Whooping Crane Stopover Habitats on Fort Peck Lake, Montana
U.S. Army Corps of Engineers, Omaha District

The primary purpose of this report is to: (1) protect existing wild Whooping Crane "stopover habitats; (2) improve existing habitats where needed; and (3) create new "stopover habitats" where there are opportunities.

Friends of the Wild Whoopers (FOTWW) and the U.S Army Corps of Engineers (USACE) have a Memorandum of Understanding to evaluate Whooping Crane "stopover habitats" on USACE lake properties. The project involves the seven state migration corridor within in the states of Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota and Montana. FOTWW has completed its evaluation of Fort Peck Lake properties in Montana and our recommendations are contained in this report.

FOTWW appreciates the USACE lake personnel who accompanied us. They were well informed about the lake's abundant habitats. So, together, we successfully identified numerous stopover habitat sites.

There is only one wild self-sustaining population of Whooping Cranes remaining on earth. These birds are America's symbol of conservation. They are the largest bird in North America standing 5 feet tall with a wing span of 7 feet (Figure 1). They are endangered species and need our help. This population nests and rears their young in Wood Buffalo National Park, Canada during spring and summer. After their chicks fledge, they migrate 2,500 miles through 7 states in the midsection of our nation to Aransas National Wildlife Refuge on the Texas coast where they spend the winter (Figure 2). Thus these birds are known as the Aransas-Wood Buffalo population. Destruction of nesting habitat and killing the birds for food decimated the population during the 1800's and early 1900's. Coupled with this is the loss of approximately16 million wetland acres in the 7 state migration corridor. In 1943 there were only 16 Whoopers remaining. With protection and habitat management the population has slowly increased to an estimated 536 in 2019.

Figure 1. Two juveniles and two adult Whooping Cranes.

Today, however Whooping Cranes are facing more threats to their habitats. During their 2,500 mile migration they must stop 15 to 30 times to rest and feed. Secure stopover habitats are needed throughout the

migration corridor approximately every 25 miles. And more secure wintering habitats are needed along the Texas coast near the Aransas National Wildlife Refuge. Currently about half of the population winters off the Aransas National Wildlife Refuge where they are not as safe. Continuous development along the coast is taking a serious toll on habitat.

FOTWW believes that the wild Whooping Cranes in the Aransas/Wood Buffalo population are capable of taking care of themselves with two exceptions. They need (1) humans to protect their habitats and (2) humans to stop shooting them. We firmly believe that the USACE can do much to protect and manage many "stopover habitats" within the migration corridor.

Whooping Cranes make two 2,500 mile migrations each year. They migrate to and from their winter habitats on the Texas coast to their nesting habitats in northern Canada (See migration map Fig. 2).

