

UNITED STATES GOVERNMENT

*memorandum* U.S. Fish and Wildlife Service

Detroit River International Wildlife Refuge  
9311 Groh Road  
Grosse Ile, MI 48138

**DATE:** September 1, 2015  
**TO:** General Public  
**FROM:** Jody DeMeyere, Visitor Services Manager  
**SUBJECT:** Amendment of Detroit River International Wildlife Refuge Hunt Plan

The U.S. Fish and Wildlife Service has proposed amendments to the Detroit River International Wildlife Refuge's Hunt Plan. The attached Environmental Assessment includes the Service's analyses of the overall impacts of an annual lottery deer hunt (archery only) at the Humbug Marsh Unit. Impacts were considered for resident wildlife, migratory species, threatened and endangered species, refuge facilities and visitor services, and cultural resources. In addition, the Service assessed the cumulative environmental impacts this hunt would bring to the local ecosystem.

There is high public demand for deer hunting opportunities in southeast Michigan and the Humbug Marsh Unit would provide much needed hunter access. Browse from white-tailed deer is damaging native plant regeneration and degrading the habitat for a wide range of resident and migratory species. Deer herd goals must be met to improve habitat quality for all species, including deer.

The Detroit River International Wildlife Refuge is proposing a managed hunt as opposed to opening the unit to unlimited in-season hunting. The Refuge is recommending at least 10 two-day hunts annually between October 1<sup>st</sup> and mid-December.

The Refuge would work with Michigan Department of Natural Resources (MDNR) to manage the application and lottery process for this proposed hunt. This process would ease the application burden on hunters. The application process and lottery rules would be posted on both the Refuge and MDNR web sites with ample time.

Thank you for your time and assistance in reviewing and finalizing this amendment.

**ENCLOSURES:**  
Humbug\_Marsh\_Lottery\_Hunt\_EA\_DRAFT

**U.S. DEPARTMENT OF THE INTERIOR**  
**FISH AND WILDLIFE SERVICE**  
**ENVIRONMENTAL ASSESSMENT**

August 2015

**Humbug Marsh Lottery Deer Hunt**  
**Detroit River International Wildlife Refuge**

**DRAFT**

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# **Chapter 1: Purpose and Need**

## **1.1 Purpose**

In compliance with the National Environmental Policy Act (NEPA), this Environmental Assessment (EA) will assist the Regional Director in the determination of whether to conduct an Environmental Impact Statement on the proposed action of a lottery deer hunt at the Humbug Marsh Unit of the Detroit River International Wildlife Refuge. This EA includes an evaluation of the proposed action and reasonable alternatives on environmental, cultural and historical resources sufficient to determine if a Finding of No Significant Impact (FONSI) is warranted or if an Environmental Impact Statement is required.

## **1.2 Need**

There is an inadequate amount of public hunting land for the demand in southeast Michigan. At the same time, there are too many deer at the Humbug Marsh Unit. Few would argue that today's herd is above the "cultural carrying capacity." The high risk of deer-vehicle collisions are a concern, the Refuge habitat is highly over-browsed, and the beauty and mystique of white-tailed deer - a feature that ensures quality experiences for the public - is lost as they have become accustomed to human interactions.

The Refuge would like to provide the public a fair and equitable structure to annually harvest the maximum number of deer within the quotas, while ensuring a quality and safely conducted hunt.

Inevitably, there will be endless debate on the appropriate number of deer within this urban unit that meet the desire to hunt and view them, with the risk they pose as described above. Therefore, a transparent, science-based approach to their management is critical so that objective, quantifiable information can readily be provided to the public. We look forward to doing this in partnership with the Michigan Department of Natural Resources (MDNR).

The proposed option of providing quality public archery deer hunting opportunities at Humbug Marsh Unit by Fall 2016 and reach herd objectives by Fall 2022 must be evaluated with other alternatives as required by the National Environmental Policy Act of 1969 (NEPA) through an Environmental Assessment. Implementation of the proposed actions will be consistent and compatible with the Refuge Recreation Act, Refuge Administration Act, and the Detroit River International Wildlife Refuge (IWR) Comprehensive Conservation Plan (CCP).

## **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 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 (NWR) 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 managed under cooperative management agreements between the Refuge and other landowners. The Refuge acquisition boundary stretches along 48 miles of the 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.

The Refuge Hunting Plan was developed from the scientific and management foundation laid by the U.S.-Canadian Conservation Vision established in 2000. The Detroit River International Wildlife Refuge Establishment Act of 2001 called for ensuring that hunting, fishing, wildlife observation and photography, and environmental education and interpretation are the priority uses of the Refuge. The Refuge’s Comprehensive Conservation Plan of 2005 calls for allowing hunting and fishing to the maximum extent, except where contaminant exposure, safety, or sensitive species needs prohibit such uses.

Current annual Refuge visitation is less than 10,000, but 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 (5,000-7,000);
- Detroit River Days at the Detroit RiverWalk (over 1,000,000); and
- World Wetlands Day at Gibraltar Carlson High School (2,000).

Public facilities, including a visitor center, bookstore/gift shop, trails, wildlife observation decks, environmental education classrooms, and others, are under construction and will substantially increase visitation and help achieve the Refuge’s goal of teaching the next generation of conservationists in this nearly seven million person urban area.

The Humbug Marsh Unit and Refuge Gateway (future home of the Refuge Visitor Center) is a total of 264 acres (not including open water areas; Table 1). The habitat has a mix of forested wetland and grass-dominated wetlands and is considered high quality habitat for white-tailed deer. MDNR informed the Refuge that a minimum of 40 deer were within the Humbug Marsh Unit in early January 2014 as noted from the air (although this was not an official survey), which is the equivalent of 97 deer per square mile. The state goal for Deer Management Unit 082 is 10-15 deer per square mile. A formal aerial deer survey was conducted on February 12, 2015 by MDNR and recorded 71 deer within the 264 acres. This is equivalent to 172 deer per square mile (Table 2).

Furthermore, the Refuge has invested in numerous habitat improvement projects in this unit and success is dependent upon reaching the state herd target. Finally, hunting is a priority public use of the National Wildlife Refuge System and especially important to the Refuge since there is a high demand for hunting opportunities in southeast Michigan.

Table 1.

