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Fish & Wildlife Service
Horicon National Wildlife Refuge and
Fox River National Wildlife Refuge
Mayville, Wisconsin

Draft
ENVIRONMENTAL ASSESSMENT
FOR CWD SURVEILLANCE AND MANAGEMENT PLAN

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Abstract: Horicon National Wildlife Refuge and Fox River National Wildlife Refuges, refuges under the U.S. Fish and Wildlife Service, Department of Interior, is proposing to implement a CWD Surveillance and Management Plan.

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Draft Environmental Assessment of

Horicon and Fox River NWR

Chronic Wasting Disease

Surveillance and Management Plan

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Chapter 1 Purpose and Need

1.1 Purpose

A contingency plan for managing chronic wasting disease (CWD) in ungulate populations that reside or frequent Horicon National Wildlife Refuge (NWR) or Fox River National Wildlife Refuge (NWR) has been developed. Implementation of the plan will ensure early, rapid, and accurate detection of CWD, and enhance coordination and communication with adjacent wildlife management agencies. The purpose of the Environmental Assessment is to consider various alternative strategies for managing the deer herd on Refuge property in areas where deer infected with CWD have been found or have a high potential of being found.

1.2 Need

Chronic wasting disease poses a significant threat to white-tailed deer populations. The State of Wisconsin recognizes the threat and has developed a CWD Management Plan designed to minimize the negative impact of CWD on wild and captive cervid populations, the state's economy, hunters, landowners, and other people dependent upon healthy wild and farmed populations of deer and elk. The State plan includes five major actions: 1) surveillance, 2) human health protection, 3) CWD research, 4) communications, and 5) disease control.

The Horicon NWR and Fox River NWR are not located within the area of Wisconsin where CWD has been detected. Should a CWD positive deer be detected on Refuge owned lands, a response from the Refuge would be needed to prevent further spread of the disease. That response could follow the procedures/actions outlined in State plans or could deviate from those plans with an alternative strategy. A need exists to define the Refuge's role in implementing State plans on Refuge owned lands. A contingency plan is needed to outline what that response would be.

The plan needs to address a course of action both in the event that infected deer are found on Refuge property and for a proactive management strategy to minimize the spread of the disease. Inasmuch as the Refuge has a secondary role compared to the DNR in deer management, the plan needs to be supportive of the DNR's management strategy to the extent possible. There is a need that Refuge actions not be in opposition, to the extent possible, to the DNR's management strategies. There is a need for the plan to ensure that other trust species and activities on the Refuge be protected from adverse impacts resulting from implementation of deer management actions.

1.3 Decisions that Need to be Made

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

1.4 Background

1.4.1 Disease Background - Chronic Wasting Disease (CWD) is a transmissible spongiform encephalopathy (TSE) of deer and elk in North America. The disease causes accumulation of a protease-resistant protein in central nervous system and lymphoid tissues. The consequence is severe neurological disease and eventual death. Clinical signs of CWD include: 1) no fear of humans, 2) nervousness, 3) teeth grinding, 4) loss of coordination, 5) notable weakness, 6) excessive salivation, 7) drooping of head and ears, 8) diminished facial muscle tone, 9) excessive thirst, 10) excessive urination, 11) difficulty swallowing, 12) severe emaciation and dehydration, 13) rough dull coat, 14) inability to stand, and 15) walking in set patterns.

1.4.2 History in Wisconsin - The Wisconsin Department of Natural Resources (DNR) began active CWD surveillance of hunter harvested deer in 1999. The DNR was notified in February 2002 that three male deer harvested from Deer Management Unit 70A near the city of Mount Horeb in western Dane County tested positive for CWD. A 12-mile radius surveillance area was designated that centered on the three index cases. During March and April 2002, 516 deer were collected from within the surveillance area of which 15 (2.9%) tested positive for CWD. With the appearance of CWD in Wisconsin the State of Wisconsin developed a CWD Management Plan designed to minimize the negative impact of CWD on wild and captive cervid populations, the state's economy, hunters, landowners, and other people dependent upon healthy wild and farmed populations of deer and elk. The State plan identified five major actions needed to manage CWD: 1) surveillance, 2) human health protection, 3) CWD research, 4) communications, and 5) disease control. The plan's recommended best management strategies to control the disease include: 1) depopulation of the deer herd in the known affected area; 2) reduction of deer populations around the affected area to establish a barrier to prevent the spread of CWD outside the affected area; and 3) ban baiting and feeding to limit the transmission of the disease. The WIDNR has identified three management zones to deal with CWD in the state deer population: the CWD Eradication Zone (DEZ), an Intensive Harvest Zone (IHZ), and the Herd Reduction Zone (HRZ) (formerly the CWD Management Zone).