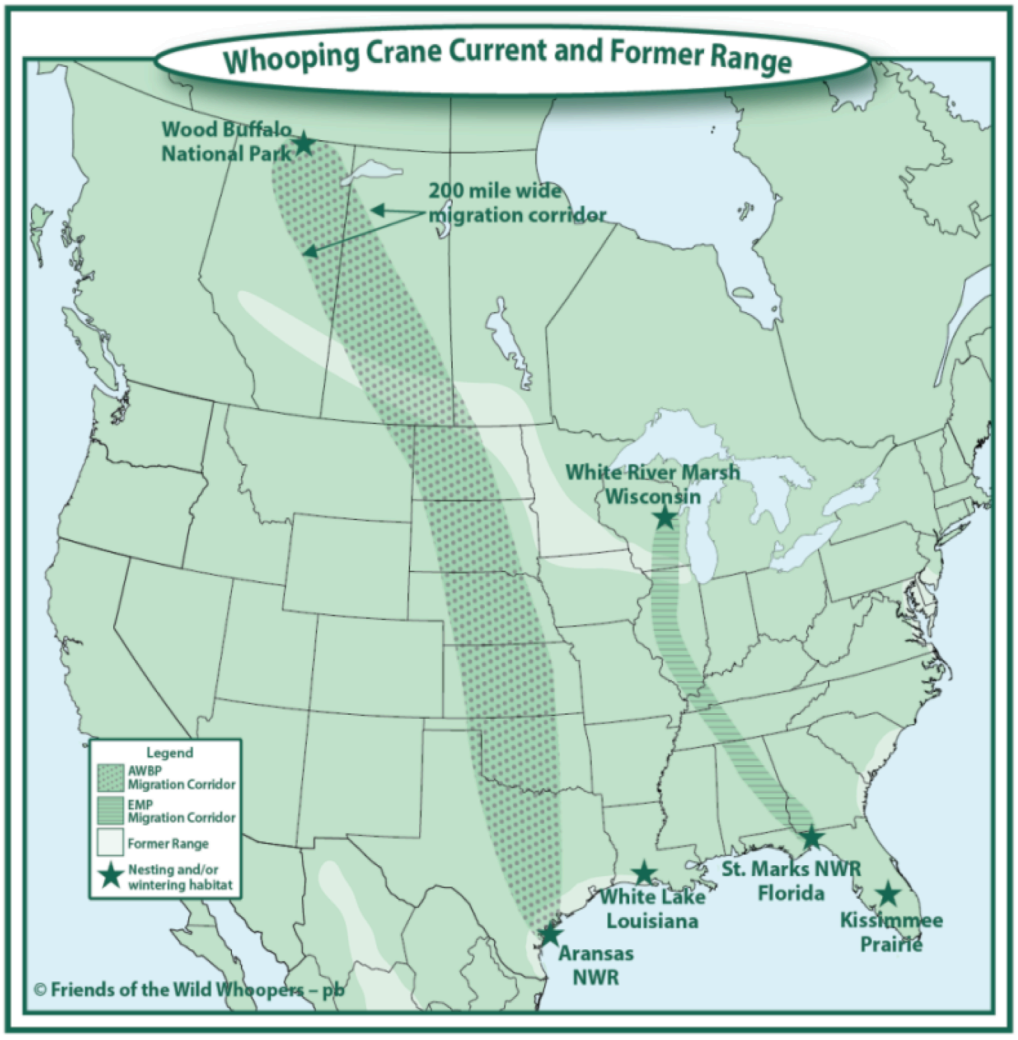

Figure 2. Map showing migration route through 7 mid-western states and /Canada.

Figure 3. Deer and other wildlife species often use the same habitats as Whooping Cranes.

During migration Whooping Cranes often stop over on private lands, wildlife areas, lakes and some military bases. However, many private lands are being more intensively managed and face various forms of development. And some wetlands are becoming dryer due to global warming. FOTWW contends that lands and waters on USACE, military bases and Indian Reservations within the migration corridor can provide much needed relief. Some of these lands can be developed and/or managed to provide more stopover habitats for endangered Whooping Cranes Importantly, habitats for the cranes also benefit many other species of wildlife and fish. Likewise Whooping Cranes are compatible with other wildlife species using the same habitats (Figure 3).

The most expensive part of establishing or improving habitat is land cost. If projects can be accomplished on government lands and Indian Reservations, the cost would be relatively minimal. Importantly any habitat projects deemed to be incompatible with the mission of the agencies involved would not be considered by FOTWW.

FOTWW has completed habitat evaluations on 32 military facilities, 8 Indian Reservations and 34 USACE lakes within the wild Whooping Crane migration corridor. Some of these properties currently have suitable stopover wetland habitats while other areas could be enhanced with minor work.

The USACE and FOTWW Memorandum of Understanding allows us to focus on Whooping Crane habitat assessment and management recommendations on lands under USACE jurisdiction. We first need to determine if any suitable areas could be managed, or appropriately developed, to provide stopover habitats for Whooping Cranes. The next step would be to work to encourage appropriate management.

USACE lakes within the 7 state migration corridor are likely to become even more important to Whooping Cranes in the near future because of their locations and quality of "stopover habitats". Fort Peck Lake and others that are located in the Whooping Crane migration corridor can be especially valuable. As the crane population increases the migration corridor may also expand in width.

