar Island.

Northern Riffleshell (Endangered)

The northern riffleshell is a mussel occupying suitable habitat in less than 5% of its former range. Dams and reservoirs have flooded most of this mussel's habitat, reducing its gravel and sand habitat and probably affecting the distribution of its fish hosts. Reservoirs act as barriers that isolate upstream populations from those downstream. Erosion caused by farming has added silt to many rivers, which can clog the mussel's feeding siphons. Other threats include pollution from agricultural and industrial runoff. Toxic organochlorine compounds have become concentrated in the body tissues of filter-feeding mussels. Zebra and quagga mussels (*Dreissena polymorpha* and *D. rostriformis*), non-native species that have established themselves throughout the Great Lakes and the eastern U.S., also pose a threat. They attach in great numbers to native

mussels. This mussel is found in a wide variety of streams. It buries itself in bottoms of firmly packed sand or gravel with its feeding siphons exposed. Reproduction requires a stable, undisturbed habitat and a sufficient population of host fish to complete the mussel's larval development.

The northern riffleshell historically occurs in three rivers within the Refuge acquisition boundary:

- Detroit River in Wayne County;
- Huron River in Wayne and Monroe County; and
- River Raisin in Monroe County

The northern riffleshell has not been found in the waters around Sugar Island.

Rayed Bean (Endangered)

Extant populations of the rayed bean are known from 22 streams and a lake in five states, including Michigan and Ohio. The rayed bean appears to be declining range-wide and has been eliminated from 78% of the total number of streams and other water bodies from which it was historically known.

The rayed bean is considered to be very uncommon and of sporadic occurrence and has only been known to occur within the Refuge acquisition boundary in the lower Huron River.

This mussel is generally known from smaller, headwater creeks. They are usually found in or near shoal or riffle areas, and in the shallow, wave-washed areas of glacial lakes including Lake Erie. Substrates typically include sand and gravel. Threats to the rayed bean can include agricultural runoff and sedimentation.

The rayed bean has not been found in the waters around Sugar Island.

Eastern Prairie Fringed-Orchid (Threatened)

The eastern prairie fringed-orchid occurs in remnant patches of lakeplain prairie where trees and shrubs are prohibited from establishing. The Refuge currently exhibits some small areas of potentially suitable habitat for eastern prairie fringed-orchid, but it is not currently known to be present. Current water levels would make discovery more likely in specific locations within the Humbug Marsh Unit, Strong Unit, Fix Unit, Brancheau Unit, and Gibraltar Wetlands Unit. These units have some areas that combine lacustrine soil with high seasonal fluctuation of water levels and suitable plant communities dominated by bluejoint grass (*Calamagrostis canadensis*), *Scirpus*, *Typha*, and *Juncus*. Some of these areas are currently dominated by a non-native haplotype of reed (*Phragmites australis*) and more habitat may be possible after ecological restoration is conducted.

The most recognized threat to eastern prairie fringed-orchid is competitive encroachment of shrubs and trees in open, wet prairie habitat. Similarly important to its survival is maintenance of suitable hydrological conditions; perched water in spring discourages competing species and maintains a moist mineral surface from which the plant will germinate (Penskar and Higman

2000). When water levels rise along Lake Erie and the Detroit River, landward refugia are needed so that the species is able to seed and germinate inland until water levels recede and plants can reestablish shoreward. Sugar Island does not exhibit these conditions at this time.

Eastern Massasauga (Candidate)

The current range of the eastern massasauga covers portions of ten states including much of the lower peninsula of Michigan. Throughout its range, this snake has declined primarily due to habitat loss and persecution.

Although there are no reports of massasauga sightings in the Refuge, they have been reported to exist in a number of habitat types found near the Refuge; namely, wet prairie, meadows, and old fields. Specifically, the species is found at the nearby Ojibway Prairie Complex which is intact, high quality lake plain prairie. Preferred habitats tend to have a generally open vegetative structure of grasses or sedges relative to surrounding areas. Sphagnum is often an important component of the substrate. Sites include thinly distributed trees and shrubs and are typically associated with shallow wetland systems. Massasaugas may show seasonal shifts in habitat use, moving to drier sites in the summer. This species is associated with saturated soils and crayfish burrows during hibernation.