1.4.3 History on Horicon and Fox River NWRs - Currently there have been no CWD infected deer known to have been harvested from either Horicon NWR in Dodge and Fond du Lac Counties or Fox River NWR in Marquette County.

Chapter 2 Alternatives, Including the Proposed Action

2.1 Alternatives not Considered for Detailed Analysis

2.1.1 Alternative D – An alternative that was considered but not analyzed in detail involves the eradication of white-tailed deer from Refuge lands as well as destruction of all habitats which could support white-tailed deer on Refuge lands. This alternative would involve the use of mechanical, chemical or abiotic (fire) treatments to remove vegetation from the Refuges and drive deer off these lands. Simultaneous to application of vegetation removal treatments, aerial sharpshooters, traps or other means of harvesting deer would be employed to eradicate animals. This alternative was not analyzed in detail due to the potential adverse impacts to the myriad of other plant and animal species which are known to inhabit Refuges. Additionally, the complete removal of deer from Horicon NWR and Fox River NWR would not ensure, and in fact would be an extremely minor contribution to the overall efforts to eradicate CWD from the State of Wisconsin. The Refuge lands encompass just under 22,500 acres total and the number of deer which exist on that land base is insignificant when compared to the overall deer population of Wisconsin.

2.1.2 Alternative E – An alternative that was considered, but not analyzed in detail involves the accelerated removal of white-tailed deer from Refuge lands. This alternative would include the use of aerial sharpshooters, traps, and other methods for eliminating deer from Refuge lands. As is the case with alternative D above, alternative E was not considered in detail because the complete removal of deer from Horicon NWR and Fox River NWR would not ensure, and in fact would be an extremely minor contribution to the overall efforts to eradicate CWD from the State of Wisconsin. The Refuge land base is just under 22,500 acres, and the number of deer which exist on that land is insignificant when compared to the overall deer population of Wisconsin.

2.2 Alternatives Carried Forward for Detailed Analysis

2.2.1 Alternative A (Proposed Action) – Under this alternative, the Service would employ many of the measures identified in the State plan. Those measures include Disease and Population Management measures, Surveillance and Coordination measures, Testing and Handling of CWD Suspect Animals, and Baiting and Feeding measures.

Disease and Population Management – Depopulation is best utilized and most successful within the confines of individual game farms. Depopulation in such cases falls under the jurisdiction of the WIDNR; the Wisconsin Department of Agriculture, Trade, Consumer, and Protection (DATCP); and U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS). Qualified Refuge staff may be involved in these activities but only at the request and under the direction of the responsible agencies.

Limiting the possibility of CWD spread within the DEZ, IHZ and HRZ through a drastic reduction of the deer population is promoted by the Refuge. To this end, the Refuge will rely on hunter harvest during established seasons to approach, as nearly as possible, the WIDNR population goals. Under this alternative, the Refuge would work towards adopting all State seasons and regulations for deer hunting.

Sharpshooters will not be initially utilized on Refuge properties to cull deer. This policy may be adjusted on a case by case basis to allow for culling through the use of sharpshooters on Refuge lands based on CWD policy changes by the WIDNR.

Surveillance and Coordination - Prior to development of a contingency plan, Refuge staff had assisted the WIDNR with meeting the goals of the Wisconsin CWD Plan through communication, coordination, and cooperation. An intensive amount of on-going surveillance is being conducted by the WIDNR and DATCP throughout the various CWD Management Zones. Refuge staff will conduct active, opportunistic observations of deer on Refuge lands. Refuge staff will also assist other State and Federal agencies as requested.

Testing and Handling CWD Suspect Animals - Any animals that appear to have the clinical signs of CWD will be euthanized. The appropriate State Point of Contact (POC), in most cases the local DNR Conservation Warden and/or Area Biologist will be contacted prior to euthanizing a suspect animal. POCs will assist with the removal of any deer on Refuge lands. Wardens and Biologists are trained in the proper handling and processing of deer for the CWD testing. Information from the State sampling procedures will be used by the Refuge, along with the results of the passive sampling, to meet the goals of the surveillance portion of the Refuge CWD Surveillance and Management Plan.