Fort Peck Lake is just one of the 34 USACE lakes that FOTWW has evaluated. We are aware that the Fort Peck Lake vicinity, has been used by Whooping Cranes and we expect that to continue and increase. United States Geological Survey personnel used location data acquired from 58 unique individuals fitted with platform transmitting terminals that collected global position system locations. Radio-tagged birds provided 2,158 stopover sites over 10 migrations and 5 years (2010–14) using individual Whooping Cranes. Whooping Cranes were observed in the lake vicinity several times (See Appendix A). Unfortunately FOTWW could find no reference to Whooping Cranes in Fort Peck Lake management documents (USACE or USFWS). ***Friends of the Wild Whoopers urges project staff to coordinate with their Omaha District officials and the U.S. Fish and Wildlife Service (USFWS) to prepare a management plan for endangered Whooping Cranes.***

Whooping Cranes normally migrate over or near Fort Peck Lake during April - May (northward migration) and fall during October – November (southward migration). They normally stopover to rest late in the afternoon and depart early to mid-morning the following day.

Mostly, during migration, they stopover on lakes, natural wetlands and small ponds on private farms just to rest overnight. Like humans on a long trip they just need a small place to briefly stop, feed and then continue their journey. Proactive techniques implemented by conservation interest can help reduce potential morality that occurs during migration.

Figure 4. Whooping Crane stopping over for the night or a few days.

Document review to aid in understanding Fort Peck Lake wildlife resource

FOTWW always reviews lake management documents to obtain a more comprehensive understanding of the project. A summary of our review follows:

Fort Peck Lake is a major reservoir in Montana, formed by the Fort Peck Dam on the Missouri River. The lake lies in the eastern prairie region of Montana approximately 140 miles east of Great Falls and 120 miles north of Billings, reaching into portions of six counties.

The dam and reservoir were built in the 1930s to enhance navigation on the Missouri River, and supply enough water to provide a 9-foot deep channel from Sioux City, Iowa, to the mouth of the Missouri just above St. Louis.

With a volume of 18,700,000 acre feet when full, Fort Peck is the fifth largest artificial lake in the United States. It extends 134 miles through central Montana, and its twisting, inlet-studded shoreline has a total length of some 1,520 miles. The lake covers an area of 245,000 acres, making it the largest in Montana by surface area, although Flathead Lake has a larger volume due to its greater depth.

The reservoir is also a tourist attraction, with 27 designated recreational sites bordering its shores. Bordering nearly the entire reservoir is the 1,719-square-mile Charles M. Russell National Wildlife Refuge, which has preserved much of the high prairie and hill country around the lake in a more or less natural state.

Together, Charles M. Russell National Wildlife Refuge and UL Bend National Wildlife Refuge encompass an area of 1**.**1 million acres including the 245,000 acre Fort Peck reservoir that span about 125 air miles along the Missouri River, from the Fort Peck Dam west to the boundary with the Upper Missouri River Breaks National Monument. Given the size and remoteness of Charles M. Russell, the area has changed very little from the historic voyage of the Lewis and Clark expedition, through the era of outlaws and homesteaders, to the present time. Elk, mule deer, pronghorn, bighorn sheep, sage and sharp-tailed grouse, and bald eagles make the Refuge home.

Hunting and fishing opportunities abound on Charles M. Russell NWR. Boating is popular on the Missouri River and Fort Peck Reservoir. Several state parks and recreational areas have been developed

Charles M. Russell NWR is managed by the U.S. Fish and Wildlife Service. The Refuge is one of over 550 refuges in the National Wildlife Refuge System **-** a system of lands set aside to conserve wildlife and habitat for people today and generations to come. It is the second largest national wildlife refuge in the lower 48 states.

The unique combination of habitats on Charles M. Russell makes the Refuge a haven for over 250 species of migrant, resident and breeding birds Majestic animals like elk and mountain lions share the refuge with less impressive but equally important species like weasels, beavers and bats. There are nineteen amphibian and reptile species on Charles M. Russel. Explore the variety of frogs, toads, snakes, salamanders, lizards and turtles that call the refuge home. From minnows in the tributaries to paddlefish in the Missouri River, and from common sport fish to Species of Concern, many species of fish are found on Charles M. Russell. Sometimes the smallest and most overlooked species can be the most important. The plants and wildlife of Charles M. Russell depend on insects and pollinators for life itself.