The eastern massasauga is not known to be present on Sugar Island.

3.7 Cultural Resources

The Michigan Office of the State Archaeologist (MOSA) Inventory Files for Sugar Island indicates there are no known cultural resources, however, there is a high likelihood that resources exist since it is in a high probability area and no survey has yet been conducted.

3.8 Recreational Opportunities

A complete review of future public uses will be addressed in the Visitor Services Plan. Currently, Sugar Island is open to the public for hunting only.

Chapter 4. Environmental Consequences

4.1 Alternative 1: No Action

4.1.1 Habitat Impacts

There would be no negative habitat impacts from this alternative. Island closure would eliminate wood cutting of desirable tree species, fire pits, outdoor restrooms, and disturbance to nesting bird species providing optimal habitat conditions if in conjunction with forest restoration projects.

4.1.2 Biological Impacts

There would be no biological impacts from this alternative because the island would remain closed to public use.

4.1.3 Listed, Proposed, and Candidate Species

There would be no effects to listed, proposed, and candidate species from this alternative because the island would remain closed to public use.

4.1.4 Public Use

There would be no additional public use of Sugar Island. Boater-use is significant on Sugar Island during the warmer months. While there are no records of the number of boaters using the island in recent years, the average number of boats on the west beach during favorable weather is one to six per day during the week and up to 30 boats on the weekends. This alternative would therefore prevent these individuals from seeing an informational kiosk about the Refuge System and its mission and learn about the island and Detroit River IWR.

4.1.5 Refuge Operations

Refuge law enforcement personnel will be required to patrol the island regularly and ensure there is no trespassing under this alternative.

4.1.6 Environmental Justice

None of the alternatives described in this Environmental Assessment will disproportionately place any adverse environmental, economic, social, or health impacts on minority or low-income populations because the island would remain closed to public use.

4.1.7 Cultural Resources

There would be no effects to cultural resources from this alternative because the island would remain closed to public use.

4.1.8 Cumulative Impacts

No long term cumulative impacts would occur to cultural resources or to any wildlife species because the island would remain closed to public use.

4.2 Alternative 2: Full Island Access

4.2.1 Habitat Impacts

Habitat impacts are expected from this alternative. It is reasonable to assume the public would travel by foot throughout the island to explore it. Furthermore, it is reasonable to assume that during the period from Memorial Day to Labor Day, there would be regular foot traffic throughout the island. A trail system would likely be extensive as travelers try and reach their preferred destinations through the thick understory.

These impacts would originate from increased human foot traffic and exacerbate invasive species already on the island that need to be managed. Sugar Island is a small forest. Small forests surrounded by urban areas are prone to invasive species establishment and have different ecosystem processes than intact forests. Further disturbance from human activities (e.g., soil compaction through trails, unmanaged light gaps, high deer browse) without concurrent reduction in this species will likely result in further invasion and a very altered trajectory in the future forest composition and structure and its subsequent wildlife value. The plant communities and associated biota (*Scirpus* sp., *Equisetum* sp., *Pontentilla anserina*, etc.) on the beach may be impacted by foot traffic and disturbance. Additional public use on the beach would not be equivalent to the threat of invasive plant species, which the Refuge will need to manage.

Natural consequences of opening the island to full access are unlawful fires, refuse, cutting and burning of wood, camping, erosion, and damage to desirable plant life. In addition, before the Service owned Sugar Island, the upland habitats were used as an open bathroom, resulting in degradation of habitats (from human excrement, toilet paper, etc.), degradation of aesthetics, and potentially creating a human health problem. All of these unlawful activities have occurred on the island in recent history. Refuge staff does not have the capacity to sufficiently patrol and address unlawful activities.

The habitat impacts would counter efforts to rehabilitate the quality of the forest through such actions as elimination of non-native ornamental shrubs that degrade the number of species and jeopardize the future health of the developing forest.

4.2.2 Biological Impacts

Biological impacts would be expected from this alternative. It is reasonable to assume the public would travel by foot throughout the island to explore it. Furthermore, it is reasonable to assume that during the period from Memorial Day to Labor Day, there would be regular foot traffic throughout the island. A trail system would likely be extensive as travelers try and reach their preferred destinations through the understory.