CWD is not known to be transmissible to humans, however, other diseases may be. Written procedures and training to assist field stations in collecting CWD samples are currently being developed by the National Wildlife Health Center. Until these are finalized basic common sense precautions will be observed when collecting and sampling animals.

Baiting and Feeding - Baiting and feeding have been and will continue to be illegal on all Refuges.

2.2.2. Alternative B (No Action) – Under this alternative, many of the actions identified in the State plan would remain at current levels.

Disease and Population Management - Refuge personnel would not be involved in depopulation activities on individual game farms.

Hunting on Horicon Refuge includes most State established deer seasons and regulations. Hunting on Fox River Refuge has only included all State established deer seasons and regulations since 2003. Prior to 2003, deer hunting was limited. Hunters would continue to remove deer from those Refuge lands to approach, as nearly as possible, the WIDNR population goals.

Sharpshooters would not be used on Refuge properties to cull deer.

Surveillance and Coordination - Refuge staff would continue to assist the WIDNR with meeting the goals of the Wisconsin CWD Plan through communication, coordination, and cooperation. Passive, opportunistic observations of deer on Refuge lands would continue. Refuge staff will also continue to assist other State and Federal agencies as requested. The appropriate State Point of Contact (POC), in most cases the local DNR Conservation Warden and/or State Area Biologist would be contacted if a sick animal was observed on Refuge lands.

Testing and Handling CWD Suspect Animals – No testing or handling of CWD suspect animals would be completed by Refuge personnel under the no action alternative.

Baiting and Feeding - Baiting and feeding have been and would continue to be illegal on all Refuges.

2.2.3. Alternative C – Under this alternative, the Service would undertake a more conservative approach to managing CWD on Refuge lands.

Disease and Population Management – Refuge personnel would not be involved in depopulation activities on individual game farms.

Hunting within State established seasons and regulations has always been allowed on Refuge lands. However, under Alternative C, Refuge lands would be closed to hunting during the white-tailed deer season in Wisconsin. No additional efforts, including the use of sharpshooters, would be made to cull deer from Refuge lands.

Surveillance and Coordination - Refuge staff would not conduct passive, opportunistic observations on Refuges. No hunter harvested samples would be obtained from Refuge lands because these lands would be closed to hunting as discussed above. Refuge staff would provide little if any assistance to other State and Federal agencies.

Testing and Handling CWD Suspect Animals – No testing or handling of CWD suspect animals would be completed by Refuge personnel.

Baiting and Feeding - Baiting and feeding have been and would continue to be illegal on all Refuges.

Chapter 3 Affected Environment

3.1. Physical Characteristics

Horicon National Wildlife Refuge was established in 1941 for the protection and preservation of migratory waterfowl. It is located in Dodge and Fond du Lac Counties on the west branch of the Rock River in southeastern Wisconsin, 43 miles west of Lake Michigan and 65 miles northwest of Milwaukee. The Refuge comprises the northern two-thirds (21,492 acres) of the 32,000 acre Horicon Marsh, a shallow peat-filled lake bed gouged out by the Wisconsin Glacier thousands of years ago. This basin is 14 miles long and from 3 to 5 miles wide. Horicon Marsh is bounded on the east by a sharply rising ridge of the Niagara escarpment which rises approximately 250 feet above the marsh to an elevation of 1,100 feet. The land to the west of the Marsh rises slowly and is dotted with many small potholes and several shallow lakes. Horicon Marsh is located in the upper reaches of the Rock River watershed.

Fox River National Wildlife Refuge, managed by staff at Horicon National Wildlife Refuge, encompasses 1,004 acres of wetland and upland habitat along the Fox River in Marquette County, Wisconsin. The majority of the current Refuge was acquired in 1978 under the U.S. Fish and Wildlife Service's Unique Wildlife Ecosystem Program for the purposes of protecting an area known as the Fox River Sandhill Crane Marsh from further drainage and protecting an important breeding and staging area for the greater sandhill crane. Refuge objectives include restoring, enhancing, and preserving the wetland and adjacent upland habitat historically found in extensive areas along the Fox River, namely Oak Savanna uplands and Sedge Meadow wetlands. Another objective is to restore, enhance, and preserve the wildlife populations that use the wetland and upland habitats along the Fox River, with special emphasis on those species dependent upon large expanses of natural marsh, such as the greater sandhill crane. Other objectives include protecting the habitats of any Federal or State endangered or threatened species that may utilize the Refuge, such as bald eagles, and to make the Refuge available for outdoor recreation, environmental education, and other public use activities compatible with the above objectives.