<b>Management Areas and Acreages</b>	
	<b>ACRES<sup>a</sup></b>
<b>Humbug Mainland</b>	204
<b>Humbug Island</b>	20
<b>Refuge Gateway</b>	40
<b>Total ACRES</b>	264

\*Only upland and emergent wetland, excluding open water

Table 2.

<b>Current Estimated Deer Herd and Targets</b>				
	<b>January 2014 Deer/mile<sup>2</sup></b>	<b>February 2015 Deer/mile<sup>2</sup></b>	<b>State and Refuge Goal<sup>a</sup>/mile<sup>2</sup> Equivalent</b>	<b>State Target # of Deer within Unit</b>
<b>Humbug Marsh Unit and Refuge Gateway</b>	97	172	15	6

<sup>a</sup> Michigan DNR target established in Michigan Deer Management Unit 082 is 10 to 15 animals per square mile.

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## **1.4 Decision Framework**

This Environmental Assessment is prepared to evaluate the environmental consequences of an annual, archery, lottery deer hunt at the Humbug Marsh Refuge Unit in Trenton, MI. Two alternatives are also presented in this document:

1. Alternative 1 (Proposed Action) – Annual, Public, Lottery Deer Hunt.
2. Alternative 2 – Annual, Public, Deer Hunt (No Lottery).
3. Alternative 3 – No Action

The Regional Director, U.S. Fish and Wildlife Service, Midwest Region is the official responsible for determining the action to be taken in the proposal by choosing an alternative. He will also 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 there is a significant impact on the quality of the human environment from the chosen alternative, thus requiring the preparation of an Environmental Impact Statement (EIS).

## **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 Migratory Bird Conservation Act, Refuge Recreation Act, and Detroit River International Wildlife Refuge Establishment 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 increased information through exhibits and interpretive opportunities is a priority for the Refuge.

Today, 80% of the U.S. population lives in urban areas. To help make sure that this urban population values natural areas, wildlife conservation and that a priority is placed on developing the next generation of conservationists in urban areas, the U.S. Fish and Wildlife Service has created a new Urban Wildlife Refuge Program. Under this program, a variety of strategies to increase recreational opportunities on federal lands were drafted. Strategies directly related to hunting focused in part on defining a “quality” hunt. The Service recognizes this is largely a value judgment that can vary from individual to individual. With this in mind the Refuge will work to ensure the proposed hunt meets the following attributes:

- SAFETY – Participants in the activity must be protected by accepted standards for the program being managed and should feel safe while participating.
- SUCCESS – Fair chase standards should be incorporated in the programs' design. Participants should have a reasonable chance of successful encounters of the fish or wildlife they are pursuing, but success should never be guaranteed.
- ACCESS – Reasonable access should be provided to participants both in terms of equal and accessible opportunity to participate in the program generally, and actual access to the activity on-the-ground specifically.
- ENJOYMENT – Programs should be designed for participants to maximize their enjoyment of the activity without unnecessary disturbance from other users and with opportunity to participate in a variety of activities (from which they may choose) when practical.

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## Chapter 2: Description of Alternatives

### 2.1 Formulation of Alternatives

Alternatives for a public archery deer hunt at the Humbug Marsh Refuge Unit were developed based on meetings with the MDNR and Refuge staff. These alternatives take into account the stated goals of the Comprehensive Conservation Plan and Urban Wildlife Refuge Program in attempting to help develop the next generation of conservationists in urban areas, where 80% of all U.S. citizens live.

#### 2.1.1 Alternative 1 (Proposed Action): Annual, Public, Lottery Deer Hunt.

There is high public demand for deer hunting opportunities in southeast Michigan and Humbug Marsh would provide much needed hunter access. Browse from white-tailed deer is damaging native plant regeneration and degrading the habitat for a wide range of resident and migratory species. Deer herd goals must be met to improve habitat quality for all species, including deer.

Humbug Marsh is surrounded by lands without any hunting pressure. The town of Gibraltar, just south of the Refuge unit, and the businesses on West Jefferson Ave., to the west of the unit, do not allow hunting on their properties, so deer routinely travel back and forth between these areas. Grosse Ile Township to the east and Lake Erie Metro Park, just south of Gibraltar, both annually cull their deer herds, resulting in deer moving into the unit to escape this pressure. The limited population of resident coyotes, a deer's natural predator, is not able to keep the deer under control. As a result, deer have found favorable habitat within Humbug Marsh and there is strain on the habitat.

This alternative requires a managed hunt as opposed to opening the unit to unlimited in-season hunting. The Refuge is proposing at least 10 two-day hunts annually between October 1<sup>st</sup> and mid-December. The proposed unit is adjacent to the Refuge's future visitor center which is expected to attract multiple user groups. In order to reduce conflicting uses, the Refuge recognizes the need to close trails to all use except archery deer hunters for the select days between October 1<sup>st</sup> and mid-December and to manage the number of hunters in an equitable way.

This alternative proposes assigning lottery-drawn hunters to specific hunting blinds established by the Refuge. Although this offers less choice and ability for hunters to practice all facets of the hunting experience, this model reduces the following problems if hunters were free to choose their own hunting location:

1. Hunters "walking up" onto hunters already set-up;
2. New hunter groups scouting and setting up which severely alters movement patterns of white-tailed deer;
3. Shooting within or towards safety zone; and
4. Early-season hunter disturbance causing deer to be nocturnal in their movements.

The benefits of controlling how hunters enter the area and where disturbance is coming from is hoped to ultimately provide the highest quality hunting experience possible in the fragmented urban natural area.

The Refuge would work with MDNR to manage the application and lottery process for this proposed hunt. This process would ease the application burden on hunters.

### **2.1.2 Alternative 2: Annual, Public, Deer Hunt (No Lottery).**

Under this alternative, the Refuge would allow deer archery hunting on the Humbug Marsh Unit pursuant to local ordinances in complete accordance with State regulations.

While this alternative would increase the amount of public land in southeastern Michigan for deer hunting, there are some safety concerns. According to state regulations, the unit must have a 450-foot buffer along the western and southern boundaries to protect non-hunters. This safety buffer greatly reduces the amount of huntable land within the unit. With a reduced amount of huntable land and hunters not assigned to specific hunting blinds, the probability of hunters “walking up” on each other, shooting towards each other, and overcrowding the unit increase dramatically.