Contrary to access by hunters during hunting seasons, foot traffic between June and early July would result in disturbance to nesting forest songbirds and raptors. Disturbance from foot traffic can result in less nest attentiveness and incubation time in some species, potentially reducing nest success. Foot traffic may impact plant species on the beach. Sand beaches exist very sparingly in the Detroit River and Sugar Island's beaches may exhibit some of the highest plant

species diversity. While no listed plant species have been documented on the beach, they serve an important function in that they are adapted to sandy soil and high lake wind, and wave and ice action, reducing erosion. The presence of rushes, sedges, and grasses on sand beach is exceedingly rare in the Detroit River.

Regular foot traffic on the upland will undoubtedly alter the movements of deer and other mammals creating cascading effects on the habitat and nesting birds as these mammals avoid the most human-traveled locations. White-tailed deer in abundance are a serious threat to nesting birds as they consume eggs and chicks from nests. The behavior of other mammals would be altered so that some may increase in abundance as people leave food and drinks behind, such as raccoons, which are predators to migratory birds. This would exacerbate any overabundance by meso-predators that reach the island, but are reluctant to cross across the river again.

4.2.3 Listed, Proposed, and Candidate Species

There are no known listed, proposed, and candidate species on Sugar Island at this time.

4.2.4 Public Use

Priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education, and environmental interpretation) may be low quality due to simultaneous use by all visitors across the entire island. Boater-use is significant on Sugar Island during the warmer months. While there are no records of the number of boaters using the island in recent years, the average number of boats on the west beach during favorable weather is one to six per day during the week and up to 30 boats on the weekends. This alternative would therefore prevent these individuals from seeing an informational kiosk about the Refuge System and its mission and learn about the island and Detroit River IWR.

4.2.5 Refuge Operations

Refuge operations would be negatively impacted because time would be used for law enforcement. It is reasonable to assume that periodic incidents will require Refuge staff to visit the island and clean-up refuse or assess damage from unlawful fires and wood-cutting. Should visitors unlawfully stay past sunset and travel across the unlit island, there is reasonable concern about visitor safety. Traveling across the island during low light levels presents risk of injury and assaults as have been documented on the island. This time takes away from habitat restoration/rehabilitation and management of the other approximately 2,000 acres of other Refuge land and visitor services.

4.2.6 Environmental Justice

None of the alternatives described in this Environmental Assessment will disproportionately place any adverse environmental, economic, social, or health impacts on minority or low-income populations.

4.2.7 Cultural Resources

Any development needed to fulfill the proposed public use (given any of the alternatives) would be looked at on a case-by-case basis under Section 106.

4.2.8 Cumulative Impacts

Long term cumulative impacts may occur to cultural resources and wildlife species due to activities associated with this alternative or similar action by the Service or other agencies. This conclusion is made because of the potential negative ecological/biological impacts stated above.

There would not be long-term negative cumulative impacts to public use, the amount of public use facilities, and educational resources and opportunities due to activities associated with this alternative or similar action by the Service or other agencies.

