U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

DRAFT ENVIRONMENTAL ASSESSMENT

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Hunting Plan for the Detroit River International Wildlife Refuge

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CHAPTER 1. PURPOSE AND NEED FOR ACTION

SECTION 1.1 Purpose

The purpose of this environmental assessment (EA) is to disclose the consequences of three alternatives to opening selected units of the Detroit River International Wildlife Refuge (Detroit River IWR) to hunting. This includes a No Action alternative that would continue the current condition of no permissible public hunting and the Service's preferred alternative which proposes providing public hunting opportunities. This proposal applies to selected existing fee title Refuge lands.

SECTION 1.2 Need

As of 2011, the Refuge included 2,040 acres of fee title lands with authorization to acquire up to 12,000 acres from willing sellers within the approved acquisition boundary. Presently, there are no hunting opportunities available on any parts of the Refuge. Providing hunting opportunities is consistent with the Refuge Comprehensive Conservation Plan (CCP; U.S. Fish and Wildlife Service 2005) and U.S. Fish and Wildlife Service policies on wildlife dependent recreation and hunting as mandated by the National Wildlife Refuge System Improvement Act of 1997.

The guiding principles of the Refuge System's hunting programs as outlined in the *U.S. Fish & Wildlife Manual* (605 FW 2) are to:

- Manage wildlife populations consistent with Refuge System-specific management plans approved after 1997 and, to the extent practicable, State fish and wildlife conservation plans;
- Promote visitor understanding of and increase visitor appreciation for America's natural resources;
- Provide opportunities for quality recreational and educational experiences consistent with criteria describing quality found in 605 FW 1.6;
- Encourage participation in this deeply-rooted tradition in America's natural heritage and conservation history; and
- Minimize conflicts with visitors participating in other compatible wildlife-dependent recreational activities.

Hunting in part fulfills the Refuge CCP which contains the following objectives regarding hunting.

- Objective 2.1. Provide waterfowl hunting opportunities on Refuge lands and waters, subject to state and local regulations and public safety concerns, that meet the definition of quality in the FWS Manual (CCP page 50); and

- Objective 2.2. Allow fishing and hunting to the maximum extent, except where contaminant exposure, safety or sensitive species needs prohibit such uses (CCP page 51).

The Service's Regional Director will review the recommendations assessed in this EA and select one of the three Alternatives presented. The Regional Director will also determine whether this EA is adequate to support a Finding of No Significant Impact (FONSI) or whether an Environmental Impact Statement will need to be prepared.

To initiate or expand hunting programs, the Service must publish in the *Federal Register* any proposed and final refuge-specific regulations pertaining to that use prior to implementing them. The regulations are only one element of a complete opening package, which is comprised of the following documents: hunting plan; compatibility determination; documentation pursuant to compliance with the National Environmental Policy Act of 1969, as amended (NEPA) and appropriate NEPA decision document; Endangered Species Act section 7 evaluation; copies of letters requesting State involvement and the results of the request; draft news release; outreach plan; and the draft refuge-specific regulations.

This EA serves as the NEPA document which analyzes the impacts on environmental, cultural, and historical resources of opening the Detroit River IWR to hunting. The Hunting Plan is presented in this document as the preferred alternative. Proposed uses within this plan have been determined to be appropriate and compatible with the mission of the Refuge System and purposes for which the Refuge was established.

SECTION 1.3 Background

A Hunting Plan has been developed for the Detroit River IWR and proposes to open seven units totaling 309.5 acres of wetlands and uplands currently unavailable for public hunting. An EA must be prepared to meet the requirement mandated under the National Environmental Policy Act of 1969 with an appropriate NEPA decision document. This includes disclosure of the impacts that three alternatives will have on the following categories:

- White-tailed deer population;
- Wild turkey population;
- Small game populations;
- Migratory bird populations;
- Threatened and endangered species populations;
- Fish and wildlife habitat;
- Historical properties and cultural resources; and
- Local socio-economic conditions.

This disclosure includes anticipated impacts on a local, regional, national and continental scale when the effects of individual hunts on the Refuge are allowed to accumulate (Cumulative Impacts -- Section 4.1.5, 4.2.5, and 4.3.5).

Detroit River IWR currently owns 2,040 acres divided into 13 separate units in southeast Michigan along the Detroit River and western basin of Lake Erie in Wayne and Monroe

counties. An additional 3,720 acres divided into five units are managed 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 at the north and south boundaries, respectively. Detroit River IWR is within one hour's drive of nearly seven million people in the Detroit, Michigan – Windsor, Ontario –Toledo, Ohio metropolitan areas.

The majority of the acquisition boundary comprises open water habitats of the lower Detroit River and Lake Erie, including several islands. Habitat types within the coastal and inland portions of the acquisition boundary include Great Lakes coastal marsh, shoal, wet meadow, old field, agricultural land, beach ridge and numerous forest types. These ecosystems preserve the natural communities of plants, animals and other associated biota of the Detroit River and western Lake Erie basin. They are important to the migration of a diverse range of fish and wildlife species that use the Great Lakes ecosystems and its shorelines as migration corridors.

The catalyst for the protection of the Detroit River and the establishment of the Refuge was a partnership of many non-profit organizations, corporations, universities, and governments. In 2005, a Comprehensive Conservation Plan (CCP) and EA for the Refuge were developed and approved (U.S. Fish and Wildlife Service 2005). The CCP and EA address future management of the Refuge, including protecting a maximum of 12,000 acres of land for fish and wildlife and providing visitor services. All six priority public uses (hunting, fishing, wildlife observation, photography, environmental education and interpretation) identified in the National Wildlife Refuge Improvement Act of 1997 could be provided at Detroit River IWR in the future and compatibility determinations have been completed and approved for all of them.

Hunting opportunities are currently not available on any Refuge lands. However, hunting is currently available within the acquisition boundary on State-owned land and is managed and regulated by the Michigan Department of Natural Resources (Michigan DNR). Rules and regulations, including limits, are established by the State of Michigan and/or the U.S. Fish and Wildlife Service.

The National Wildlife Refuge System Improvement Act specifically required that there be public opportunities to enjoy, understand and be part of wildlife conservation on refuges. Lands purchased by the Service are open to limited wildlife-dependent recreational uses. The National Wildlife Refuge System Improvement Act states that compatible, wildlife-dependent recreational uses involving hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation are priority public uses of the National Wildlife Refuge System. The Service determines whether these uses are compatible for each individual refuge. A use is determined to be compatible if it does not interfere with the fulfillment of the mission of the Refuge System or the purpose of the individual refuge.

Following the Regional Director's review of the Hunting Plan, this EA, and approval of the FONSI, and other supporting documentation for opening hunting on the Refuge as described as the Preferred Alternative here, the Service will publish in the Federal Register a Proposed Rule that establishes the hunting program on the Refuge. After the comment period closes for the Proposed Rule, a determination will be made whether to implement Refuge hunting as outlined

in this Hunting Plan. Subsequently, a Final Rule will be published outlining hunting on the Refuge. The Refuge is officially open for the hunting opportunities described here only after the effective date of the Final Rule. Following these approvals, the refuge manager will annually review refuge-specific hunting regulations and the Hunting Plan to ensure continued compatibility and consistency of the visitor services program with existing laws and regulations.

SECTION 1.4 Scoping and Public Participation

Numerous opportunities were given to the public, stakeholder groups, and to the Michigan DNR to provide input relative to the Hunting Plan and formulation of these alternatives. See Table 1 for a brief history of activities relative to Hunting Plan development.

A public meeting was convened on April 30, 2009 at the Westfield Center in Trenton, Michigan to obtain comments on the proposed Hunting Plan. The public was notified of the meeting through media contacts in advance. All organizations known to have interest in the Refuge were contacted directly and invited to represent their interests. Approximately 50 local residents and representatives of organizations attended and were presented the initial Hunting Plan by Refuge personnel.

Key comments noted during the April 2009 meeting included:

- Provide good public access for hunting;
- Open as much of the Refuge as possible to priority public uses;
- Consider impacts to private landowners adjacent to the Refuge; and
- The area within the Refuge acquisition boundary has a long tradition of hunting.

The draft Hunting Chapter and EA were made available for public comment from February 10, 2011 through March 12, 2011. In total, 43 written comments were received. A summary of the comments were as follows is available in Chapter 8 (page 42).

Table 1. A brief history of activities related to Hunting Plan development.

Date	Activity Related to Hunt Plan Development
2000	• Conservation Vision for the Lower Detroit River Ecosystem established between U.S. and Canadian stakeholders
2001	• Detroit River International Wildlife Refuge Establishment Act signed into law
2004	• Comprehensive Conservation Plan developed with broad stakeholder input to guide management for a 15-year timeframe
2005	• Comprehensive Conservation Plan completed and approved by U.S. Fish and Wildlife Service on April 27, 2005 • Michigan DNR and USFWS joint meeting about Refuge (Nov. 23)
2006	• Developed hunting fact sheet for Refuge • Convened hunting public meeting with Gibraltar Duck Hunters

	Association and Downriver Chapter of Ducks Unlimited (April 10)
2006-2009	• Submission of new Refuge Hunt Plans delayed by national law suit
2007	• Refuge Law Enforcement/Public Use Meeting (Feb. 27) • Convened law enforcement coordination meeting, including Michigan DNR staff and conservation officers (May 27)
2009	• Advertised and convened Humbug Marsh Public Use Forum (Jan. 16) • Hunting Program outline developed and sent to Michigan DNR (Joe Robison and Tim Payne) input and concurrence (April 7) • Met with Michigan DNR staff (Joe Robison and Tim Payne) to reach agreement on Hunting Program outline and move forward with development (April 21) • Advertised and convened Public Forum on hunting in the Refuge to present Hunting Program outline to public (April 30)
2009-2010	• Hunting Plan developed • Submitted to FWS Region 3 and Michigan DNR (Oct. 29)
2011	• Hunting Plan and EA opened for comment (10 February-12 March)

CHAPTER 2. PROPOSED ACTION AND THE ALTERNATIVES

SECTION 2.1 Introduction

The 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. Hunting Plan development was delayed for several years because of a national lawsuit over evaluating cumulative impacts of hunting in National Wildlife Refuges. The Hunting Plan was developed in partnership with Michigan DNR and other stakeholder groups.