In addition to the safety concerns, this type of hunt will require the trails within the Humbug Marsh Refuge Unit to be closed annually to public recreation throughout the entire hunting season from October 1<sup>st</sup> to mid-December. *(Under Alternative 1, these trails would be closed only during the specified 10, two-day hunts or 20 days total throughout the hunting season.)*

### **2.1.3 Alternative 3: No Action**

Under this alternative, no annual, public, deer hunt would occur. Herd populations would continue to grow, resulting in potential for increased risk of deer-vehicle collisions, highly over-browsed habitat, and “wild” deer accustomed to human presence. The habitat project investments the Refuge has completed to date would have been in vain if the deer population continues to grow. In addition, the Refuge would not be meeting its goals of providing quality hunting opportunities on refuge units in accordance with the National Wildlife Refuge Improvement Act or the 2005 Refuge Comprehensive Conservation Plan.

## 2.2 Summary of Alternate Actions Table

<b>Actions</b>	<b>Alternative 1 (Preferred – Lottery)</b>	<b>Alternative 2 (Open Hunting)</b>	<b>Alternative 3 (No Action)</b>
Enhance Hunting Opportunities on Refuge	Yes	Yes	No
Increase Amount of Hunting Land in SE MI	Yes	Yes	No
Provide a Safe Hunting Place	Yes	No	No
Allow Multiple Uses Throughout Hunting Season	Yes	No	Yes
Reduce Deer Herd Population	Yes	Yes	No
Protect Refuge Habitat	Yes	Yes	No
Decrease Risk of Deer-vehicle Collisions	Yes	Yes	No

## **Chapter 3: Affected Environment**

### **3.1 Geographic Setting**

Detroit River IWR lands are located in Wayne and Monroe Counties in southeast Michigan. Prior to rapid anthropogenic alteration of the Detroit River and Lake Erie shorelines starting during European settlement (17<sup>th</sup> and 18<sup>th</sup> Centuries), the western Lake Erie shoreline consisted of open water shallow zones, followed by emergent wetlands of bulrushes and cattails with dynamic water levels, and transitioning to grassy zones dominated by bluejoint grass and sedges with forested wetlands. The Refuge contains lands that are part of freshwater deltas, drowned river mouths, and channelside wetlands. In the past, interior hardwood swamps and “flatwoods” were mosaicked further interior with prairies underlain by sand over clay where hydrology was continually re-engineered by beavers. Fire was common in these prairies. Remnant patches of these former ecological features exist today in an altered, but very functional form that is critical to preservation of species in the region. Today, most of the shoreline is hardened with rock and concrete with the vast majority of wetlands drained for urban development and agriculture. There are numerous communities including Trenton, Gibraltar, Rockwood, Estral Beach, Frenchtown, Monroe, and Erie. The remaining areas of unhardened shoreline containing plant and animal species adapted to the current western Lake Erie environment are held in State or Federal ownership as conservation land. Humbug Marsh is rare in that it has never been fully developed and exhibits a large amount of these ecological features in one location.

### **3.2 Socioeconomic Setting**

The regional population is nearly seven million, so the economic landscape is complex and varies geographically. The site is located in Trenton and Gibraltar, Michigan, but the 5-year estimates from 2006-2010 of median household income are as follows: Trenton (\$54,841); City of Gibraltar (\$60,250); Grosse Ile Township (\$81,118); 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. The immediate 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. Michigan’s median income is \$48,432. The State 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 are no disproportionate minority or low income populations in the immediate project vicinity.

There is a high demand for access to Refuge land for compatible recreational uses. Public lands offer a wide range of outdoor recreational opportunities in the form of state parks, game areas, and state recreation areas. The Huron-Clinton Metropolitan Authority manages the Metroparks which comprise thirteen individual parks and 24,000 acres of public land. Other publicly accessible land is available through universities, non-profit organizations, and local governments, although limited in hunting and fishing opportunities.

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.

### **3.3 Ecological Communities on the Refuge Gateway and Humbug Marsh**

Humbug Marsh, of which approximately 185 acres is shallow shoals or Great Lakes coastal marsh, is important spawning habitat for many fish species found in the Detroit River and western Lake Erie. Complex and diverse plant and animal communities are associated with this shallow shoal area dominated by wild celery (*Vallisneria* sp.), pondweeds (*Potamogeton* sp.), muskgrass (*Chara* sp.), and other aquatic plants. The food web in these areas includes important commercial and sport fish, whose fry are dependent upon the organisms associated with periphyton. These areas are especially critical to bowfin (*Amia calva*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), northern pike (*Esox lucius*), longnose gar (*Lepisosteus osseus*), and golden shiner (*Notemigonus crysoleucas*). Especially abundant in the spring are walleye (*Sander vitreus*) that migrate north up the Trenton Channel and white bass (*Morone chrysops*). Insect hatches, especially mayflies (Ephemeroptera) are important in these areas and are a critical part of the food web. Furthermore, the productive shoal habitats like Humbug Marsh are important stopover habitat for migratory birds, including a high proportion of the continental population of canvasback (*Aythya valisineria*), redhead (*Aythya americana*), American black duck (*Anas rubripes*), and lesser (*Aythya affinis*) and greater scaup (*Aythya marila*) in the offshore areas and northern pintail, bufflehead, mallards, teal, geese and others in the aquatic beds closer to shore.

In the emergent marshes, communities of plants and animals are highly influenced by Great Lakes abiotic processes of frequent water level fluctuation, sediment and seed transport, and chemical cycling. Most emergent wetlands of the Refuge lay on top of shallow clay soil, creating very anoxic conditions near the surface further influencing ecological succession. In general, emergent wetland zones of Humbug Marsh are dominated by cattail (*Typha* sp.), reed (*Phragmites australis*), and river bulrush (*Bolboschoenus fluviatilis*) with associates being arrowhead (*Sagittaria* sp.), bur-reed (*Sparganium* sp.), bulrush (*Scirpus* sp.), and rushes (*Juncus* sp.). Muskrats (*Ondatra zibethicus*) are an important natural disturbance in these emergent wetlands by feeding on vegetation. Other important animals include many amphibians and reptiles, including northern leopard frog (*Rana pipiens*), northern water snake (*Nerodia sipedon*), garter snakes (*Thamnophis*), and turtles.