4.3 Alternative 3: Both Beaches Accessible with Trail

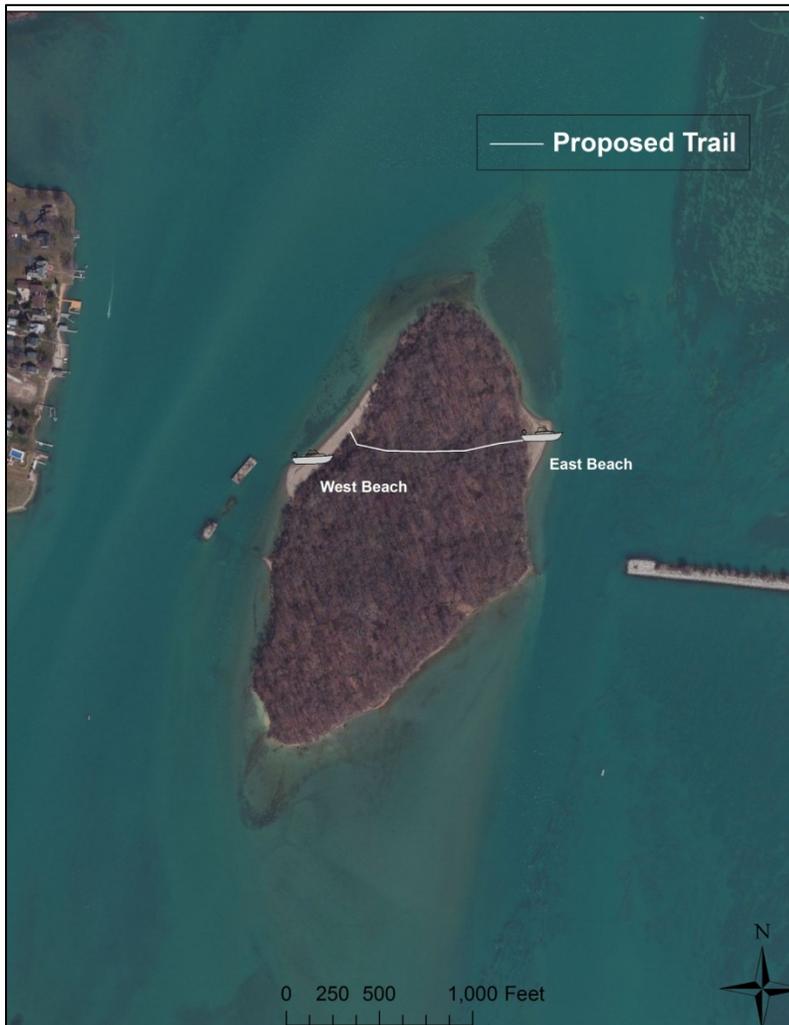


Figure 5. Alternative 3 showing both beaches with a connecting trail.

4.3.1 Habitat Impacts

Habitat impacts would be minor to moderate from this alternative. It is reasonable to assume that during the period from Memorial Day to Labor Day, there would be regular foot traffic on the trail connecting the beaches and use of both beaches. Foot traffic would promote soil compaction and invasive species introduction along this trail. Some unlawful entry off the trail would be expected. Natural consequences of these activities are unlawful fires, refuse, cutting and burning of wood, camping, erosion, and damage to desirable plant life. In addition, before the Service owned Sugar Island the upland habitats were used as an open bathroom, resulting in degradation of habitats (from human excrement, toilet paper, etc.), degradation of aesthetics, and potentially creating a human health problem. All of these unlawful activities have occurred on the island in recent history. Refuge staff does not have the capacity to sufficiently patrol and address unlawful activities.

The habitat impacts would counter efforts to rehabilitate the quality of the forest through such actions as elimination of non-native ornamental shrubs that degrade the number of species and jeopardize the future health of the forest.

The plant communities and associated biota (*Scirpus* sp., *Equisetum* sp., *Potentilla anserina*, etc.) on both beaches may be impacted by foot traffic and disturbance. Additional public use on the beach would not be equivalent to the threat of invasive plant species, which the Refuge will need to manage.

4.3.2 Biological Impacts

Biological impacts would be expected from this alternative. It is reasonable to assume the public would regularly travel by foot on the trail connecting the two beaches. Regular foot traffic would have some negative impacts to nesting bird species that are not adapted to frequent human disturbance. In addition, it is reasonable to assume boisterous activity would occasionally occur and would negatively impact wildlife on the island.

Regular foot traffic on the connecting trail will undoubtedly alter the movements of deer and other mammals creating cascading effects on the habitat and nesting birds as these mammals alter movements to avoid people on the trail. White-tailed deer in abundance are a serious threat to nesting birds as they consume eggs and chicks from nests. The behavior of other mammals would be altered so that some may increase in abundance as people leave food and drinks behind, such as raccoons, which are predators to migratory birds.

Public use of the beaches themselves would have little impact to most migratory birds during stopover. Some native plant species on the beach and shoreline (*Scirpus* sp., *Equisetum* sp., *Potentilla anserina*, etc.) would be negatively impacted by public use of the beaches.

These disturbances (increased invasion probability, disturbance to nesting birds, altered movements of wildlife, disturbance to beach and shoreline species) are not consistent with the purpose of the island as a Refuge and the two-beach access is not necessary to provide some

public use. Therefore, this public use is not scaled correctly for the potential negative ecological/biological impacts.

4.3.3 Listed, Proposed, and Candidate Species

There are no known listed, proposed, and candidate species on Sugar Island at this time.