More than 250 species of birds have been documented on the refuge. The unique combination of native prairies, sagebrush shrub lands, forested coulees, pine–juniper woodlands, riparian areas and river bottoms, and badlands makes the refuge a haven for migrant and breeding birds. The refuge is also extremely important for year-round residents such as sharp-tailed and sage-grouse.

Neotropical migratory birds use the refuge as nesting habitat but also as a stopover area during spring and fall migrations while heading north and south of the refuge. Other bird groups found on the refuge include colonial-nesting birds, waterfowl, raptors, and owls.

Threatened, endangered and candidate bird species include the least tern which was listed as endangered by the Service in 1985 and was first documented in Montana at Fort Peck Lake in 1987. Because the amount of available habitat changes with the lake level the Missouri River below the dam and the Yellowstone River attract more least terns than the reservoir. The northern Great Plains population of piping plovers was listed as threatened in 1985 and the Service designated 77,371 acres on Fort Peck Reservoir as critical habitat. **As with the least tern, the amount of available habitat changes with the lake level and affects the number of birds attracted to the reservoir in any given year**. Our review identifies how important the Fort Peck Lake and Charles M. Russell National Wildlife Refuge complex is to a large variety of wildlife and fish.

Importantly, during our review of several USACE and USFWS documents we did not detect any information about endangered Whooping Cranes. See Appendix A for information on Whooping Cranes in Montana. Friends of the Wild Whoopers urges project staff to coordinate with their Omaha District officials and the U.S. Fish and Wildlife Service to prepare a management plan for endangered Whooping Cranes.

Whooping Cranes and other wildlife need lakes, wetlands and small ponds with the following features as "stopover roost sites" during migration:

- Lakes/small ponds/wetlands from 0.3 acres and larger in size
- Lakes/ponds/wetlands with some shallow areas 2 to 10 inches deep for roosting sites
- Flight glide path clear of obstructions for Whooping Cranes to land near roosting sites
- No thick bushes or trees in or near landing site
- Gradual or gentle slopes into lakes/ponds where water is shallow
- Little or no emergent or submerged vegetation in lake at roost areas
- Extensive horizontal visibility from roost site so predators can be detected
- 200 or more yards from human development or disturbance such as power lines
- Agricultural grain fields or pasture land within one mile of stopover site for foraging

Figure 5. Excellent "stopover roost site" for Whooping Cranes. Number "1" points out the glide path for Whooping Cranes landing on lakeshore. The site is clear of obstructions and provides a gradual slope into the shallow water. Horizontal visibility around the roost site is good. Number "2" points out the shallow water from 2 to 10 inches deep in roost area. Whoopers can feed on aquatic animal in the lake and forage on insects and grains in nearby fields.

FOTWW Wildlife Biologist Chester McConnell and FOTWW Field Assistant Dorothy McConnell visited Fort Peck Lake on September 18, 2019 to assess potential "stopover habitats" for Whooping Cranes. David Hoover, Conservation Biologist, Kansas City, MO, USACE made arrangements for our trip. Patricia Gilbert, Natural Resource Specialist, Resource Specialist-Cindy Lott; Natural Resource Manager-Michele, Eric Summars, Assistant Lake Manager, Zachary Montreui, Omaha office, Reece Nelson, Natural Resource Specialist and Eddie participated in the lake stopover habitat evaluation. FOTWW appreciates all involved with making preparations for a productive and enjoyable visit.

After discussing the natural resource objectives for Fort Peck Lake we made a tour of the lake property by boat to examine the most likely places that would provide Whooping Crane "stopover habitats". We traveled 65 miles on the lake that has a total length of some 1,520 miles to observe some of the shore area that would be suitable as "stopover habitats". In some areas westward of Fort Peck the banks are steep and shorelines are small and not suitable for Whoopers. Significantly, the number and high quality "stopover habitats" that we observed was overwhelming. Due to time constraints we made a reconnaissance of only part of the lake.

Based on our observations we conservatively estimated that a minimum of one good "stopover habitat" per every two miles would be reasonable. That computes to 750 "stopover habitats" on Fort Peck Lake.
The day we visited, the lake was 6 feet above normal but numerous shorelines were good "stopover habitats". During normal (lower) water level, stopover habitats are much larger.