Wet prairie zones are the most species rich areas on Refuge land. These areas are dominated by warm and cool season grasses, including bluejoint grass (*Calamagrostis canadensis*) and reed canary grass (*Phalaris arundinacea*). Plant associates in these areas include Ohio spiderwort (*Tradescantia ohioensis*), marsh fern (*Thelypteris palustris*),

sensitive fern, (*Onoclea sensibilis*) marsh rose mallow (*Hibiscus palustris*), water hemlock (*Cicuta maculata*), blue vervain (*Verbena hastata*), ironweed (*Vernonia*), goldenrods (*Solidago*), and numerous species of sedges (*Carex*) and bulrushes (*Juncus*). Two known wet prairie areas exist at Humbug Marsh at the southwest area of Humbug Island and adjacent to the Monguagon delta. The composition of these areas are dependent upon the amount and duration of perched water on top of the lakeplain soils during the spring and summer growing season. These wet prairies have complex food webs with important plant-animal interactions that promote a high level of use by larger wildlife, especially reptiles, migratory birds, mink (*Neovison vison*), fox (*Urocyon cinereoargenteus*, *Vulpes vulpes*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), and white-tailed deer (*Odocoileus virginianus*). These zones are important for eastern fox snakes (*Elaphe gloydi*), which are endemic to western Lake Erie. In appropriate soil and moisture conditions, forested wetlands have developed on much of Humbug Marsh and are dominated by silver maples (*Acer saccharinum*), ashes (*Fraxinus*), elms (*Ulmus*), and swamp white oak (*Quercus bicolor*). These forested wetlands are heavily used by rusty blackbirds (*Euphagus carolinus*), which migrate through the Refuge in an extremely constricted corridor of the Detroit River and western Lake Erie.

Much of the upland area of Humbug Marsh are former hayfields in different stages of forest succession which are dominated by smooth (*Cornus amomum*) and rough-leaved dogwood (*Cornus drummondii*), hawthorns (*Crataegus*), ashes, and elms. During the 20<sup>th</sup> century, most of Humbug Marsh was pasture and a storage area for military fleets during World War II. In these areas, forest communities developed after military operations and haying ceased in the 1940s and 1970s, respectively. The re-growing forest was brush-hogged in preparation for development in December of 1998 with approximately 40 acres left undisturbed on the mainland. The uncut areas contain oaks dating to the 18<sup>th</sup> century. The forest type is a “flatwoods”, which occur in low-relief poorly drained mineral soils on glacial lake plain creating vegetative mosaics from the differing degrees of standing water in concert with light availability, so that oak and hickory (*Carya*) dominates drier areas, while ash, elm, and red oak (*Quercus rubra*) and swamp white oak comprise the areas where water is perched longer in the spring. A diverse spring flora occurs in these areas and sustains highly structured food webs in these forest communities. Finally, Humbug Marsh contains a number of silty clay hill tops in comparison with the surrounding lowlands. These areas have pre-European settlement white oaks that apparently grew most of their life in an open prairie-like or agrarian/pastoral landscape. These “wolf trees” are relicts of a historically open landscape along the Detroit River shoreline that is long-gone.

### **3.4 Plant Communities of the Refuge Gateway and Humbug Marsh**

The Refuge contains 1-6 foot deep open water environments of Detroit River and western Lake Erie with communities composed of *Potamogeton*, *Vallisneria*, *Chara*, *Heteranthera*, *Ceratophyllum*, *Najas*, *Elodea*, and others. Local processes determine species composition such as current speed, substrate, light availability, turbidity, temperature, pollutants and other plant associates.

Refuge emergent wetland communities are diverse depending on hydrological processes, soil, ice scour, and the ability of invasive species to colonize. The Monguagon delta of Humbug Marsh exhibits low flow-through, but relatively high water level fluctuation that currently promote river bulrush (*Bolboshoenus fluviatilis*), *Schoenoplectus tabernaemontani*, and *Juncus effusus* with heavy colonization by *Typha Xglauca* and *Phragmites*, but control efforts have reduced coverage of these species in the last few years.

The wet prairie zones at Humbug Marsh are dominated by blue-joint grass, reed canary grass, *Carex* (*C. lacustris*, *C. vulpinodea*, etc.) and are generally void of many trees because of the extreme hydrologic range from wet spring conditions to summer drought. Rough-leaved dogwoods do establish in some areas. Invasive European black alder (*Alnus glutinosa*) is common and have been eliminated by Refuge staff within the wet prairie zones.

Forest communities range widely in disturbance history and in invasive species establishment. Some communities on more drained sites are dominated by oak and hickory with associates of basswood, cherry, and walnut. The understory of Humbug Marsh is dominated by a mix of woodland grasses (e.g., *Leersia oryzoides*, *Glyceria striata*) and *Carex* (*C. blanda*, *C. cephalophora*, *C. molesta*, *C. pennsylvanica*, etc.) with *Polygonum*, *Ranunculus*, *Impatiens*, etc. Humbug Marsh contains numerous canopy black walnuts that inhibit woody plant growth underneath them with the understory dominated by cool season grasses (e.g., orchard grass and panic grass) with associates of blue-eyed grass, ironweed, goldenrods, roses, raspberries, and wild bergamot.

### **3.5 Animal Communities of the Refuge Gateway and Humbug Marsh**

#### **3.5.1 Fish**

A variety of fish species utilize the area near the Refuge Gateway and Humbug Marsh including bowfin (*Amia calva*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*), largemouth and smallmouth bass (*Micropterus*), rock bass (*Ambloplites rupestris*), yellow perch (*Perca flavescens*), northern pike (*Esox lucius*), longnose gar (*Lepisosteus osseus*), and shiners (e.g., *Notemigonus* and *Notropis*).

#### **3.5.2 Mammals**

No mammal surveys have been conducted at Humbug Marsh. Although the following species have been seen by Refuge staff: coyote (*Canis latrans*), fox (*Urocyon cinereoargenteus*, *Vulpes vulpes*), white-tailed deer (*Odocoileus virginianus*), muskrat (*Ondatra zibethica*), eastern cottontail rabbit (*Syvilagus floridanus*), Norway rat (*Rattus norvegicus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), woodchuck (*Marmota monax*), eastern fox squirrel (*Sciurus niger*) and mink (*Neovison vison*).