3.2. Biological Environment

3.2.1 Habitat/vegetation - The southern forests covered the southern half and western third of the state. Dominant species were primarily oak on the drier sites; sugar maple, basswood, slippery elm, red oak and ironwood on the mesic sites; and silver maple and American elm dominating the lowland sites. In pre-settlement times these forests covered approximately 5.2 million acres with another 7.3 million acres of what is considered oak savanna also falling into this category. Scattered throughout the southern forest type were areas of true tall grass prairie. These prairies covered just over 2 million acres and were most dominant in the southwest corner of the state becoming smaller and more scattered as one moved northeast. North and northeast out of the prairies and oak savanna's one would travel into the forests that dominated the northern half of Wisconsin. These forests supported jack, red, and white pine with red maple and red oak on the dry sites. The more mesic stands of the northern forests were dominated primarily by sugar maple but hemlock and/or beech may have been co-dominant also. Finally, the northern lowland (swamp) forests of Wisconsin are split into the tamarack-black spruce bog forests, the white cedar-balsam fir conifer swamps, and the black ash-yellow birch-hemlock hardwood swamps.

Major land types identified on Horicon National Wildlife Refuge include 16,961 acres of wetlands, of which the majority are classified as deep, freshwater marsh; and 4,336 acres of uplands, including 410 acres of forest land and brush land habitat.

The majority of the Fox River National Wildlife is sedge meadow, wet prairie, and shallow marsh wetlands dominated by many species of sedges, grasses, and cattail. However, other wetland types such as fens, lowland forest, shrub-carr thickets, deep marsh, and open water occur on the Refuge as well. Upland habitats consist of closed canopy upland deciduous forest dominated by white, black, and bur oak, upland dry prairie, and oak savanna.

3.2.2 Listed, Proposed, and Candidate Species

Federally-listed threatened or endangered wildlife species that use the Horicon National Wildlife Refuge include the bald eagle and the whooping crane. Federally-listed threatened or endangered wildlife species that use the Fox River National Wildlife Refuge include the bald eagle, the whooping crane, and the Karner blue butterfly.

The Refuge has completed a Section 7 Intra-Service Biological Evaluation Form (Appendix B) to address the impacts of chronic wasting disease management actions (alternative A) on Refuge lands.

3.2.3 Other Wildlife Species

Horicon National Wildlife Refuge is a major migratory stop-over point for waterfowl of the Mississippi Flyway, with use-days reaching 6 to 12 million annually. Waterfowl production averages about 3,000 per year. Mallards are the principle species of ducks using the area, but green-winged and blue-winged teal, wigeon, redheads, pintails, gadwalls, wood ducks, scaup, and ruddy ducks are also abundant, with peak numbers traditionally reaching 60,000. The marsh is also the largest nesting area for redhead ducks east of the Mississippi River, with an estimated 2,000 to 3,000 birds utilizing the marsh.

Common marsh and water birds include the pied-billed grebe, American bittern, common gallinule, sora and Virginia rails, and sandhill cranes. Tremendous numbers of shorebirds utilize low water pools with counts of a single species typically numbering over 5,000. The Refuge also serves as a major migratory corridor for many raptors including red-tailed hawks, northern harriers, and American kestrels. Overall, 263 species of birds have been observed on the Horicon National Wildlife Refuge.

The Refuge supports a host of resident mammals including white-tailed deer, woodchucks, red fox, squirrels, raccoons, muskrat, skunk, mink, otter, opossum, and coyote. Mammals tend to be most abundant in and around the wetland habitat due to the abundant food and cover available. Muskrats

play an important role in striking a balance between the stands of emergent vegetation and the open water zones.

At one time the Refuge supported a population of game fish that included northern pike, crappie, bluegill, and bass. Carp populations have become a serious problem in the marsh. With habitat degradation due to the carp, game fish populations have dramatically declined. Current management strategies of physical removal, water level manipulation, chemical eradication, and predator stocking are slowly bringing game fish populations back.