It is explicitly recognized by the Service that management of all state lands within the acquisition boundary of the Detroit River IWR remains under the authority of the Michigan DNR. This Hunt Plan addresses hunting on Service-owned Refuge lands only.

SECTION 2.2 Proposed Action and the Alternatives

This EA discloses the environmental consequences of three hunting alternatives on the Refuge. Hunting on the Detroit River IWR would be complementary to hunting opportunities on state land in Wayne and Monroe counties, Michigan. There are 9,265 acres of state land available for big game, small game, and migratory bird hunting in the vicinity of the Refuge acquisition

boundary. The Refuge could offer a maximum additional 309.5 acres of upland and wetland acres as of January 2012. This excludes Refuge bottomlands that are currently open waters of the State and already opened to hunting below the Ordinary High Water Mark. This includes Strong Unit (75 acres), Fix Unit (65.36 acres), Calf Island Unit (11.36 acres), Humbug Marsh Unit (island only; 21.50 acres), Sugar Island (28.85), Plum Creek Bay Unit (66.9), and Brancheau Unit (east diked unit only; 40.53 acres).

The Service evaluated consequences of three alternatives for a hunting program on the environmental, cultural, and socio-economic conditions of the Refuge (Table 2 and 3):

Alternative 1) No Action – Refuge is closed to hunting.

Alternative 2) Open Refuge units, pursuant to local ordinances, to big game, small game, and migratory bird hunting with a limited number of unit specific regulations (Preferred Alternative).

Alternative 3) Open Refuge units, pursuant to local ordinances, to big game, small game, and migratory bird hunting in complete accordance with State regulations.

2.2.1 Alternative 1 - (No Action) Refuge is closed to hunting.

This alternative would continue to keep the Refuge closed to hunting. This would prohibit making additional lands available to hunters in southeast Michigan. The Refuge would continue implementing all other components of *Detroit River International Wildlife Refuge Comprehensive Conservation Plan and Environmental Assessment* (U.S. Fish and Wildlife Service 2005).

2.2.2 Alternative 2 - Open Refuge units, pursuant to local ordinances, to big game, small game, and migratory bird hunting with a limited number of unit specific regulations (Preferred Alternative).

This alternative would open the Refuge, where hunting is permitted by local ordinance, for deer, wild turkey, small game, and migratory bird hunting. Some Refuge Units may be closed to hunting (e.g., wildlife habitat restoration and deed restriction). There would be a limit on the number of registered hunters and limited number of days per week allowed on the Brancheau Unit Hunting regulations would seek to minimize differences from State regulations, but some Refuge specific regulations would be implemented.

All Refuge hunting seasons will coincide with state hunting seasons. No hunters will be allowed to access any portion of the Refuge earlier than 1½ hours prior to the state listed morning shooting time or remain on the Refuge past 1 hour after the state listed evening shooting time.

2.2.3 Alternative 3 - Open Refuge units, pursuant to local ordinances, to big game, small game, and migratory bird hunting with regulations in complete accordance with State regulations.

This alternative would open the Refuge, where hunting is permitted by local ordinance, for deer, wild turkey, small game, and migratory bird hunting. Some Refuge Units may be closed to hunting (e.g., wildlife habitat restoration and deed restriction). There would be no limits established on the number of registered hunters allowed in each unit. All Refuge units will be opened according to State hunting regulations for public land. This option would not impose limits on the number of hunters or times of hunts allowed in the Brancheau Unit.

All refuge hunting seasons will coincide with state hunting seasons. No hunters will be allowed to access any portion of the Refuge earlier than 1½ hours prior to the state listed morning shooting time or remain on the Refuge past 1 hour after the state listed evening shooting time.

SECTION 2.4 Comparison of Alternatives

Table 2. Hunting opportunities according to three proposed alternatives. Some of the issues are carried into the impact assessment and described in more detail in Chapter 4.

Fee-owned Units	ALTERNATIVE 1 (No Action)	ALTERNATIVE 2 (Preferred Alternative)	ALTERNATIVE 3
Brancheau Unit	closed to hunting	Waterfowl Only through a managed hunt	Hunting in accordance to State regulations for public land * includes hunting of all species allowed by the State of Michigan
Strong Unit (north of Estral Beach dike only)		White-tailed Deer - according to State regulations Wild Turkey - according to State regulations Small Game - cottontail rabbit - gray, red fox - coyote - ring-necked pheasant - raccoon - gray, fox, red squirrel Migratory Birds - American woodcock - sora - Virginia rail - Wilson's snipe - duck species in accordance with State regulations - Geese in accordance with State regulations All Open Units: no hunting of American crow, opossum, porcupine, weasel (including mink), skunk, ground squirrel, woodchuck, European starling, house (English) sparrows, northern bobwhite (quail), and feral pigeon	
Fix Unit			
Calf Island Unit			
Humbug Marsh Unit (island only)			
Sugar Island Unit			

Strong Unit (south of Estral Beach dike)		closed to hunting – local ordinance restriction	same as Alternative 2
Plum Creek Bay Unit		Waterfowl in open water portion only	same as Alternative 2
Humbug Marsh Unit (mainland portion)		closed to hunting – local ordinance restriction	same as Alternative 2
Ford Marsh Unit		closed to hunting – deed restriction	same as Alternative 2
Gibraltar Wetlands Unit		closed to hunting – local ordinance restriction	same as Alternative 2
Grassy Island Unit		closed to hunting – not approved for public access due to ongoing research and management	same as Alternative 2
Gibraltar Bay Unit		closed to hunting – local ordinance restriction	same as Alternative 2
Mud Island Unit		closed to hunting – local ordinance restriction	same as Alternative 2
Holloway Unit		closed to hunting – deed restriction	same as Alternative 2

Table 3. Key differences between three alternatives to hunting.

Action	ALTERNATIVE 1 (No Action)	ALTERNATIVE 2 (Preferred Alternative)	ALTERNATIVE 3
Regulations	closed to hunting	Brancheau and Plum Creek Bay Units: waterfowl only All Open Units: no hunting of American crow, opossum, porcupine, weasel (including mink), skunk, ground squirrel, woodchuck, European starling, house (English) sparrows, northern bobwhite (quail), and feral pigeon	Complete accordance to State regulations
Limits of Number of Hunters		Limit established only on Brancheau Unit	No limit

CHAPTER 3. AFFECTED ENVIRONMENT

SECTION 3.1 Landscape of Detroit River International Wildlife Refuge

The Detroit River IWR is located along the lower Detroit River and western Lake Erie in Wayne and Monroe Counties, Michigan. The acquisition boundary extends from the mouth of the Rouge River south to the Ohio state line, including islands, shoals, coastal marsh, and uplands within

approximately one mile from the shoreline. The U.S. Environmental Protection Agency and Environment Canada have identified coastal wetlands in the Lake Erie to Lake St. Clair region as distinct from others in the Great Lakes (Chow-Fraser and Albert 1999). The Detroit River consists of a 32-mile long channel bordered by a poorly drained clay lakeplain. The rapidly flowing river is underlain by limestone bedrock. Industrial development dominates the shoreline. The river has 66 miles of Canadian shoreline, 79 miles of U.S. shoreline, five Canadian wetlands with 2,808 acres, and 16 U.S. wetlands with 3,415 acres. The wetlands are principally of two types: (1) channel-side (fringing) wetlands with mineral and organic soils and (2) submergent beds of vegetation with mineral soil, cobble, and limestone bedrock. The submergent beds, which once characterized large portions of the river, have been degraded, and the fringing emergent marsh has been almost completely destroyed. At one time, extensive wild celery beds were important for diving ducks. After a decline in the beds from the 1950s to the 1970s, it appears that the submergent beds are recovering and may be at the levels that existed in the 1950s.