#### **3.5.3 Birds**

The aquatic plant beds of Humbug Marsh are critical stopover habitat for spring and fall migrating canvasback, redhead, scaup, and tundra swans. The fall migration of migratory birds, and especially raptors, has been well known for decades. Each year, approximately

150,000 or more raptors are counted from the Detroit River Hawk Watch, a joint project between Lake Erie Metro Park, the Refuge and its Friends' Group, the International Wildlife Refuge Alliance. Humbug Marsh in particular provides unusually high quality bird-watching in spring and fall. Spring migration has large species diversity from regularly passing common loons and large flocks of northbound Bonaparte's gulls in March and April to dozens of species of neotropical migrants fueling on emerging foliage of oaks, hickories, elms, and ashes in May. Fall migration is characterized by days of high volume passages of waterbirds, raptors, and songbirds all influenced by the geography of the lower Detroit River, being seen at Humbug Marsh Unit as they pass south or southwest. Rusty blackbirds are abundant during migration at Humbug Marsh and can be seen in the thousands during peak migration in March and again in October through November.

#### **3.5.4 Reptiles and Amphibians**

Humbug Marsh contains American toads, northern leopard frogs and western chorus frogs. Turtles likely include midland painted turtle, common snapping turtle, common map turtle, eastern spiny softshell, and Blanding's turtle. Snakes include eastern fox snake, northern water snake, eastern garter snake, and Butler's garter snake.

#### **3.5.5 Insects**

The Rouge River Bird Observatory has surveyed the dragonflies, damselflies, and butterflies at Humbug Marsh and the 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.

### **3.6 Federally Threatened and Endangered Species**

The Indiana bat (*Miotis sodalis*) and the northern riffleshell (*Epioblasma torulosa rangiana*) are two 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*) and northern long-eared bat (*Myotis septentrionalis*) are Federally threatened. The orchid is known to occur only at Pointe Mouillee State Game Area and Cedar Point and Ottawa National Wildlife Refuges at this time. The bat is not known to occur and would only occur in very small numbers. The rayed bean (*Villosa fabalis*) and eastern massasauga (*Sistrurus catenatus*) are candidates for listing under the Endangered Species Act that have the potential to be on the Refuge, but are not currently known to be present.

#### **Indiana Bat (*Myotis sodalis*) – 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*]) 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 nine inches in diameter. Male Indiana bats have been observed roosting in trees as small as three inches in diameter.

#### **Northern Riffleshell (*Epioblasma torulosa rangiana*) – 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 streams within the Refuge acquisition boundary:

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

#### **Eastern Prairie Fringed (*Orchid Platanthera leucophaea*) – 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 (Island only), 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.

#### **Northern long-eared bat (*Myotis septentrionalis*) – Threatened**

Since listing as threatened in April 2015, the northern long-eared bat population has declined very significantly in the core part its geographic range due to White Nose Syndrome (WNS). Hibernacula in this core range, including most of the Northeastern United States, have experienced a 99% decline in northern long-eared bats. WNS is expected to spread throughout the rest of the species range, which includes much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and eastern British Columbia. WNS could have a similarly acute impact on the population of northern long-eared bat in the rest of the species range.

Several additional factors have contributed to its decline, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, fragmentation of forest habitat, and loss and degradation of forested habitat, particularly stands of large, mature trees, and wind farms. An interim rule under the authority of section 4(d) of the Act provides measures that are necessary and advisable to provide for the conservation of the northern long-eared bat.

Species of *Myotis* are uncommon in lower Michigan. Those that would be present in and around Refuge land are presumed to hibernate in caves in Kentucky and Indiana. This generally exceeds the distance most *Myotis* migrate each spring (approx.. 350 miles).

The proposed hunt does not impact this species, since hunters would not be permitted to damage any trees while hunting and would hunt from ground blinds further eliminating the chance of disturbing this species.

#### **Rayed Bean (*Villosa fabalis*) – Candidate**

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.

### **Eastern Massasauga (*Sistrurus catenatus*) – 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. 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.

## **3.7 Cultural Resources**

The Michigan Office of the State Archaeologist (MOSA) Inventory Files for the Refuge Gateway site indicates there are no recorded archaeological sites. The Refuge Gateway site was graded and filled in the 1930s and early 1940s. The eastern two-thirds of the site is comprised of introduced fill into wetlands adjacent to the Detroit River. Because the site is mainly fill, was an automotive plant and cleaned up and capped to meet human health and safety standards, there is likely to be no archaeological or cultural resources. Eleven sites south of the Refuge Gateway, including Humbug Marsh, required Phase 2 archaeological investigations out of 17 prehistoric and three historic sites after an initial Phase 1 investigation in 1999. None of the eleven sites qualified for listing in the National Register of Historic Places.

Cultural resources are important parts of the Nation's heritage. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources.

## **3.8 Recreational Opportunities**

A complete review of future public uses is being addressed in the Visitor Services Plan. Currently, Humbug Marsh is open to the public during scheduled events and programs when Refuge staff are available. Hunting is not currently allowed on the Humbug Marsh Unit but is allowed on some Refuge Units, following the Hunting Chapter of the Visitor Services Plan. In general, as described in the Comprehensive Conservation Plan, public

uses at the Humbug Marsh mainland to be considered include: a combination of hiking/interpretative trails, wildlife viewing and photography areas, archery and waterfowl hunting, environmental education stations, visitor center with exhibits, and special seasonal wildlife programs.

Hunting opportunities proposed on the Detroit River IWR already exist on state lands in Monroe County. Currently, Monroe County has nearly 9,265 acres of State land open for hunting of big game, small game and migratory birds. These lands offer a wide range of outdoor recreational opportunities in the form of state parks, game areas, and state recreation areas.

DRAFT

## Chapter 4: Environmental Consequences

### 4.1 Alternative 1(Proposed Action): Annual, Public, Lottery Deer Hunt.

#### 4.1.1 Habitat Impacts

Hunting access would be by foot only, with parking in designated parking areas. The one exception would be the accessible blind located near the education shelter. In this case mobility impaired hunters would be allowed to use their vehicle along an existing gravel road to access the blind. If they prefer they could hunt from their vehicle or the education shelter.

Impacts on vegetation would be inconsequential (i.e., the existing natural communities are not disrupted by moderate pedestrian traffic). Habitats within the Detroit River IWR require periodic disturbance to reach or maintain habitat management goals of the Refuge and are resilient to infrequent foot traffic. Obtaining the desired habitat conditions of the Refuge would not be jeopardized by hunters. In fact, the Refuge has invested in numerous habitat improvement projects in this unit and success is dependent upon reaching the state herd target.