4.3.4 Public Use

Priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education, and environmental interpretation) may conflict with general use of the trails and beach. Boater-use is significant on Sugar Island during the warmer months. While there are no records of the number of boaters using the island in recent years, the average number of boats on the west beach during favorable weather is one to six per day during the week and up to 30 boats on the weekends. This alternative would therefore prevent these individuals from seeing an informational kiosk about the Refuge System and its mission and learn about the island and Detroit River IWR.

4.3.5 Refuge Operations

Refuge operations would be negatively impacted because time would be used for law enforcement and unlawful activities on the island. In addition, Refuge staff time would be required to clean up human waste. It is reasonable to assume that periodic incidents will require Refuge staff to visit the island and work with local law enforcement. Should visitors unlawfully stay past sunset and travel across the unlit island, there is reasonable concern of about visitor safety. Traveling across the island during low light levels presents risk of injury and assaults as have been documented on the island. This time takes away from habitat restoration and management of the other approximately 2,000 acres of other Refuge land and visitor services.

4.3.6 Environmental Justice

None of the alternatives described in this Environmental Assessment will disproportionately place any adverse environmental, economic, social, or health impacts on minority or low-income populations.

4.3.7 Cultural Resources

Any development needed to fulfill the proposed public use (given any of the alternatives) would be looked at on a case-by-case basis under Section 106.

4.3.8 Cumulative Impacts

Long term cumulative impacts may occur to cultural resources and wildlife species due to activities associated with this alternative or similar action by the Service or other agencies. This conclusion is made because of the potential negative ecological/biological impacts stated above.

There would not be long term negative cumulative impacts to public use, the amount of public use facilities, and educational resources and opportunities due to activities associated with this alternative or similar action by the Service or other agencies.

4.4 Alternative 4: West Beach Access Only (no trail and east beach closed)

4.4.1 Habitat Impacts

Habitat impacts would be minor to negligible from this alternative.

The plant communities and associated biota on the west beach would be impacted by foot traffic and disturbance, but the east beach would be left undisturbed, causing half of the potential impact than Alternative 3. Additional public use on the beach would not be equivalent to the threat of invasive plant species, which the Refuge will need to manage.

This alternative removes human disturbance to the island's wildlife and habitat via the trail intersecting the island and eliminates access to the upland habitats for use as an open bathroom.

Some unlawful entry into Refuge land would be expected. This alternative could result in continuation of unlawful entry onto a trail connecting the two beaches which would need to be enforced. Natural consequences of these activities are unlawful fires, refuse, cutting and burning of wood, camping, erosion, and damage to desirable plant life. All of these unlawful activities have occurred on the island in recent history. Refuge staff does not have the capacity to sufficiently patrol and address unlawful activities.

4.4.2 Biological Impacts

Biological impacts would be minor to negligible from this alternative. Foot traffic would be limited to the west beach. Some native plant species (*Scirpus* sp., *Equisetum* sp., *Potentilla anserina*, etc.) may be negatively impacted by public use of the west beach, but these communities are represented on the other east sand beach of the island causing half of the potential impact than Alternative 3. It is reasonable to assume boisterous activity would occur and would alter wildlife use of the west beach area on the island. However, public use on the west beach would have little impact to most migratory birds during stopover.

Access to one beach is compatible because it eliminates potential negative impacts to habitat and wildlife through the intersecting trail and allows the east beach to remain without foot traffic to ensure no impact to beach plant species, while simultaneously allowing public access to the larger and most accessible beach. Therefore, this public use is scaled correctly for the potential negative ecological/biological impacts. Limiting public use to the west beach would eliminate habitat degradation in the uplands associated with visitors using uplands as an open bathroom.

Some unlawful entry into Refuge land would be expected. Natural consequences of these activities are unlawful fires, refuse, cutting and burning of wood, camping, erosion, and damage to desirable plant life. All of these unlawful activities have occurred on the island in recent

history. Refuge staff does not have the capacity to sufficiently patrol and address unlawful activities.

4.4.3 Listed, Proposed, and Candidate Species

There are no known listed, proposed, and candidate species on Sugar Island at this time.