The matrix of wetland and upland habitat types present on Fox River National Wildlife Refuge provides excellent habitat for both wetland and upland associated wildlife, such as ducks, greater sandhill cranes, herons, rails, songbirds, deer, turkey, and bobwhite quail. Approximately 60 plus greater sandhill cranes use the Refuge in the summer, but more than 300 cranes use the Refuge as a staging area during most days of fall migration.

3.3 Land Use

Most of Horicon National Wildlife Refuge is located in Dodge County, with a small part in Fond du Lac County. Fox River National Wildlife Refuge is located in Marquette County. With the exception of large urban centers in Madison and Milwaukee, land use around both Refuges is rural in nature with a mix of working farmlands, small rural communities, and small remnant natural areas.

3.4 Cultural/Paleontological Resources

Horicon National Wildlife Refuge has conducted eight cultural resource studies covering 111 acres on the Refuge. Those studies and other sources have identified 23 archeological and historic properties on the Refuge and 231 in Dodge and Fond du Lac counties. People may have visited the marsh 10,000 years ago following the retreat of the last glaciers, but the archeological record begins with the Late Archaic period 2000 B.C. By far the heaviest prehistoric use appears to have occurred during the Late Woodland period A.D. 400-1600. Winnebago, Pottawatomi, and perhaps Europeans first entered the area early in the 17th century, but the first settlers arrived in 1845. One National Register property, the Horicon Site, is located on the Refuge.

At Fox River National Wildlife Refuge, the Wisconsin State Historic Preservation Office (SHPO) has determined that 17 known historic sites including effigy mounds, burial and village sites, campsites and burial mound groups occur within the general vicinity of the proposed boundary.

3.5 Local Socio-economic Conditions

Local socio-economic conditions are reflective of rural farming communities and small towns in the Midwest. Relevant to this EA is the role of hunting in the local culture and economy. Deer and deer hunting are integral parts of Wisconsin's socio-economic fabric (WI DNR, 2003). On opening day of the traditional 9-day gun deer season, nearly 700,000 hunters pursue deer. Economically, deer hunting supports thousands of jobs in Wisconsin and deer hunting's value to the State's economy is estimated at \$1 billion/year. The Wisconsin DNR's CWD management strategy has met with some public opposition and controversy around the strategy that has been developed. Deer hunting is a long-held cultural tradition in Wisconsin and any threats to this tradition are met with staunch opposition. In the case of CWD, the DNR's management strategy is viewed by some as a greater threat to the overall deer population than the disease itself. Others, including technical experts on disease control and management view the DNR approach as the only reasonable approach to eradicating the disease.

Chapter 4 Environmental Consequences

The Wisconsin DNR has published an Environmental Impact Statement on its plan to eradicate CWD from Wisconsin's free-ranging white-tailed deer herd. The environmental consequences of the DNR's plan on ecological, cultural and socio-economic resources are discussed in detail in that EIS. Actions described in the Horicon and Fox River NWR CWD contingency plan would be consistent with actions proposed and evaluated in the DNR's EIS. Readers are referred to the DNR's EIS for more detailed discussion of environmental consequences.

4.1 Alternative A (Proposed Action)

4.1.1 Habitat Impacts – While the implementation of alternative A should lead to some increased hunter use of Refuge lands, this increased use would have no more than minor direct impacts on habitats on these lands. Deer hunting seasons typically run from mid- to early September and are usually completed at the latest by late January. Most vegetation during this time of year is entering senescence for the season or is dormant. Increased hunter use of habitats on Refuges would result in very minor direct disturbance to vegetation which is already in a dormant condition. No long term adverse impacts on vegetation or habitat is expected.

As discussed in Section 4.1.2 below, it is anticipated that implementation of alternative A would result in reduced deer densities on Refuges. This should result in reduced “browsing” of vegetation on Refuges with a minor and probably undetectable improvement in habitat conditions.

4.1.2 Biological Impacts – The goal or purpose of implementing alternative A is to assist the State with reducing white-tailed deer herds in the various CWD management zones in central Wisconsin. It would be expected that implementation of Alternative A would result in a reduction in deer densities on Refuges. Reduced deer densities would result in a much lowered likelihood of CWD being transmitted to and through deer inhabiting Refuges and thus would contribute to the CWD control/containment efforts in Wisconsin.

It is probable that increased utilization of Refuge lands during the white-tailed deer season would result in some additional disturbance of other biological resources which inhabit these lands. However, because the Refuges are currently open to hunting and other recreational uses, the incremental effect would be very minor.