#### 4.1.2 Biological Impacts

Disturbance of resident wildlife will be the same as occurs on the surrounding State Game Areas that allow hunting. The harvest of Refuge wildlife species will be in accordance with Federal regulations and Michigan state limits. Other wildlife, such as migratory birds and upland/small game not being harvested will be disturbed by hunters in the vicinity, and will be flushed as the animals avoid human contact. This disturbance will have no effect on animal populations because it occurs seasonally and infrequently.

#### 4.1.3 Listed, Proposed, and Candidate Species

No effect is expected for any federally listed threatened or endangered species or their critical habitat. No impacts are anticipated for state listed species.

No federally threatened or endangered species occur in areas where Refuge hunting would take place, so no cumulative impacts will occur. It is possible that threatened and endangered species may be found on the Refuge in the future. Individuals of these species would not be impacted by hunting activity. This is because the period when the species are active on the Refuge is not the same time when hunting would be occurring.

### **Threaten and Endangered Species**

#### *Indiana and Northern Long-eared Bats*

The Detroit River IWR contains forest stands that have the potential to be used by these species of bats, but have not been found. Hunting is not anticipated to negatively affect Indiana or Northern long-eared bats if they are found on the Refuge in the future. This is because the bats are expected to migrate away from the important summer roosting and

foraging areas by the time most hunters would visit the Refuge from October 1<sup>st</sup> to mid-December. Hunters would not be permitted to damage trees while hunting and would hunt from ground blinds further eliminating the chance of disturbing these species.

#### *Northern Riffleshell*

Hunting is not anticipated to negatively impact the northern riffleshell if it is found on the Refuge because they are present in underwater habitats where hunter disturbance is negligible.

#### *Eastern Prairie Fringed-Orchid*

Light human traffic from hunters is not a primary threat since damage to mature, seed-producing plants can only occur from June through seed-set in September. Most hunters would visit the Refuge from October 1<sup>st</sup> to mid-December.

#### *Rayed Bean*

Hunting is not anticipated to negatively impact the rayed bean if it is found on the Refuge because they are present in underwater habitats where hunter disturbance is negligible.

#### *Eastern Massasauga*

There were no sightings or evidence of massasaugas during extensive herpetological surveys conducted in units of the DRIWR by Herpetological Resources, Inc. (*Mifsud 2006*). Suitable habitat for this species may no longer exist within the Refuge since the last sighting in Wayne Co. was in the year 1858 (*Michigan Natural Features Inventory 2007*). There are no verified records from Monroe County. Furthermore, hunting activities would not affect this species because the snakes are not as active during the period when most hunters are present from October 1<sup>st</sup> to mid-December. Hunters would not be allowed to damage habitat that could serve as hibernacula.

#### **4.1.4 Public Use**

The National Wildlife Refuge Improvement Act of 1997 defined protecting and managing wildlife as the purpose of national wildlife refuges and the identification of six “priority” public uses known as the Big 6: hunting, fishing, wildlife photography, wildlife observation, environmental education and interpretation. Adding an additional hunt will add another opportunity for the public to engage in this Big 6 activity. In addition, it will help accomplish another of the Refuge’s 2005 Comprehensive Conservation Plan strategies: “Allow fishing and hunting to the maximum extent, except where contaminant exposure, safety or sensitive species needs prohibit such uses.”

Each two day hunt would provide access for up to seven hunters, including one accessible location. At least ten hunts will be offered for a total of at least 70 hunters annually.

Refuge trails and lands within the Humbug Marsh Mainland will need to be closed to all other uses on the specified hunt days. A minimum of ten two-day hunts will be hosted, resulting in a minimum of 20 days when the areas outside of the visitor center will be

closed to public use except for registered hunters. The visitor center will remain open to the public during the hunts.

#### **4.1.5 Refuge Operations**

Demand on refuge staff will increase through administrative duties associated with the lottery notification and law enforcement during the hunt. However, refuge staff have increased from four in 2014 and will reach seven in 2016, including a maintenance person. Again, this alternative is expected to substantially enhance visitor services and help realize the Urban Wildlife Refuge Program goal of creating a connected conservation constituency.

Minimal impacts to refuge facilities (roads, parking lots, and trails) will occur with this alternative. One additional gravel parking lot (45' X 45') would be created off of West Jefferson Ave. This lot will allow parking and access for hunters assigned to blinds south of the Handler Drain. This will cause minimal impacts to localized soils and may cause some temporary wildlife disturbance.

Ground hunting blinds will be temporary in nature and could be easily moved as habitat conditions change within the unit. One accessible hunting blind will be located near the education shelter. Persons with mobility impairments would be allowed to drive their personal vehicle along the access roadway and utilize this blind, their standing vehicle or the education shelter for their hunt.

#### **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.

This alternative would have positive impacts on low-income or minority populations. Adding a lottery, archery deer hunt will provide additional hunting opportunities in southeast Michigan. The Humbug Marsh Unit is within short driving distances of low-income and minority populations in the region. Application fees have not been determined but are expected to be minimal. All revenue generated is expected to go to the MDNR.

#### **4.1.7 Cultural Resources**

This alternative will not have any additional impacts to cultural resources. No sites listed on the National Register of Historic Places are located on fee title tracts within the designated boundaries of the Refuge. Hunting activities will result in no ground disturbance or disturbance to standing structures and would have no effect on any histories properties.

#### **4.1.8 Cumulative Impacts**

Refuge personnel expect no measurable adverse impacts by this proposed action on the Refuge environment which includes wildlife, soils, vegetation, air quality, and water quality. Some disturbance to surface soils and vegetation would occur in some areas,

however these disturbances would be minimal. Access would also be controlled to minimize habitat degradation.

The Refuge's presence in the Metropolitan Area increases the quality of life for some area residents. Hunting would account for only a part of the human activity on the Refuge, since other priority public uses will be expanded in the future as described in a Visitor Services Plan. There are no other hunting-specific activities undertaken by the Service on the Refuge that have significant beneficial or adverse effects when compared to or combined with other socially important activities in the area. Refuge hunting activities under this alternative would not produce significant cumulative effects.

The State of Michigan has administered a hunting program on nearby State Game Areas for decades. During this time, the Michigan DNR has not noted any significant adverse effects of this program on the administration of the State Game Areas or the populations of wildlife species. The hunting program for Detroit River IWR will be similar and consistent with the program administered by the State.