4.4.4 Public Use

Priority public uses (hunting, fishing, wildlife observation, wildlife photography, environmental education, and environmental interpretation) may conflict with general use of the west beach. Boater-use is significant on Sugar Island during the warmer months. While there are no records of the number of boaters using the island in recent years, the average number of boats on the west beach during favorable weather is one to six per day during the week and up to 30 boats on the weekends. This alternative would therefore prevent these individuals from seeing an informational kiosk about the Refuge System and its mission and learn about the island and Detroit River IWR.

4.4.5 Refuge Operations

Refuge operations would be negatively impacted because time would be used for additional law enforcement and unlawful activities on the island. It is reasonable to assume that periodic incidents will require Refuge staff to visit the island and work with local law enforcement. Should visitors unlawfully stay past sunset and travel across the unlit island, there is reasonable concern for visitor safety, but there is no trail encouraging them to travel through the island. Traveling across the island during low light levels presents risk of injury and assaults as have been documented on the island. This time takes away from habitat restoration and management of the other approximately 2,000 acres of other Refuge land and visitor services.

4.4.6 Environmental Justice

None of the alternatives described in this Environmental Assessment will disproportionately place any adverse environmental, economic, social, or health impacts on minority or low-income populations.

This alternative would have no impacts on low-income or minority populations.

4.4.7 Cultural Resources

Any development needed to fulfill the proposed public use (given any of the alternatives) would be looked at on a case-by-case basis under Section 106.

4.4.8 Cumulative Impacts

No long term cumulative impacts would occur to cultural resources or to any wildlife species due to activities associated with this alternative or similar action by the Service or other agencies.

This alternative prohibits public use on the entire upland and east beach and eliminates impacts to these habitats. The habitat on the west beach that would be opened to public use is represented sufficiently on the east beach.

There would be no long term negative cumulative impacts to public use, the amount of public use facilities, and educational resources and opportunities due to activities associated with this alternative or similar action by the Service or other agencies.

4.5 Summary of Environmental Consequences by Alternative

Actions	Alternative 1 (No Action)	Alternative 2 (Full Island Access)	Alternative 3 (Both Beaches Accessible with Trail)	Alternative 4 (Preferred- West Beach only)
Habitat Impacts	No change	Negative impacts from unlimited foot traffic	Negative impacts from public use on all sand beach available	Minor negative impacts on west beach
Impact on Wildlife	No change	Negative impacts from unlimited disturbance to wildlife	Negative impacts from frequent human disturbance through center of upland	Minor impact to wildlife on the west beach only
Increase public use	No	Yes	Yes	Yes, and minimize more stressors* to forest and beach
Impact on cultural resources	No change	No	No	No
Cumulative Impacts	No	Yes	Yes	No

* stressors include soil compaction, trail establishment, introduction of invasive species.

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Chapter 6: List of Preparers

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Chapter 7: Public Comment and Response

On June 18, 2012, the Service held a Sugar Island Public Forum to articulate the Service's position on Sugar Island and obtain input. Points of emphasis from public participants included:

- Sugar Island represents the only sand beaches on the U.S. side of the lower Detroit River;
- Many people spend time with family on Sugar Island and picnicking and partying has been cultural on the island for decades;
- The public, to date, feels that they have had no voice in the decisions for Sugar Island;
- Forum participants noted that there has been confusion over enforcement regarding the location of the water's edge;
- The public wants consistency in enforcement – the U.S. Fish and Wildlife Service reiterated their position of enforcement to the water's edge (the public was given assurance that standing in the water and anchoring a boat in the water was legal and acceptable);
- Members of the public felt that they were taxpayers and that it was inconsistent that the U.S. Fish and Wildlife Service intends to allow hunting, but not picnicking;
- The boating community feels disenfranchised (by losing public access to Sugar Island);
- The public asked why Sugar Island couldn't be opened (dawn to dusk, no campfires, no camping, etc.) similar to Celeron Island (also located at the mouth of the Detroit River) that is owned by the Michigan Department of Natural Resources;
- Forum participants requested the process of developing a Visitor Services Plan be expedited, including the exploration of a "win-win" solution for Sugar Island where wildlife and habitats were protected, and some responsible public access was offered; and
- Participants requested that the Service obtain a legal opinion (i.e., Solicitor's opinion) regarding whether or not the public has a right to public access on Sugar Island up to the ordinary high water mark.

Refuge personnel will compile and address comments on this Environmental Assessment.