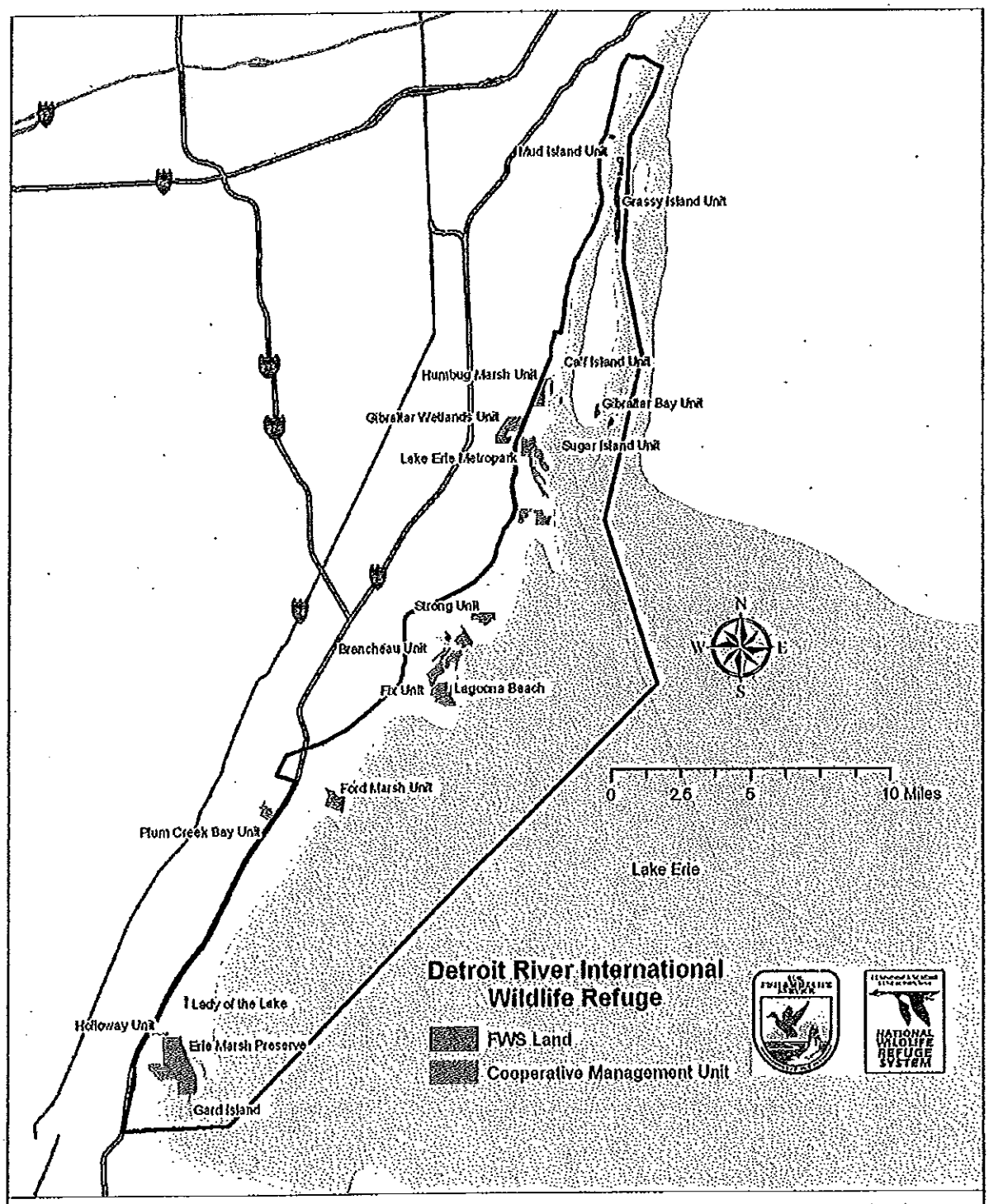
The western shore of Lake Erie is characterized by several small communities, marinas, agricultural fields, State Game Areas, and coastal lagoons and wetlands. The City of Monroe (population 22,000) is the largest community along this coast. The shoreline in many locations has been subject to erosion from storms and wave action during periods of high water on Lake Erie. The coastline near most lakeshore communities and developments has been armored to prevent erosion. The remaining wetlands are protected from the highly dynamic water levels of Lake Erie, either as an embayment or via dikes with water control structures.

SECTION 3.2 Refuge Lands

The Detroit River IWR is currently composed of 18 different units totaling 5,760 acres across 48 miles along coastal areas of the Detroit River and western Lake Erie on the U.S. side (Figure 1). The U.S. Fish and Wildlife Service owns 2,040 acres and the remaining 3,720 acres are privately owned and cooperatively managed with the Service. Established by Public Law 107-91 on December 21, 2001, the Refuge is the first international refuge in North America. The Refuge establishing act redesignated Wyandotte NWR (Grassy and Mamajuda islands) as part of the new international refuge. Currently, Service-owned lands are open to the public only during special events and programs. The cooperatively managed units have a mix of public accessibility.

In total, the Detroit River IWR has grown from approximately 304 acres in 2001 to its current acreage. The Comprehensive Conservation Plan for the Detroit River IWR has set a land conservation target of 12,000 acres (i.e., the Service has identified 12,000 acres of marshes, wetlands, islands, shoals, and uplands that could potentially be conserved through acquisitions, easements, and cooperative agreements).

Figure 1. Detroit River International Wildlife Refuge Units



The Detroit River IWR acquisition boundary contains approximately 126,000 acres of land and water. The Refuge is authorized to acquire a total of 13,300 acres within this larger area. Currently the Refuge contains 5,700 acres.

SECTION 3.3 Fish, Wildlife, and Habitats on the Refuge

The Refuge, of which a majority 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 the shallow shoal areas dominated by wild celery (*Vallisneria* sp.), pondweeds (*Potomogeton* 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 important to bowfin (*Amia calva*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*), largemouth and smallmouth bass (*Micropterus*), northern pike (*Esox lucius*), longnose gar (*Lepisosteus osseus*), and shiners (e.g., *Notemigonus and Notropis*). Insect hatches, especially mayflies (Ephemeroptera) are important in these areas and are a critical part of the food web. Furthermore, these productive shoal habitats are major 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 emergent marshes, communities of plants and animals are highly influenced by frequent water level fluctuation, sediment and seed transport, and chemical cycling. Most emergent wetlands of the Refuge lay on top of shallow clay soil, sometimes creating very anoxic conditions near the surface further influencing ecological succession. Emergent wetland zones are dominated by cattail (*Typha* sp.) and reed (*Phragmites australis*) with associates being arrowhead (*Saggitarria* sp.), bur-reed (*Sparganium* sp.), bulrush (*Scirpus* sp.), and rushes (*Juncus* sp.). Muskrats (*Ondatra zibethicusare*) 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*), eastern fox snake (*Elaphe gloydi*), garter snakes (*Thamnophis*), and turtles. Breeding birds include marsh wren (*Cistothorus palustris*), sora (*Porzana carolina*), Virginia rail (*Rallus limicola*), American bittern (*Botaurus lentiginosus*), least bittern (*Ixobrychus exilis*), and pied-billed grebe (*Podilymbus podiceps*) common moorhen (*Gallinula chloropus*), and ducks. Boreal and arctic breeding shorebirds consume invertebrates in shallow areas and mudflats (especially available during seiches and westerly winds) during migration such as yellowlegs (*Tringa*), sandpipers (*Calidris*), dunlin (*Calidris*), and dowitchers (*Limnodromus*). Furthermore, herons and egrets use these shallow wetlands.

Wet meadow zones are the most species rich areas on Refuge land. These areas are dominated by warm and cool season grasses, including bluejoint grass (*Calamagrastis canadensis*) and reed canary grass (*Phalaris arundinacea*). Plant associates in these areas include Ohio spiderwort (*Tradescantia ohiensis*), 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 many species of sedges (*Carex*) and numerous bulrushes (*Juncus*). The composition is dependent upon the amount and duration of perched water on top of the glacial lakeplain soils during the spring and summer growing season. These areas 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 and are dominated by silver maples (*Acer saccharinum*), green ashes (*Fraxinus pennsylvanica*), 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.

Upland areas are croplands in different stages of forest succession which are dominated by smooth (*Cornus amomum*) and rough-leaved dogwood (*Cornus drummondii*), hawthorns (*Crataegus*), ashes, and elms. Wet-mesic and mesic flatwoods communities occur where clay soil is near the surface creating vegetative mosaics from the differing degrees of standing water so that oak and hickory (*Carya*) dominates drier areas, while green ash, elm, and red and swamp white oak (*Quercus rubra*) 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.

SECTION 3.4 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*) 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. The rayed bean *(Villosa fabalis)* and eastern massasuaga *(Sistrurus catenatus)* are candidates for listing under the Endangered Species Act and have the potential to be on the Refuge, but are 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 (Kurta and Rice 2002). Roost trees are generally dead, dying or live trees (e.g., shagbark hickory [*Carya ovata*], oaks [*Quercus*], and ash [*Fraxinus*]) 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.

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. The northern riffleshell 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 (Threatened)

The eastern prairie fringed-orchid occurs in remnant patches of lakeplain prairie where trees and shrubs are prohibited/inhibited 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.

Rayed Bean (Candidate)

Extant populations of the rayed bean mussel 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 Massausaga (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.

SECTION 3.5 Historic Properties and Cultural Resources

The Service has some information about cultural resources associated with the part of the Refuge formerly known as the Wyandotte NWR in Wayne County. The Service has no information about cultural resources for the Refuge in Monroe County. Presumably the situation for the Detroit River IWR as a whole should be similar to the information presented in the "Overview Study of Archaeological and Cultural Values on Shiawassee, Michigan Islands, and Wyandotte National Wildlife Refuges in Saginaw, Charlevoix, Alpena, and Wayne Counties, Michigan," (Robertson et al. 1999).

Grassy Island and Mamajuda Island are small, ephemeral islands in the Detroit River. Historic maps show substantial size and shape changes through time, and they have been affected by dredge spoil or other materials placed on the islands. Records indicate a seasonal fishing camp by a Native American woman prior to 1807 and Euro-American fisheries in the second half of

the 19th century. Thus the islands, which are probably typical of others in the Detroit River, have had temporary human use and occupation from prehistoric times to the present.

Archeological records show evidence of 13 recorded archeological sites on the Michigan mainland within 2 miles of the two islands. One site is prehistoric and two are 19th century Native American culture; the remainders are 19th century Euro-American residences, cemeteries, a community, and an unknown historic site. Beyond that, however, southeast Michigan and western Ontario have archeological sites from the earliest recorded culture, the Paleo-Indian, through the Late Woodland periods when Europeans arrived.

Turmoil associated with arrival and westward advancement of Euro-Americans in the French and British colonies and the United States so disrupted Indian tribes in the area that virtually no connection can be made between prehistoric cultures found in the archeological record and historic tribes located in the area. Modern Indian tribes that may have cultural interest in the Refuge area include the Ottawa, Huron, Wyandotte, and Ojibwa. Other cultural groups may have interests in the cultural resources of the Refuge, but none have been identified.

As of January 2003, the National Register of Historic Places lists 209 sites, buildings, and districts within the City of Detroit. The list contains no prehistoric archeological properties on Refuge land. 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.

SECTION 3.6 Local Socio-Economic Conditions

The Detroit River IWR lies within a population of nearly seven million people and near an international border crossing. 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.