4.1.3 Listed, Proposed, and Candidate Species - Consultation with the Service’s Green Bay Field Office has indicated that while listed species may be present on sites within the Refuge, most listed species would not be affected.

4.1.4 Cultural/Social Resources – The traditional cultural/archaeological resources found on Refuges would be unaffected by the proposed action. No disturbance of soils or sites containing archaeological resources would occur as a result of implementation of alternative A.

A non-traditional cultural/social resource know as “deer hunting” would be affected. Increased hunter access to and use of Refuges during state established deer seasons should have a positive impact on the hunting tradition, however, the long-term reduction in deer densities would have a gradual, long-term impact on hunting opportunities. Increased use of the Refuges by deer hunters could displace or effect use by other hunters pursuing other game and other non-consumptive users. Some increased conflict among user groups would be anticipated, however, the impacts are expected to be minimal. Implementation of alternative A may generate some controversy within the public sector.

4.1.5 Environmental Justice – The CWD management actions proposed under Alternative A would be unlikely to adversely affect minority or other disadvantaged populations. It is possible that State led efforts to reduce deer populations could result in additional opportunities for minorities or other disadvantaged populations to hunt deer on Horicon and Fox River NWRs.

4.1.6 Cumulative Impacts – The cumulative contribution of the proposed action to managing CWD in Wisconsin is relatively small considering the total land base and number of deer which would be affected on Refuges in comparison to the total land base and number of deer in Wisconsin. While deer harvest on Refuges would be increased, the increased number of animals harvested from Refuges would be statistically insignificant compared to the total number of animals harvested statewide.

4.2 Alternative B (No Action)

4.2.1 Habitat Impacts – In terms of direct and indirect habitat impacts, the no action alternative is very similar to alternative A discussed above. Under the no action alternative, deer hunting would

continue to be allowed on Refuges and opportunities to hunt deer would be increased as a result of extended State seasons. Minor increased direct disturbance of habitat associated with increased hunter use would be expected. As with alternative A, increased deer harvest and reduced deer densities on Refuges would be expected if no actions are taken. This would result in reduced impacts on vegetation and minor benefits to habitat conditions on Refuges.

4.2.2 Biological Impacts – Because hunting would continue to be allowed on Refuges, under the no action alternative, it would be expected that taking no action would result in a reduction in deer densities on Refuges. Reduced deer densities would result in a much lowered likelihood of CWD being transmitted to and through deer inhabiting Refuges and thus would contribute to the CWD control/containment efforts in Wisconsin.

It is probable that increased utilization of Refuge lands during the white-tailed deer season would result in some additional disturbance of other biological resources which inhabit these lands. However, because Refuges are currently open to hunting and other recreational uses, the incremental effect would be very minor.

4.2.3 Listed, Proposed, and Candidate Species – The no action alternative was not evaluated during consultation with the Service's Green Bay Field Office, however, it is believed that the effects of taking no additional actions to manage CWD on Refuge lands on threatened and endangered species would be similar to those discussed in alternative A above. Most threatened and endangered species would not be affected.

4.2.4 Cultural/Social Resources – The traditional cultural/archaeological resources found on Refuges would be unaffected. No disturbance of soils or sites containing archaeological resources would occur. Increased hunter access to and use of Refuges during state established deer seasons should have a positive impact on the hunting tradition, however, the long-term reduction in deer densities would have a gradual, long-term impact on hunting opportunities. As with alternative A, increased use of Refuges by deer hunters could conflict with other users, however, the impacts would likely be minimal. Taking no action may generate some controversy within the public sector, but that controversy would be no greater than that generated by implementation of alternative A.

4.2.5 Environmental Justice - No minority or disadvantaged populations would be adversely affected if the no action alternative were implemented. Similar to alternative A, it is possible that State led efforts to reduce deer populations could result in some increased opportunities for disadvantaged or minority populations to hunt deer on Horicon and Fox River NWRs.

4.2.6 Cumulative Impacts – The cumulative contribution of taking no action to managing CWD in Wisconsin is relatively small considering the total land base and number of deer which would be affected on Refuges in comparison to the total land base and number of deer in Wisconsin. While deer harvest on Refuges would be increased, the increased number of animals harvested from Refuges would be statistically insignificant compared to the total number of animals harvested statewide.