Hunting on the Refuge will expose a large user group to Refuge habitats and facilitate a better appreciation and understanding of these ecosystems. This will increase public interest and volunteer support for wildlife habitat preservation and ecosystem restoration efforts.

There is a potential to have some minimal disturbance on the general public and nearby residents. The disturbance factor is considered minimal, as the refuge already has hunting taking place. Impacts associated with solitude are expected to be minimal given the limited time, season, and space management techniques used to avoid conflicts among user groups.

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

## **4.2 Alternative 2: Annual, Public, Deer Hunt (No Lottery).**

### **4.2.1 Habitat Impacts**

Hunting access would be by foot only, with parking in designated parking areas. The one exception is the accessible hunting location near the education shelter. In this case mobility impaired hunters would be allowed to use their vehicle along an existing gravel road in order to hunt from their vehicle or the education shelter.

Under this alternative, the number of hunters would not be capped at seven per hunt. Instead an untold number of hunters could scout the unit and potentially hunt. Although habitats within the Detroit River IWR require periodic disturbance to reach or maintain habitat management goals and are resilient to infrequent foot traffic, the amount of foot traffic may reach beyond moderate amounts. It is expected hunters would scout the same areas creating well-worn paths that could be susceptible to erosion or scouring.

#### **4.2.2 Biological Impacts**

As unchecked numbers of hunters converge on the unit, disturbance of resident wildlife has the potential to increase. Migratory birds and upland/small game not being harvested will be disturbed by hunters in the vicinity, and will be flushed as the animals avoid human contact. Under Alternative #1, this would occur approximately 20 days between October 1<sup>st</sup> and mid-December. However under this alternative, resident and migratory wildlife would encounter hunters off trail and throughout the unit for two and a half months.

#### **4.2.3 Listed, Proposed, and Candidate Species**

No effect is expected for any federally listed threatened or endangered species or their critical habitat. No impacts are anticipated for state listed species.

No federally threatened or endangered species occur in areas where Refuge hunting would take place, so no cumulative impacts will occur. It is possible that threatened and endangered species may be found on the Refuge in the future. Individuals of these species would not be impacted by hunting activity. This is because the period when the species are active on the Refuge is not the same time when hunting would be occurring. No Federally-listed, proposed, or candidate species would be affected by the alternatives presented in this EA.

#### **Threaten and Endangered Species**

##### *Indiana and Northern Long-eared Bats*

The Detroit River IWR contains forest stands that have the potential to be used by these species of bats, but have not been found. Hunting is not anticipated to negatively affect Indiana or Northern long-eared bats if they are found on the Refuge in the future. This is because the bats are expected to migrate away from the important summer roosting and foraging areas by the time most hunters would visit the Refuge from October 1<sup>st</sup> to mid-December. Hunters would not be permitted to damage trees while hunting and would hunt from ground blinds further eliminating the chance of disturbing this species.

##### *Northern Riffleshell*

Hunting is not anticipated to negatively impact the northern riffleshell if it is found on the Refuge because they are present in underwater habitats where hunter disturbance is negligible.

##### *Eastern Prairie Fringed-Orchid*

Light human traffic from hunters is not a primary threat since damage to mature, seed-producing plants can only occur from June through seed-set in September. Most hunters would visit the Refuge from October 1<sup>st</sup> to mid-December.

##### *Rayed Bean*

Hunting is not anticipated to negatively impact the rayed bean if it is found on the Refuge because they are present in underwater habitats where hunter disturbance is negligible.

### *Eastern Massasauga*

There were no sightings or evidence of massasaugas during extensive herpetological surveys conducted in units of the DRIWR by Herpetological Resources, Inc. (Mifsud 2006). Suitable habitat for this species may no longer exist within the Refuge since the last sighting in Wayne Co. was in the year 1858 (Michigan Natural Features Inventory 2007). There are no verified records from Monroe County. Furthermore, hunting activities would not affect this species because the snakes are not as active during the period when most hunters are present from October 1<sup>st</sup> to mid-December. Hunters would not be allowed to damage habitat that could serve as hibernacula.

#### **4.2.4 Public Use**

While this alternative greatly increases the amount of hunters who could participate in the hunt, all other Refuge users would be kept out of the unit. All Refuge trails and lands within the Humbug Marsh Unit would be closed to all other uses from October 1<sup>st</sup> through mid-December. For two and a half months, no wildlife watchers, hikers, school groups, solitude seekers or other non-consumptive users would be allowed to use the refuge trails. The entire unit would be closed to public use, except for hunters. The visitor center is the only facility that would remain open during the hunt period. This alternative would decrease the Refuge's achievement of the Urban Wildlife Refuge Program because it would close the Refuge for months at a time to other gateway activities, such as bird watching and hiking.

Safety concerns rise when more hunters are concentrated in a given space. This alternative provides no stationary blinds for hunters to use, resulting in hunters not knowing where others are located. As a result, the probability of hunters "walking up" onto hunters already set-up; shooting towards the safety zones; or even unknowingly shooting toward other hunters, increases.

The Refuge would not control how hunters enter the area or create disturbance. More hunters scouting and walking the unit creates impacts on deer movement and habits. The definition of a quality hunt decreases with more people utilizing the area.

#### **4.2.5 Refuge Operations**

If the unit was opened to unlimited hunter access annually from October 1<sup>st</sup> through mid-December, demands on Law Enforcement staff would increase dramatically. Currently the Refuge's Law Enforcement Officer is shared with Ottawa National Wildlife Refuge in Northwest Ohio. Ottawa also hosts deer hunting opportunities which require Law Enforcement personnel. Covering both hunts at two refuges, spread over an hour apart, for two and a half months would be difficult.

Under this alternative, there would be no temporary ground hunting blinds provided. Hunters would be responsible for bringing their own equipment. In addition, it could be difficult for Refuge staff to manage demand for the one accessible hunting location. There are limited roadways and parking areas within the unit suitable for an accessible location.

Minimal impacts to refuge facilities (roads, parking lots, and trails) will occur with this alternative. One additional gravel parking lot (45' X 45') would be created off of West Jefferson Ave. This lot will allow parking and access for hunters assigned to blinds south of the Handler Drain. This will cause minimal impacts to localized soils and may cause some temporary wildlife disturbance.