Currently, Monroe County has nearly 9,265 acres of State land open for hunting of big game, small game and migratory birds. FLW Outdoors, one of the largest tournament fishing organizations in the world, has traditionally scheduled Bass Fishing League tournaments and a Walleye Tour event in the Detroit River, which is economically important to local businesses. The Downriver Walleye Federation annually hosts numerous tournaments in the Detroit River and Lake Erie. Many local businesses specialize in bait, tackle, and boat merchandise and charter fishing and hunting companies are available throughout the year. Waterfowl hunting is heavy on nearby state land and at the mouth of the Detroit River.

Wildlife viewing, especially birdwatching, has become increasingly important in drawing visitors to this area. 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.

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

This chapter presents the scientific and analytic basis for the comparison of the alternatives. This section evaluates the probable consequences of the three proposed alternatives, using the best available scientific monitoring and research, on the environmental and cultural resources (Table 4).

SECTION 4.1 Alternative 1 - (No Action) Refuge is closed to hunting.

4.1.1 Habitat Impacts

A no hunting alternative would cause no additional human disturbance on habitat features.

4.1.2 Biological Impacts

This alternative will result in few, if any, biological impacts. There is no data to suggest that a no hunting alternative will affect the populations of any species in this area.

4.1.3 Listed Species

No effect is expected for any of the threatened and endangered species found within the boundaries of the Refuge under this alternative. There are currently no federally threatened or endangered species on fee title lands..

4.1.4 Historic Properties and Cultural Resources

This alternative will result in no additional ground disturbance or disturbance to standing structures, and it would have no effect on any historic properties.

4.1.5 Cumulative Impact Analysis

4.1.5.A Anticipated Direct and Indirect Impact of No Action on Wildlife Species

This alternative would have no effect on wildlife populations.

4.1.5.B Anticipated Direct and Indirect Impact of No Action on Refuge Programs, Facilities, and Cultural Resources.

The Refuge is closed to the public. Under this alternative, the public would not have the opportunity to participate in hunting, which is one of the priority public uses, and compatible with the purposes for which the refuge was established. By not allowing hunting, the Service

would not be meeting a public use demand and public relations would not be enhanced with the local community.

Refuge Facilities. No additional impacts to refuge facilities (roads, parking lots, trails) will occur with this alternative.

Cultural Resources. This alternative will not have any additional impacts to cultural resources. No sites listed on the National Register of Places are located on fee title tracts within the designated boundaries of the Refuge.

4.1.5.C Anticipated Direct and Indirect Impact of No Action on Refuge Environment and Community

The No Action alternative will have no additional impact on soils, air quality, water quality or solitude. This alternative may have impacts on hunting opportunities in the local area. Urban development of natural landscapes and agricultural areas in southeast Michigan has increased the importance of public land to hunters.

4.1.5.D Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

This alternative would not allow hunting, and therefore, there would be no anticipated impacts on other past, present, proposed, and reasonably foreseeable hunts from this alternative.

4.1.5.E Anticipated Impacts If Individual Hunts are Allowed to Accumulate

This alternative would not allow hunting on fee title units of the Detroit River IWR, and therefore there would be no anticipated impacts.

4.1.6 Environmental Justice

Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was signed by President Bill Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment. This assessment has not identified any adverse or beneficial effects for either alternative unique to minority or low-income populations in the affected area. Neither alternative will disproportionately place any adverse environmental, economic, social, nor health impacts on minority or low-income populations.

Hunting opportunities proposed on Detroit River IWR already exist on state, federal and other public lands in the area where the refuge units are located. Maintaining the "Closed to Hunting" status, Refuge fee title lands does not provide for all the priority public uses identified as goals of the Refuge or the National Wildlife Refuge System. The Refuge Recreation Act of 1962 (16 U.S.C. 460K) and the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668-ddee) provide authorization for hunting and fishing on National Wildlife Refuges. The effects of hunting on refuges have been examined in several environmental review documents, including the Final Environmental Impact Statement on the Operation of the National Wildlife Refuge System (1976), Recommendations on the Management of the National Wildlife Refuge System (1978), and the Draft Environmental Impact Statement on the Management of the National Wildlife Refuges (1988). Nothing in the establishing authority for the Detroit River IWR [Fish and Wildlife Act of 1956{16U.S.C. 742f}] precludes hunting on the Refuge.

SECTION 4.2 Alternative 2: Open Refuge units, pursuant to local ordinances, to big game small game, and migratory bird hunting with some Refuge specific regulations (Preferred Alternative).

4.2.1 Habitat Impacts

Hunting access would be by foot only, with parking restricted to designated parking areas. 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. Development of hunting opportunities for persons with disabilities would utilize existing roads or trails. Under this alternative, each year an estimated 1,021 hunters would utilize the 309.5 acres opened to hunting (900 for migratory birds, 46 for small game, and 75 for big game hunters). The resulting density of hunters would not impact the habitat conditions.

The Refuge establishing act identified the purposes for which the Refuge was established (Section 1.2). The Refuge's CCP further refines those purposes and identifies goals and strategies that would enable the Refuge to fulfill its mission. In implementing the CCP, the Service conducts habitat management actions that favor healthy and functional ecological communities on Refuge lands. This approach benefits all native fish and wildlife species, including species traditionally hunted. Habitats are not managed to favor hunted species over other species, but are managed to maintain healthy populations of the appropriate species for the type of habitat available. Because of this approach, the implementation of any of the alternatives will not result in significant direct, indirect, or cumulative effects to habitats at any scale due to hunting activities.

4.2.2 Biological Impacts

Disturbance of migratory birds, upland and small and big game, and 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 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.

4.2.3 Listed Species

No effect is expected for any federally listed threatened or endangered species or their critical habitat. A consultation pursuant to Section 7 of the Endangered Species Act has been conducted as part of this EA and the updated Hunting Plan. 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 Bat

The Detroit River IWR contains forest stands that have the potential to be used by Indiana bat, but the species has not been found. Hunting is not anticipated to negatively affect Indiana bats if they are found on the Refuge in the future. This is because the Indiana bat is expected to migrate away from the important summer roosting and foraging areas by the time most hunters would visit the Refuge from mid-September to December ember. Hunters would not be permitted to damage trees while hunting and would be required to use temporary trees stands 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, occurring prior to mid-September to December when most hunting occurs.

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 mid-September to December. Hunters would not be allowed to damage habitat that could serve as hibernacula.

4.2.4 Historic Properties and Cultural Resources

There are no historical properties documented on current Refuge lands. Hunting is not expected to cause ground disturbance or disturbance to standing structures and will have no effect on any historic properties located on lands acquired in the future.

4.2.5 Cumulative Impact Analysis

4.2.5.A Anticipated Direct and Indirect Impact of Proposed Hunt on Wildlife Species

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. The majority of lands that will become Service-owned tracts of Detroit River IWR are in private ownership when purchased by the Service. Many of these private lands are hunted at some time during the year. Any impacts that hunting is having on this land and its wildlife populations are already occurring and the change in ownership to the Service, and the subsequent hunting, will have little to no impact on wildlife populations.

Resident Wildlife

Numerous resident hunted wildlife populations in Michigan are actively managed or monitored by the Michigan Department of Natural Resources. Through surveys and monitoring, the state carefully develops density figures when determining each year's harvest needs to keep populations healthy. The resident wildlife populations in the Refuge are not expected to measurably change as a result of this alternative. The estimated 1,021 hunters across 309.5 acres opened to hunting during one year would not affect the populations of resident wildlife. The wildlife populations on Refuge units should continue to reflect densities in the surrounding natural areas.

White-tailed Deer

Projected harvest of deer on the Refuge is based on data from the 4,040-acre Pointe Mouillee State Game Area, which is within the Refuge acquisition boundary. There was an estimated 65 deer on September 1, 2009 and was followed by a harvest of 20 during the fall. Under Alternative 2, the Refuge will open an area that is 8% the size of Pointe Mouillee. Using this information, the annual harvest is estimated to be zero to ten deer. The deer population on the Refuge should continue to reflect deer densities greater than most other areas of Wayne and Monroe counties.

The Michigan DNR evaluates periodic white-tailed deer population surveys, hunter check stations, vehicle collision reports, crop damage complaints, and mail-in surveys from hunters in southeast Michigan. The resulting data are intended to assess trends in the deer herd. This is requisite to appropriately adjust harvest quotas to reach a scientifically defensible and socially acceptable deer population goal. Michigan's deer herd is managed by means of Deer Management Units (DMU) that cover specific geographic boundaries throughout the state. Wayne County is in Deer Management Unit 082, while Monroe County is in Deer Management Unit 058. The Michigan DNR has established the goal of 10 deer per square mile in these two units. The management units are within the population goal range, but there are locations where deer densities are much greater, including some Refuge units. The 2005 estimate of deer in DMU 082 was 800 deer, with a goal of maintaining 1,200 to 1,800 between 2006 and 2010. DMU 058 contained an estimated 5,300 deer in 2005 with a goal of maintaining 5,000 to 7,500 between 2006 and 2010.

An estimated 375 deer were within Grosse Ile Township in February 2008, or 36 deer per square mile. The high density of deer within adjacent Grosse Ile Township has required a contractor to conduct a large-scale removal in recent years. The projected harvest of zero to ten deer per year will have no consequential effect on the population.

Wild Turkey

Wild turkeys may be hunted within the Refuge under this alternative. The number of licenses issued for public land in the turkey management zone in Wayne and Monroe counties is strictly regulated by a lottery system administered by the Michigan DNR to ensure sustainability of the turkey harvest. Based on permit availability and the 309.5 acres of Refuge land opened to hunting under this alternative, it is projected that < 2 wild turkeys would be harvested on the Refuge annually. Considering that turkeys are a highly managed species, the number of permits issued for the management zone, and the relatively small proportion of the zone that Refuge lands comprise, it is reasonable to conclude that hunting turkeys on the Refuge under this alternative would have no significant adverse impact on local, or regional turkey populations.