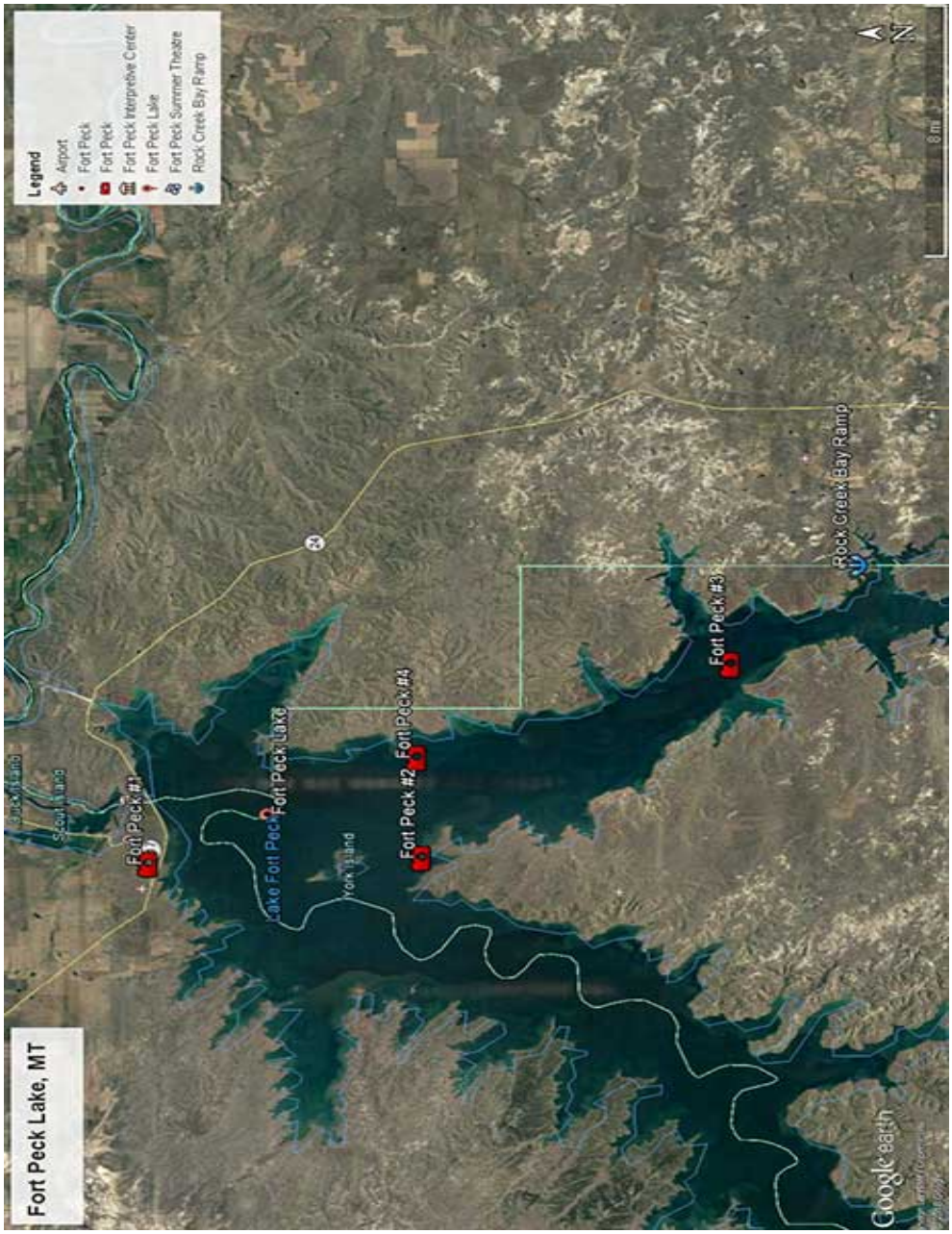

Figure 6. Map of Fort Peck Lake.

Figure 7. (Site 3 on map) Crooked Creek shore area makes an excellent "stopover habitat" for Whooping Cranes. Flight glide paths from all directions to the shore area are clear of obstructions for Whooping Cranes to land near roosting sites. There are no thick bushes or trees in or near landing site. The shore has gradual or gentle slopes into the lakes where the water is shallow with many shallow areas 2 to 10 inches deep for roosting sites. There is extensive horizontal visibility from roost site so predators can be detected. The site is 200 or more yards from human development or disturbance such as power lines. An abundance of open pasture land is within 200 yards of stopover site for foraging.