#### **4.2.6 Environmental Justice**

The Humbug Marsh Unit is within short driving distances of low-income and minority populations in the region. While this alternative does increase the amount of huntable land in Southeast Michigan, it could disproportionately place an adverse economic impact on low-income populations. Unlike Alternative #1, hunters would be required to bring their own blind/deer stand equipment to the hunt.

#### **4.2.7 Cultural Resources**

This alternative will not have any additional impacts to cultural resources. No sites listed on the National Register of Historic Places are located on fee title tracts within the designated boundaries of the Refuge. Hunting activities will result in no ground disturbance or disturbance to standing structures and would have no effect on any historic properties.

#### **4.2.8 Cumulative Impacts**

The cumulative impacts under this alternative are similar to Alternative #1 with three very specific differences: safety, public use, and the quality of the hunting experience.

**Safety:** Under this alternative, access would not be controlled, nor the number of hunters limited. Hunters will not be aware of where others are located, increasing possible accidents.

**Public Use:** For two and a half months, no non-consumptive users would be allowed to use the refuge trails. The entire unit would be closed to public use except for hunters. While this scenario fulfills one strategy from the Refuges' Comprehensive Conservation Plan, it does so at a detriment to all other uses.

**Quality of Hunt:** A reasonable chance of encountering a deer and the chances of successfully pursuing it decreases with more hunters in the area. It may not take long for deer to shift into nocturnal habits due to the amount of activity within the unit. In addition, the solitude and enjoyment usually offered in a quality hunting experience decrease with unnecessary disturbance from others.

### **4.3 Alternative 3: No Action**

#### **4.3.1 Habitat Impacts**

This alternative would continue to keep the Refuge closed to deer hunting. This would prohibit making additional lands available to hunters in Southeast Michigan. The Comprehensive Conservation Plan identified hunting as a future use after an Environmental Assessment determined a Finding of No Significant Impact (FONSI). In

addition, this alternative is in conflict with the 1997 National Wildlife Refuge System Improvement Act, which mandates hunting opportunities be provided when feasible and compatible. Hunting is a tradition within the acquisition boundary and a useful tool to manage ecological communities.

The white-tailed deer population is expected to increase as a result of this alternative. This alternative would only exacerbate the currently high deer densities. The deer population on the Refuge would continue to reflect deer densities greater than most other areas of Wayne and Monroe counties. While the Michigan DNR has recommended 10 – 15 deer per square mile considering land cover type and social parameters, the Refuge Unit held 97 deer per square mile in February 2014 and 172 in January 2015! This trend will continue without some sort of management action taken.

#### **4.3.2 Biological Impacts**

Failure to reduce the deer herd to levels within the carrying capacity of the Refuge unit may have serious impacts on the deer herd, their habitat, and habitats important to an array of forest-dependent wildlife. As the deer population increases and forage becomes less available, deer are expected to exhibit a poorer physical condition, with a greater proportion of deer anticipated to die from starvation. When existing both at high density and poor physical condition, deer are more susceptible to diseases like epizootic hemorrhagic disease and various parasites.

If left unmanaged, the deer herd would survive a number of years at the expense of other wildlife species, a condition contrary to the Refuge's mandate to manage for migratory birds, of which forest-dependent birds are a significant component. The forest will become more unhealthy as the herd increases. This would further reduce food and cover for nearly all species that depend on the layer of vegetation within roughly six feet of the ground. Ground and shrub nesting birds, and small mammals which utilize surface vegetation for food and cover would be adversely affected.

#### **4.3.3 Listed, Proposed, and Candidate Species**

##### *Indiana and Northern Long-eared Bats*

The Detroit River IWR contains forest stands that have the potential to be used by these species of bats, but have not been found. This alternative may impact bat roosting or nursery trees in the long term if the deer population over browses shagbark hickory or other potentially important tree saplings.

##### *Northern Riffleshell, Eastern Prairie Fringed-Orchid, Rayed Bean, and Eastern Massasauga*

No impact on wildlife would occur due to no addition human use or disturbance.

#### **4.3.4 Public Use**

Under this alternative, no additional public use would occur on Refuge lands. Hunting would continue on other refuge units.

#### 4.3.5 Refuge Operations

Demands on Refuge staff would not change under this alternative.

#### 4.3.6 Environmental Justice

This alternative would have no impacts on low-income or minority populations. However, there would be no greater access to hunting locations within Southeast Michigan.

#### 4.3.7 Cultural Resources

The Refuge does not currently own lands that contain sites, buildings or districts within the National Register of Historic Places, but numerous sites exist within the acquisition boundary. Important archaeological features from the earliest recorded culture, the Paleo-Indian, through the Late Woodland periods when Europeans arrived are present, but many are simply undiscovered. This alternative would not impact these resources because individuals hunting would not be allowed to access Refuge land.

#### 4.3.8 Cumulative Impacts

Under this alternative, the refuge would not host a white-tailed deer hunt on the Humbug Marsh Unit. The Refuge would lose the ability to control the herd's population that has already exceeded the carrying capacity of their habitat and impacted the habitat of other wildlife species. Indirect impacts to wildlife populations that are likely to occur under this alternative include negative effects on some resident populations as a result of degradation of their habitat as diversity and/or density of the shrub and herbaceous vegetation layers declines. Deer populations are expected to rise dramatically as can be seen in the last two surveys of the unit. In the long-term, deer over-browsing will reduce forage quality and quantity. The cumulative effect of this alternative would likely be a negative effect on habitat and therefore populations for some species of resident birds and small mammals.

### 4.4 Summary of Environmental Consequences by Alternative

Actions	Alternative 1 (Preferred – Lottery Deer Hunt)	Alternative 2 (Annual, Public, Deer Hunt - No Lottery )	Alternative 3 (No Action)
Impacts on Habitat	Beneficial	Beneficial	Negative
Control of White-tailed Deer Population	Beneficial	Beneficial	Negative
Impact on T&E Species	None	None	Bats – Potential long term effects
Provide Quality Hunt Opportunity	Yes	No	No
Allow Multiple User Groups	Yes	No	Yes
Economic Impacts on	Minimal	Moderate	None

Low Income Populations			
Impact on cultural resources	None	None	None
Impact on Refuge Operations	Minimal	Moderate	None
Achievement of Urban Wildlife Refuge Program	Yes	Yes	No

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## **Chapter 6: List of Preparers**

### **6.1 List of Preparers**

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# **Chapter 7: Public Comment and Response**

## **7.1 Public Comment and Response**

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