4.3 Alternative C

4.3.1 Habitat Impacts – Implementation of alternative C would result in reduced hunter use of Refuge lands. Habitat disturbance associated with direct disturbance of vegetation would be reduced. However, deer populations on Refuges would likely increase, leading to increased browsing of vegetation. This increased browse would have a direct impact on habitat structure.

4.3.2 Biological Impacts – It would be expected that limiting hunting on Refuges would result in these areas functioning as true refuges for white-tailed deer. Increased deer densities would be expected and it is possible that deer present on these Refuges could be infected with CWD and thus serve as a safe-harbor for the disease. The long-term consequences to white-tailed deer would likely include a slow, but steady decline in deer populations as the disease spreads.

4.3.3 Listed, Proposed, and Candidate Species - Alternative C was not evaluated during

consultation with the Service’s Green Bay Field Office, however, implementation of alternative C could result in adverse impacts on listed species due to increased browse by deer.

4.3.4 Cultural/Social Resources – The traditional cultural/archaeological resources found on Refuges would be unaffected by actions proposed in alternative C. No disturbance of soils or sites containing archaeological resources would occur.

A non-traditional cultural/social resource known as “deer hunting” would be affected. Limiting hunter access to and use of Refuges during state established deer seasons would have a negative impact on the hunting tradition, however, the long-term increase in deer densities would have a gradual, long-term impact on hunting opportunities surrounding Refuges. Implementation of alternative C may generate controversy within the public sector.

4.3.5. Environmental Justice - No minority or disadvantaged populations would be significantly adversely affected if alternative C were implemented. Some reduced opportunities to hunt deer on the Refuges would result if alternative C were implemented and this could impact minority or disadvantaged hunters. Public lands are typically the primary lands on which many minority and disadvantaged hunters hunt. Reduced opportunities to hunt on public lands would affect these hunters.

4.3.6. Cumulative Impacts – As discussed above, alternative C could create “safe harbors” for CWD with some significant cumulative long-term consequences to the white-tailed deer herd in Wisconsin. By not allowing hunting on thousands of acres, the probability will likely be increased that CWD can not be controlled. If Alternative C is selected, then an Environmental Impact Statement will be prepared because of the negative impact that this action would cause.

Table 1: Summary of Environmental Consequences by Alternative

	Alternative A (Preferred)	Alternative B (No Action)	Alternative C
Habitat Impacts	<i>increased human disturbance(minor) reduced browse by deer, improved vegetative conditions.</i>	<i>increased human disturbance(minor) reduced browse by deer, improved vegetative conditions.</i>	<i>Decreased human disturbance(minor) increased browse by deer, decreased vegetation health</i>
Biological Impacts	<i>reduced deer densities on Refuges</i>	<i>reduced deer densities on Refuges.</i>	<i>increased deer densities on Refuges (may serve as true refuges for CWD)</i>
Impacts on Listed, Proposed and Candidate Species	<i>no effects on most species</i>	<i>no effects on most species</i>	<i>increased deer densities could adversely affect most species</i>
Cultural/Social Impacts			
Environmental Justice		<i>No effect on above or below ground cultural resources.</i>	<i>Potential negative effect on above ground cultural resources. No effect on below ground cultural resources.</i>
Cumulative Impacts	<i>minimal, but contributes to overall control of CWD</i>	<i>minimal, but contributes to overall control of CWD</i>	<i>could be significant if Refuges begin to serve as refuges for CWD positive animals</i>

Chapter 5 . List of Preparers

Diane Kitchen, Refuge Operations Specialist, Horicon NWR – Co-author of Horicon and Fox River NWR Chronic Wasting Disease Surveillance and Management Plan.

Jim Lutes, Biologist, Leopold Wetland Management District – Co-author of environmental assessment and co-author of Horicon and Fox River NWR Chronic Wasting Disease Surveillance and Management Plan.

Chapter 6. Consultation and Coordination With the Public and Others

The Refuge's CWD response plan has been developed in coordination with the Wisconsin DNR. Copies of this EA will be provided or made available to the DNR, State and Federal agencies and the general public for review.

Chapter 7. Public Comments on Draft EA/EIS and Responses

Comments received on the draft EA will be summarized here and where appropriate responses to the comments will be provided.

Chapter 8. References Cited

Wisconsin Department of Natural Resources. February 2003. Environmental Impact Statement on Rules to Eradicate Chronic Wasting Disease from Wisconsin's Free-Ranging White-tailed Deer Herd.