The increase in the turkey population on lands surrounding the Refuge in the last decade is due to an introduction program and conservative hunting quotas. Spring turkey hunting was opened in Wayne and Monroe County in 2001 and there has been a quota of approximately 40 bearded turkeys in the two counties on public land since 2002, in addition to an unlimited number of single harvest licenses for private land. The harvest in Monroe County (based on a voluntary

sample), which contains the only open units that would reasonably contain wild turkeys, has consistently grown each year from 26 to 112 bearded turkeys between spring 2001 and 2009 (Figure 2). There were 314 hunters in the Wayne and Monroe counties in spring 2009 with forty licenses available.

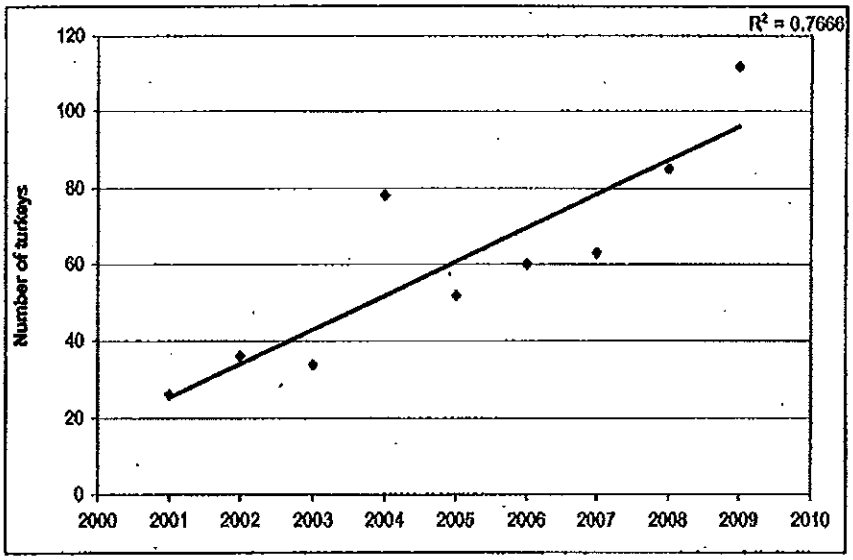


Figure 2. The number of wild turkeys harvested in Monroe County, Michigan between 2001 and 2009. Data from Frawley 2001, 2002, 2003, 2005a and b, 2006, 2008a and b, and 2010.

Small Game

Small game populations are expected to fluctuate in response to natural ecological cycles with some individual mortality from hunters as a result of Alternative 2. It is not possible to project the small game harvest on the Refuge with the available information. This alternative would remove some individuals of the Refuge's larger carnivores (coyote, raccoon, and fox), but would not be the cause for a population change.

All of the species proposed for hunting have populations that are cyclical because of inter and intra-specific competition for changing food resources, winter weather severity, and other ecological factors from changing habitat conditions. The management of these species is underpinned by the scientific field of population ecology. Based on repeated empirical evidence, small game harvest is a compensatory form of mortality in ecosystems like the Detroit River IWR (i.e., hunters of these species are not substantially adversely affecting those populations on the Refuge because they are taking fewer individuals than would perish due to limited resources and weather). This concept of animal surplus relates especially well to species with high potential for population increase and high mortality rates. For example, the annual mortality rate for squirrels can be upwards of 0.40, and cottontail rabbits are known to have up to 0.80 annual mortality rates.

Surveys of Michigan small game hunters have been conducted by the Michigan DNR (Frawley 2008c and d). In 2007, an estimated 202,618 people in Michigan hunted small game. Table 5

presents harvest data from 2007 for species proposed for hunting at Detroit River IWR.

Table 5. The estimated number of small game harvested in Michigan in 2007. Data from Frawley 2008c and d.

Species	Number Harvested
Cottontail Rabbit[1]	365,946
Gray Fox[2]	3,208
Red Fox[2]	8,841
Coyote[3]	56,704
Ring-necked Pheasant[1]	65,817
Raccoon[2]	171,506
Squirrels (fox, red, gray [including black phase])[1]	506,814

[1] Estimates calculated from small game license holders
[2] Estimates calculated from fur harvester license holders with hunting and trapping combined
[3] Estimates calculated from hunting and trapping combined using all forms of harvest licenses

Frawley 2008d suggested raccoon and opossum may be increasing in Michigan during the last 20 years, while red fox may be declining. The latter trend coincides with an increase in coyote harvest, suggesting red fox are declining because of inter-specific competition with coyotes. The 202.07 acres that are proposed for small game hunting at Detroit River IWR is less than 10% of the area owned by the U.S. Fish and Wildlife Service as part of the Detroit River IWR. This small increase in hunt-able lands will have an inconsequential impact on populations of small game, although individual animals will be affected.

Migratory Birds

The Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior. The Service annually promulgates regulations (50 CFR Part 20) establishing the Migratory Bird Hunting Frameworks from which States may select season dates, bag limits, shooting hours, and other options for each migratory bird hunting season. The Frameworks are permissive in that hunting of migratory birds would not be permitted without them. Thus, Federal regulations both allow and limit the hunting of migratory birds.

National Environmental Policy Act (NEPA) considerations by the Service for hunted migratory game bird species are addressed by the programmatic document, "Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (FSES 88–14)," filed with the Environmental Protection Agency on June 9, 1988. The Service published Notice of Availability in the Federal Register on June 16, 1988 (53 FR 22582), and Record of Decision on August 18, 1988 (53 FR 31341). Annual NEPA considerations for waterfowl hunting frameworks are covered under a separate Environmental Assessment and Finding of No Significant Impact. Further, in a notice published in the September 8, 2005, Federal Register (70 FR 53776), the Service announced its intent to develop

a new Supplemental Environmental Impact Statement for the migratory bird hunting program. Public scoping meetings were held in the spring of 2006 as announced in a March 9, 2006, Federal Register notice (71 FR 12216).

Waterfowl populations throughout the United States are managed through an administrative process known as flyways. The Refuge is located in the Mississippi Flyway. In North America, the process for establishing waterfowl hunting regulations is conducted annually. In the United States, the process involves a number of scheduled meetings (Flyway Study Committees, Flyway Councils, Service Regulations Committee, etc.) in which information regarding the status of waterfowl populations and their habitats is presented to individuals within the agencies responsible for setting hunting regulations. In addition, public hearings are held and the proposed regulations are published in the Federal Register to allow public comment.

Annual waterfowl assessments are based upon the distribution, abundance, and flight corridors of migratory birds. An Annual Waterfowl Population Status Report is produced each year and includes the most current breeding population and production information available for waterfowl in North America (U.S. Fish and Wildlife Service 2010a). The Report is a cooperative effort by the Service, the Canadian Wildlife Service, various state and provincial conservation agencies, and private conservation organizations. An Annual Adaptive Harvest Management Report (AHM) provides the most current data, analyses, and decision making protocols (U.S. Fish and Wildlife Service 2010b). These reports are intended to aid the development of waterfowl harvest regulations in the United States for each hunting season. In Michigan, the Michigan DNR selects season dates, bag limits, shooting hours, and other options using guidance in these reports. Their selections can be more restrictive, but cannot be more liberal than the AHM allows. Thus, the level of hunting opportunity afforded each State increases or decreases each year in accordance with the annual status of waterfowl populations.

Hunting of migratory birds other than waterfowl is assessed in a similar manner in that species population trends are monitored throughout their range. Via cooperative efforts of public and private partners, populations are monitored when birds are most effectively surveyed. Depending on the species, this may be while they are in their wintering areas, breeding areas, or while migrating. These data are combined with harvest information, such the Harvest Information Program (HIP; Raftovich et al. 2010), and evaluated to ensure an appropriate annual hunting framework throughout the species range.

The cumulative impacts to hunted migratory birds are considered during the establishment of the Migratory Bird Frameworks from which States choose hunting seasons and bag limits. Refuges then choose to reflect State regulations or establish more restrictive specific regulations if necessary, thereby ensuring Refuge hunting will not lead to any adverse cumulative impacts. Futhermore, Refuges are mandated to write an EA for any hunting program and future changes to it, which addresses specific local impacts to populations, as well as adverse impacts to regional and continental populations of migratory birds.

Local, Regional and Flyway Analysis: Harvest information is available through a cooperative State-Federal program that monitors hunter activity and harvest in the United States called the Migratory Bird Harvest Information Program (HIP; Raftovich 2010). These two datasets, along

with local reports from the Pointe Mouillee State Game Area (PMSGA), are used in this EA to assess the scale and potential impact of opening hunting at Detroit River IWR on the populations of these migratory birds. PMSGA is the largest State Game Area within the Refuge acquisition boundary, and provides the most available local information for projecting hunter pressure and harvest at Detroit River IWR. Projected harvest on Refuge land was calculated by multiplying the five-year mean (2005-2009) harvest of the managed hunts at PMSGA by 0.08. This reflects the percentage of Refuge land opened to hunting to that of PMSGA. The Brancheau Unit would employ a similar managed hunt and would likely represent the majority of migratory birds taken on the Refuge because of its relatively large size and quality of the habitat. The tables also compare these available local data with 2009 data from Michigan HIP (Cooley and Gossett 2009; Raftovich et al. 2010)

Migratory Waterbirds

There is high variability in the North American coot population with a long-term average of 1.75 million coots from 1955 to 2009. There have historically been very few coots taken in southeast Michigan. PMSGA reports the harvest of coot is annually less than 5% of the total waterfowl taken during the managed hunts with less than a mean of 5 individual birds between 2005 and 2009 (Table 6). Hunting of coots at Detroit River IWR is not anticipated to contribute to adverse cumulative impacts to the population of American coot in the region, state or flyway.

Table 6. American coot harvest (Data from Cooley and Gossett 2009; Raftovich 2010).

American Coot	
Location	**#'s Harvested**
Detroit River IWR (Annual Projection)	**0.384**
Pointe Mouillee SGA (2005-09 mean)	**4.8**
Michigan (2009)	**9,500 ±147%[1]**

[1]Variance estimates are presented as 95% confidence interval as percent of the point estimate.

The only long-term dataset available for assessing the North American population trends of snipe and rail is the North American Breeding Bird Survey. These data are not sufficient to determine Michigan trends for sora and Virginia rail (both considered "rails") and are not reliable for snipe at this time. Michigan allows hunting of sora, Virginia rails, and common snipe. These three species also do not show a statistically significant population trend in North America. In the Mississippi Flyway, 98% of rails harvested are sora and 2% are Virginia rails. Very few rails and snipe are anticipated to be harvested in the Detroit River IWR based on harvest information from the state of Michigan and PMSGA (Table 7). Hunting of sora, Virginia rails, and snipe at Detroit River IWR is not anticipated to contribute to an adverse cumulative impact on these populations in the region, state, or flyway.

Table 7. Snipe and Rail Harvest (Data from Cooley and Gossett2009; Raftovich 2010).

Rail sp.	
Location	**#'s Harvested**
Detroit River IWR (Annual Projection)	**0-10**
Pointe Mouillee SGA (2005-09 mean)	**0**
Michigan (2009)	**4,700±131%[1] (snipe)** **300±195%[1] (rail)**

[1]Variance estimates are presented as 95% confidence interval as percent of the point estimate.

Other Migratory Game Birds

The American woodcock population is managed on the basis of two independent populations, the Eastern and Central. Michigan woodcock are in the Central Management Region and have shown a -1.12% change per year from 1968-2010 (Cooper and Parker 2010). The Central population data showed a 0.97% long-term decline. Very few woodcock are anticipated to be harvested in the Detroit River IWR based on harvest information from the state of Michigan and PMSGA (Table 8). Hunting of woodcock at Detroit River IWR is not anticipated to contribute to an adverse cumulative impact on these populations.

Hunting of woodcock on the Refuge will be in coordination with the Migratory Bird Commission and the Michigan DNR. Recommendations made by the Woodcock Task Force and their Woodcock Conservation Plan will be taken into consideration with future hunting activities on the Refuge.

Table 8. American Woodcock Harvest Data (Data from Cooley Gossett 2009; Raftovich et al. 2010).

American Woodcock	
Location	**#'s Harvested**
Detroit River IWR (Annual Projection)	**0-10**
Pointe Mouillee SGA (2005-09 mean)	**0**
Michigan (2009)	**80,900±22%[1]**

[1]Variance estimates are presented as 95% confidence interval as percent of the point estimate.

Ducks

The Waterfowl Breeding and Habitat Survey provides the best estimate of waterfowl populations and trends (U.S. Fish and Wildlife Service 2010a and b). The 2010 breeding population of 7 species was above the long-term average (Table 9). Scaup (both lesser and greater) and northern pintail showed a low breeding population in 2010 when compared to the long-term average.

The number of waterfowl projected to be harvested on newly opened Refuge land is 0.01% of the waterfowl harvested in the state of Michigan and is not anticipated to contribute to an adverse cumulative impact on these populations (Table 10).

Table 9. 2010 North American waterfowl population status and trends in the traditional survey area (in thousands; Data from U.S. Fish and Wildlife Service 2010a).

Species	2010 Population	% Change from LTA[a]
Mallard	8,430	+12
Green-winged Teal	3,476	+78
Blue-winged Teal	6,329	+36
Gadwall	2,977	+67
Redhead	1,064	+64
Canvasback	585	*+3
Northern Shoveler	4,057	+76
Am. Widgeon	2,425	*-7
Scaup	4,244	-16
Northern Pintail	3,509	-13
Total All species	40,893	+21

[a]Long-term average, 1955–2009.
* Not significant (P-value < 0.05)

Table 10. Duck Harvest (Data from Cooley and Gossett 2009; Raftovich et al. 2010).

Ducks – All Species	
Location	#'s Harvested
Detroit River IWR (Annual Projection)	65.5
Pointe Mouillee SGA (2005-09 mean)	818.6
Michigan (2009)	308,900±13%[1]

Mississippi Flyway (2009)	**6,121,500±6%[1]**

[1]Variance estimates are presented as 95% confidence interval as percent of the point estimate.

Geese

There are three populations of Canada geese that regularly occur in the Refuge -- Southern James Bay, Mississippi Valley, and the Mississippi Flyway Giant. These populations nest in different locations, but have overlapping wintering ranges. The Southern James Bay and Mississippi Valley populations have remained stable, while the Mississippi Flyway Giant population has shown a substantial increase since regular surveys were conducted starting in 1992 (Table 11).

The number of Canada geese projected to be harvested on newly opened Refuge land is annually a fraction of a percent of the geese harvested in the state of Michigan (Table 12). Hunting at Detroit River IWR will not contribute to an adverse cumulative impact on these populations.

Table 11. North American trends (in thousands) of three populations of Canada goose based on spring surveys (Data from U.S. Fish and Wildlife Service 2010a).

	Southern James Bay	Miss. Valley	Miss. Flyway Giant
1988/89	-	352.5	-
1989/90	92.1	518.8	-
1990/91	72.4	254.8	-
1991/92	73.0	438.9	-
1992/93	50.7	411.2	779.4
1993/94	45.7	432.2	909.4
1994/95	74.1	348.2	941.6
1995/96	71.1	362.4	1,037.3
1996/97	87.0	426.0	957.0
1997/98	70.3	312.5	1,140.5
1998/99	108.1	465.5	1,163.3
1999/00	78.7	352.6	1,436.7
2000/01	68.4	325.4	1,296.3
2001/02	55.2	286.5	1,415.2
2002/03	90.2	360.1	1,416.3
2003/04	75.2	276.3	1,430.4
2004/05	42.2	344.9	1,367.0
2005/06	128.9	384.4	1,575.2
2006/07	64.8	402.6	1,454.7
2007/08	92.3	305.2	1,459.8
2008/09	69.2	239.6	1,463.7
2009/10	76.4	339.3	1,608.1

Table 12. Canada Goose Harvest. (Data from Cooley and Gossett 2009 and U.S. Fish and Wildlife Service 2010a.

Canada Goose	
Location	**#'s Harvested**
Detroit River IWR (Annual Projection)	**0.8**
Pointe Mouillee SGA (2005-09 mean)	**10.6**
Michigan (2009)	**162,300±15%[1]**
Mississippi Flyway (2009)	**975,895**

[1]Variance estimates are presented as 95% confidence interval as percent of the point estimate.

Non-hunted Migratory Birds

Poaching and improper identification will occasionally take non-hunted migratory bird species. Public education through refuge interpretation programs and active law enforcement presence from both state and federal officers should minimize illegal and unintentional harvest.

There will be no adverse indirect impact to non-hunted migratory birds if migratory bird hunting is opened on the Refuge. This EA determined that habitat would not be adversely impacted by hunting because of the type of habitat and the Furthermore, disturbance from hunting activities (e.g., noise, human presence) is not expected to significantly decrease the use of the Refuge to non-hunted migratory birds because hunting is already allowed below the ordinary high water mark adjacent to where hunting is proposed in the units. Futhermore, a majority of the Refuge available to non-hunted migratory birds is within local ordinances where hunting is prohibited and these units could serve as "refugia" for brief periods during the peak of waterfowl season when hunting pressure is high.

Non-hunted Resident Wildlife

Non-hunted wildlife would include small mammals such as voles, moles, mice, and shrews; reptiles and amphibians such as snakes, turtles, salamanders, frogs and toads; and invertebrates such as butterflies, moths, other insects and spiders. Except for migratory birds and some species of migratory insects, these species have very limited home ranges and hunting would not affect their populations regionally; thus, only local effects will be discussed.

Some species of insects are migratory. Cumulative effects to these species at the "flyway" level should be negligible. These species are in torpor or have completely passed through the Refuge by the main hunting seasons from mid- September to December. Any hunter interaction would be similar to that of non-consumptive users.

Disturbance to non-hunted wildlife would increase slightly. However, significant disturbance would be unlikely, especially since small mammals are generally inactive during late November and early December and many of these species are nocturnal. Both of these qualities make hunter interactions with small mammals very rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season. Invertebrates are also not active during cold weather and would have few interactions with hunters during the hunting season. Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Vehicles are restricted to roads and the harassment or taking of any wildlife other than the game species legal for the season is not permitted.

4.2.5.B Anticipated Direct and Indirect Impact of Proposed Hunt on Refuge Programs, Facilities, and Cultural Resources

Hunting on the Detroit River IWR is not anticipated to have direct or indirect impacts on other Refuge programs, facilities or cultural resources. Most of the refuge will be closed to hunting as identified in the Hunting Plan because of local ordinances that prohibit hunting or because of habitat restoration activities. Currently, there are no major U.S. Fish and Wildlife Service facilities in units where hunting is proposed. Future construction of facilities will be focused in areas away from major hunting areas, or a non-hunting area would be established around such facilities.

The Refuge does not currently own lands that contain sites, buildings or districts within the National Register of Historic Places.

Other Refuge Wildlife-Dependent Recreation

The Refuge is currently closed to the public and only opened during special events. This alternative will give the public the opportunity to participate in another wildlife-oriented recreation that is compatible with the purposes for which the Refuge was established and have an increased awareness of Detroit River IWR and the National Wildlife Refuge System. The Service will be meeting public use demand and public relations will be enhanced with the local communities.

Refuge Facilities

Few, if any, additional impacts to refuge facilities (roads, parking lots, and trails) will occur with this alternative. Any maintenance or improvement of existing roads and parking areas will cause minimal short term impacts to localized soils and may cause some temporary wildlife disturbance.

Physical developments to accommodate the public's use and enjoyment of these refuge lands will generally be limited to small parking areas, informational and educational signs, and access roads. On some units, short hiking trails and wildlife observation areas may be developed.

Disturbance by vehicles will be limited to existing parking areas. Special access accommodations for persons with disabilities can be allowed, utilizing existing gravel trails on the Refuge. These accommodations will be made on a case-by-case basis by the onsite manager.

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.

4.2.5.C Anticipated Direct and Indirect Impact of Proposed Hunt on Refuge Environment and Community

Refuge personnel expect no measurable adverse impacts by this proposed action on the Refuge environment which includes soils, vegetation, air quality, water quality and solitude. 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.

Increased economic activity will occur under Alternative two and three. This economic activity, while important to the communities near Refuge units, is minor in the larger context of the Detroit Metropolitan Area with its billions of dollars of economic activity. The adverse economic effect of deer-vehicle accidents due to high deer densities in the vicinity of urban Refuge units is unknown and would not change under any of the proposed alternatives.

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 may 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 any of the Alternatives will 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. The majority of lands that will become Service-owned tracts of Detroit River IWR are in private ownership when purchased by the Service. Many of these private lands are hunted at some time during the year. Any impacts that hunting is having on this land and its wildlife populations are

already occurring and the change in ownership to the Service, and the subsequent hunting, will have little to no impact on wildlife populations.

Impacts of the Preferred Alternative on the refuge physical environment would have similar minimal to negligible effects as those found on nearby State Game Areas. Some disturbance to surface soils, topography, and vegetation would occur in areas selected for hunting, and is expected to be minimal. The additional acreage would be utilized more by the public (hunters) than has been previously and might cause increased trampling of vegetation, however the impacts should be minor. Refuge regulations do not permit the use of vehicles off of designated refuge roads. Vehicles for hunters with disabilities would be confined to existing roads and parking lots.

Impacts to the natural hydrology would be negligible. The Refuge staff expects impacts to air and water quality to be minimal and only due to refuge visitors' use of automobiles on adjacent township and county public roads. The effect of these refuge-related activities on overall air and water quality in the region are anticipated to be negligible. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.
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.

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 on public and private land surrounding the Refuge. It is possible that refuge hunting will increase hunting opportunities on surrounding lands by increasing the wildlife moving beyond the boundary of the individual refuge units.

4.2.5.D Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Hunting is a very common activity in the vicinity of the Refuge. However, if public use levels expand in the future, unanticipated conflicts between user groups may occur. Service experience has proven that time and space zoning can be an effective tool in eliminating conflicts between user groups. On a case-by-case basis, the onsite manager, in consultation with the Project Leader, will determine if such a tool is necessary to limit conflicts.

4.2.5.E Anticipated Impacts If Individual Hunts Are Allowed To Accumulate

National Wildlife Refuges, including Detroit River IWR, conduct or will conduct hunting programs within the framework of State and Federal regulations. The Detroit River IWR proposed action is at least as restrictive as the State of Michigan. By maintaining hunting regulations that are as, or more, restrictive than the States, individual refuges ensure that they are maintaining seasons which are supportive of management on a regional basis. The final Environmental Assessment was reviewed and the selected alternative supported by the Michigan

Department of Natural Resources. Refuges will coordinate with the Michigan DNR annually to maintain regulations and programs that are consistent with the States' management program.

The hunting of big game, upland/small game, and migratory bird game species will have minimal impacts to local, regional, state, and flyway populations. The majority of these lands were hunted before being acquired by the Service. Refuge personnel expect approximately the same number of animals will be harvested on refuge lands as were when these lands were in private ownership.

Refuge personnel expect and witness that most hunters respect spacing needs between hunters and blinds and will essentially regulate themselves.

4.2.6 Summary of Cumulative Impacts Analysis for all Alternatives

The implementation of any of the alternatives will have no significant cumulative impacts on the wildlife populations, either hunted or non-hunted species, the natural environment, cultural resources, socio-economic resources, or recreational opportunities. This determination is based on an analysis of potential environmental impacts of hunting on the Refuge together with other projects and actions.

Detroit River IWR proposes to conduct hunting programs within the framework of State and Federal regulations. The proposed Refuge hunting program rules will be the same as, or more restrictive than, hunting regulations throughout the State of Michigan. By maintaining hunting regulations that are the same as or more restrictive than the State, individual Refuges ensure that they are maintaining seasons which are supportive of management on a more regional basis. The Refuge proposes to consistently coordinate with the State about the hunting program. As a result, changes or additions to hunting on the Refuge will have minor effects on wildlife species in Michigan. Although the Preferred Alternative will increase hunting opportunities compared to the No Action Alternative, the slight increase in hunter activity will not rise to a significant cumulative effect locally, regionally, or nationally.

Non-hunted species of vertebrate or invertebrate wildlife will not to be adversely impacted by hunting directly or indirectly at Detroit River IWR. This is because non-hunted species are dependent upon the habitat at Refuge units, not on the occurrence or absence of hunting activities. Since habitat will not be adversely impacted (see Section 4.2.1, page 20, there will be no direct or indirect adverse impacts on these species. Hunters are not anticipated to have a consequential level of disturbance (e.g., noise, human presence) on non-hunted species activities because there are no species present that are known to be sensitive to light to moderate foot traffic and noise. Furthermore, there are no known cascading adverse effects on non-hunted species' populations if individuals of a hunted species are taken from the ecosystem. Lastly, a majority of the Refuge is within local ordinances where hunting is prohibited and would ensure habitat without hunting is still maintained.

4.2.7 Environmental Justice

Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was signed by President Bill Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment. This assessment has not identified any adverse or beneficial effects unique to minority or low-income populations in the affected area. The Proposed Action will not disproportionately place any adverse environmental, economic, social, nor health impacts on minority or low-income populations.

The Refuge Recreation Act of 1962 (16 U. S. C. 460K) and the National Wildlife Refuge System Administration Act of 1966 (16 U. S. C. 668-ddee) provide authorization for hunting and fishing on National Wildlife Refuges. The effects of hunting and fishing on refuges have been examined in several environmental review documents, including the Final Environmental Impact Statement on the Operation of the National Wildlife Refuge System (1976), Recommendations on the Management of the National Wildlife Refuge System (1978), and the Draft Environmental Impact Statement on the Management of the National Wildlife Refuges (1988). Nothing in the establishing authority for the Detroit River International Wildlife Refuge [Fish and Wildlife Act of 1956{16U.S.C. 742f}] precludes hunting on the refuge.

Hunting opportunities proposed on Detroit River IWR already exist on state, federal and other public lands where the refuge units are located. Maintaining the "Closed to Hunting" status, Refuge fee title lands do not provide for all the priority public uses identified as goals of the Refuge or the National Wildlife Refuge System. The Refuge Recreation Act of 1962 (16 U.S.C. 460K) and the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668-ddee) provide authorization for hunting and fishing on National Wildlife Refuges. The effects of hunting on refuges have been examined in several environmental review documents, including the Final Environmental Impact Statement on the Operation of the National Wildlife Refuge System (1976), Recommendations on the Management of the National Wildlife Refuge System (1978), and the Draft Environmental Impact Statement on the Management of the National Wildlife Refuges (1988). Nothing in the establishing authority for the Detroit River IWR precludes hunting on the Refuge.

SECTION 4.3 Alternative 3 - Open Refuge units, pursuant to local ordinances, to deer, small game, and migratory bird hunting with regulations in complete accordance with State regulations and a high investment in harvest reporting.

4.3.1 Habitat Impacts

Same as Alternative 2.

4.3.2 Biological Impacts

Same as Alternative 2.

4.3.3 Listed Species

Same as Alternative 2.

4.3.4 Historic Properties and Cultural Resources

Same as Alternative 2.

4.3.5 Cumulative Impact Analysis

4.3.5.A Anticipated Direct and Indirect Impact of Proposed Hunt on Wildlife Species

Same as Alternative 2.

Resident Wildlife

Same as Alternative 2.

White-tailed Deer

Same as Alternative 2.

Wild Turkey

Same as Alternative 2.

Small Game

Same as Alternative 2.

Migratory Birds

Same as Alternative 2.

Non-hunted Resident Wildlife

Same as Alternative 2.

4.3.5.B Anticipated Direct and Indirect Impact of Proposed Hunt on Refuge Programs, Facilities, and Cultural Resources

Same as Alternative 2.**4.3.5.C Anticipated Direct and Indirect Impact of Proposed Hunt on Refuge Environment and Community**

Same as Alternative 2.

4.3.5.D Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts
Same as Alternative 2.

4.3.5.E Anticipated Impacts If Individual Hunts Are Allowed To Accumulate

Same as Alternative 2.

4.3.6. Summary of Cumulative Impact Analysis

4.3.7. Environmental Justice

Same as Alternative 2.

Table 13. Comparison of Environmental Impacts by Alternative

RESOURCE	ALTERNATIVE 1 (No Action) Refuge is closed to hunting.	ALTERNATIVE 2 (Preferred Alternative) Open Refuge with some unit specific hunting regulations	ALTERNATIVE 3 Open Refuge units in complete accordance to State regulations
White-tailed Deer	No impact.	There may be an increase in mortality from hunting, but densities will continue to reflect area surrounding Refuge units.	Same as alternative two.
Wild Turkey	Populations on the Refuge will remain small into the near future because of Refuge habitat.	A few individual turkeys may be hunted and it would have no impact on the local population because the Refuge is marginal habitat for them.	Same as alternative two.
Small Game	Populations will fluctuate in response to natural cycles.	No change. There will be an increase in mortality from hunting, but would represent the same or fewer individuals that would be expected from natural mortality.	Same as alternative two. More small game species will be hunted, but the impacts are the same as alternative two.
Migratory Birds	Populations will fluctuate in response to natural cycles.	No change. There will be an increase in mortality from hunting, but this would represent the same or fewer individuals that would be expected from natural mortality.	No change. American crow may be hunted, but will have same impact as Alternative two.
Habitats	No impact.	No change. Some vegetation may be trampled and some unplanned trails may be created, but all habitats are in	Same as alternative two.

		relatively early stage of forest or wetland succession and any impacts would be negligible and not change habitat type or reduce quality.	
Threatened and Endangered Species	No impact.	No change. No current endangered species known to be present. Indiana bat would not be present during hunting period; mussel species are underwater; eastern prairie fringed orchid would set seed by October. Massausaga would not be active and habitat cannot be damaged by hunters.	Same as alternative two.
Historic Properties and Cultural Resources	No impact.	No change.	Same as alternative two.
Provides for Priority Public Uses	No, Refuge is closed to hunting – a priority public use of the National Wildlife Refuge System.	Yes.	Yes.

CHAPTER 5. REGULATORY COMPLIANCE

The Refuge Recreation Act of 1962 (16 U.S.C 460k) authorizes the Secretary of the Interior to administer National Wildlife Refuges for public recreation as an appropriate incidental or secondary use (1) to the extent that is practicable and consistent with the primary objectives for which an area was established, and (2) provided that funds are available for the development, operation, and maintenance of permitted recreation.

The National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 688dd-ee) authorizes the Secretary of the Interior to permit the use of any area within the NWR System for any purpose, including but not limited to hunting, fishing, and public recreation whenever those uses are determined to be compatible with the purposes for which the area was established. The Improvement Act of 1997 is the latest amendment to the NWR System Administration Act. It supports the NWR System Administration Act's language concerning the authorization of hunting and other recreational uses on Refuge lands. The NWR Improvement Act substantiates the need for the NWR System to focus first and foremost on the conservation of fish, wildlife, and plant resources and their habitats and states that other uses will only be authorized if they are determined to be compatible with this mission statement and the purposes for which the Refuge was established.

The Detroit River IWR was established under the authority of the Fish and Wildlife Act of 1956 and its purpose is to provide for the development, advancement, management, conservation, and protection of fish and wildlife resources [16 U.S.C. 742f(a)(4)]. Providing hunting opportunities is consistent with the Refuge Comprehensive Conservation Plan (CCP; U.S. Fish and Wildlife Service 2005) and U.S. Fish and Wildlife Service policies on wildlife dependent recreation and hunting as mandated by the National Wildlife Refuge System Improvement Act of 1997. The

Service has determined (i.e., Compatibility Determination included with the 2005 CCP) that this use is compatible with the purpose of the Refuge and the mission statement of the NWR System.

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CHAPTER 8: Public Comments and Responses

This chapter of the Environmental Assessment (EA) will present the comments that will be received on this draft EA and Hunting Plan, and will provide the Service's response to the comments.

The Detroit River IWR Hunting Plan will be a "Living Document". It is anticipated that changes will need to occur as data is gathered, habitats are restored and wildlife populations fluctuate. All major changes will be announced through the development of a supplemental Environmental Assessment and must always remain compatible with the purpose for establishing the Detroit River IWR.

This draft Hunting Chapter of the Visitor Services Plan (commonly called the Hunt Plan) and accompanying draft Environmental Assessment (EA) for the Detroit River International Wildlife Refuge (DRIWR) were prepared by DRIWR staff. The DRIWR is part of the National Wildlife Refuge System that includes over 550 Refuges and has grown to over 150 million acres. The

National Wildlife Refuge System has over a one hundred year history of conserving fish, wildlife, and plants. In addition to this paramount task of wildlife conservation, the National Wildlife Refuge System also manages for six priority public uses: hunting, fishing, wildlife observation, photography, interpretation, and environmental education.

By law, hunting is defined as a legitimate and appropriate general public use on National Wildlife Refuges. In addition, the DRIWR Establishment Act of 2001 and the Comprehensive Conservation Plan for DRIWR published in 2005 explicitly state that the top priority in managing the refuge will be protecting wildlife, followed by providing the six priority uses identified above.

The draft Hunting Chapter and EA were made available for public comment from February 10, 2011 through March 12, 2011 In total, 43 written comments were received. A summary of the comments were as follows.

- 79% (34) of the comments were positive (in favor of implementation of the Hunt Plan); and
- 21% (9) of the comments were negative (against implementation of the Hunt Plan).

Of the 34 positive comments received:

- 65% (22) of the respondents supported hunting and provided specific comments on the approach defined in the draft Hunt Plan and EA;
- 35% (12) of the respondents supported hunting, but provided no specific comments on the approach defined in the draft Hunt Plan and EA;
- 35% (12) of the respondents were pleased that the Hunt Plan would increase hunting opportunities in southeast Michigan;
- 12% (4) of the respondents expressed a preference for Option 2 (i.e., Refuge Open With Refuge-Specific Regulations) presented in the draft EA;
- 6% (2) of the respondents expressed a preference for Option 3 (i.e., Refuge Open in Complete Accordance with State Regulations) presented in the draft EA;
- 3% or one respondent expressed a preference for Options 2 and 3 combined (as presented in the draft EA);
- 9% (3) of the respondents were concerned about opportunities for future generations of hunters;
- 9% (3) of the respondents mentioned the important role that hunters play in support of the National Wildlife Refuge System;
- 9% (3) of the respondents questioned why other areas would not be opened (i.e., one for Grassy Island, one for Gibraltar Bay, and one for Plum Creek Bay);
- 3% or one respondent mentioned the need to balance hunting pressure and protection for a sustainable future;
- 3% or one respondent recommended lottery hunts on all areas to be hunted;

- 3% or one respondent recommended no lottery hunts on any areas due to limited staff resources to administer the hunt and increased workload;
- 6% (2) of the respondents supported a managed control deer hunt in the Humbug Marsh and Gibraltar Wetlands Units (not addressed in current plan);
- 3% or one respondent thought safety was adequately addressed; and
- 3% or one respondent felt that the entire refuge should be open for hunting.

The USFWS appreciates the public support for the DRIWR and this Hunt Plan. Specific comments were addressed in the revised Hunt Plan, including clarifying specific concerns.

In addition to the above comments received in support of the draft Hunt Plan, Michigan Department of Natural Resources recommended that Plum Creek Bay Unit be opened for hunting. The revised Hunt Plan now includes Plum Creek Bay open to waterfowl hunting via boat access only. Gibraltar Duck Hunters Association was the only organization to collectively respond in support of the draft Hunt Plan. The Mayor of Gibraltar Michigan, Jim Gorris, commented in support of a managed, control deer hunt on the upland portions of the Humbug Marsh and the Gibraltar Wetlands Units, and offered support and assistance from the City of Gibraltar. This will be undertaken, as necessary, by the USFWS in the future.

As noted above, nine comments were received opposing implementation of the draft Hunt Plan. Of the nine opposition comments received:

- 67% (6) of the respondents opposed hunting in general;
- 33% (3) of the respondents referenced safety concerns;
- 11% or one respondent referenced increased noise; and
- 11% or one respondent did not want hunting near them.

Again, as noted in the National Wildlife Refuge System Improvement Act of 1997, hunting is defined as a legitimate and appropriate general public use on National Wildlife Refuges. Consistent with all hunting programs of the National Wildlife Refuge System, safety is a paramount concern and every effort will be made to ensure hunter safety and the safety of neighboring residents. Noise will be minimized to the maximum extent practicable.

All opposition comments were from individuals. No opposition comments were received from any groups or organizations. Again, hunting is a compatible public use of the National Wildlife Refuge System and Refuge staff is recommending that hunting be opened in the DRIWR following Option 2 (i.e., Refuge Open With Refuge-Specific Regulations) presented in the draft EA. This option would be the most efficient and pragmatic approach. Many minor comments received have been addressed in the revised Hunt Plan and EA. Examples include: clarifying that trapping is typically not for recreation, but rather for use as a management tool; explaining that Grassy Island will be closed to hunting because of contamination resulting from historical use of the island as a disposal area for contaminated sediment; describing that Lagoona Beach and Lady of the Lake are cooperatively managed with industries and are not open to public access or hunting per company policies and Nuclear Regulatory Commission rules; clarifying

that no deer hunting can occur in mainland upland habitats of Humbug Marsh because of city ordinances; etc.

Again, in response to comments received, Plum Creek Bay Unit will be recommended to be opened for waterfowl hunting via boat access only. Refuge staff reiterate that every effort will be made to ensure the sustainability of fish, wildlife, and plant communities, and to offer quality hunting opportunities. In addition, as is standard practice throughout the National Wildlife Refuge System, a very high priority will be placed on hunter safety. It must be recognized that this draft Hunt Plan and EA cannot be implemented without the strong support of the Michigan Department of Natural Resources, local city and county governments and law enforcement personnel, conservation clubs, and other organizations. As noted in the DRIWR Establishment Act and Comprehensive Conservation Plan, partnerships will be essential in this urban refuge to reach our common long-term goals for conservation and wildlife-compatible public uses.

Again, the USFWS thanks all the people for taking the time to review and/or comment on the draft Hunt Plan and accompanying EA. This Hunt Plan and EA have been prepared with a goal of: protecting wildlife first as a priority; providing a quality, wildlife-compatible, hunting experience; and implementing wildlife and hunting programs within an adaptive management context where assessments are performed, priorities are established, and actions taken in an iterative fashion for continuous improvement with input from all stakeholders. As such, this program will be closely monitored by soliciting comments from hunters and tracking resource status. Hunting opportunities will be modified, as needed, in the future to protect wildlife and ensure a quality hunting experience.

Service has determined (i.e., Compatibility Determination included with the 2005 CCP) that this use is compatible with the purpose of the Refuge and the mission statement of the NWR System.

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