Figure 8. (Site 4 on map). Bone Trail shore area makes another excellent "stopover habitat" for Whooping Cranes. Flight glide paths from all directions to the shore area are clear of obstructions for Whooping Cranes to land near roosting sites. There are no thick bushes or trees in or near landing site. The shore has gradual or gentle slopes into the lakes where the water is shallow with many shallow areas 2 to 10 inches deep for roosting sites. There is extensive horizontal visibility from roost site so predators can be detected. The site is 200 or more yards from human development or disturbance such as power lines. An abundance of open pasture land is within 400 yards of stopover site for foraging.

Figure 9. Fort Peck Lake near 4chette Campers. This site is a good "stopover roost site" for Whooping Cranes even though the photo makes it appear that the campers are too near by. Based on our measurements there is a separation of over 200 yards. The glide path for Whooping Cranes landing on lakeshore is a big plus. The site is clear of obstructions and provides a gradual slope into the shallow water. Horizontal visibility around the roost site is good. Some areas near the shore has shallow water from 2 to 10 inches deep in roost area. Whoopers can feed on aquatic animal in the lake and forage on insects and grains in nearby fields.

Figure 10. Fort Peck Lake – Invasive Salt Cedar is a problem in some small areas around the lake. Fortunately it is controlled when lake waters rise and cover the plants for several months. Salt Cedar is an invasive and aggressive plant species. It may cause serious problems where it invades if not controlled. It disrupts the structure and stability of native plant communities and degrades native wildlife habitat by out competing and replacing native plant species, monopolizing limited sources of moisture, and increasing the frequency, intensity, and effect of fires and floods. Salt cedar leaves and stems secrete a high concentration of salt into the ground around them preventing growth and development of native plants. Wildlife is also affected by the salt cedar due to a lack of protein found in the plant rendering it unfit for consumption. The most effective way to kill salt cedar is by spraying with an appropriate herbicide.

Figure 11. Fort Peck Lake. The shore area and background in this photo is a good stopover habitat for Whooping Cranes. There is no tall vegetation to hide predators. Flight paths to the shore area are open in all directions. The shore area slope is gradual, which will allow Whooping Cranes to wade into the shallow areas to roost. Note the black cow grazing (under the arrow). The U.S. Fish and Wildlife Service manages a grazing program in this area that helps control vegetation.

Figure 12. Fort Peck Lake. This is another good stopover habitat for Whooping Cranes. The shore is wide with plenty of room for the Whoopers to forage and relax. The area in the background with the bushes could hide predators so the Whoopers must keep alert. Flight paths to the shore area are open in all directions. The shore area slope is gradual, which will allow Whooping Cranes to wade into the shallow areas to roost. Fields in the background can serve as foraging areas for seeds and insects.

Figure 13. Fort Peck Lake. This area is similar to that in Figure 13 and is another good stopover habitat for Whooping Cranes. The shore is wider and there is plenty of room for the Whoopers to forage and relax. The area in the background with the bushes could hide predators so the Whoopers must keep alert. Flight paths to the shore area are open in all directions. The shore area slope is gradual, which will allow Whooping Cranes to wade into the shallow areas to roost. Fields in the background

Figure 14. Fort Peck Lake. The shore area is rocky has some short grass growing. However, it has all the qualities to serve as a stopover habitat for Whooping Cranes.

Figure 15. Fort Peck Lake. Note the nesting platform on the pole, which is a part of the total wildlife program associated with Fort Peck Lake and Charles M. Russell National Wildlife Refuge. The lake water level is high when this photo was made. When water levels are normal or lower this beach area is about 50 acres in size and becomes a good stopover area.

Figure 16. Fort Peck Lake. Flight glide paths are clear of obstructions for Whooping Cranes to land near roosting sites on the shore. Water areas for roosting are available within the range of 2 to 10 inches deep near the shore. There are no thick bushes or trees in or near landing site. There are gradual or gentle slopes into areas where water is shallow. There is extensive horizontal visibility from roost site so predators can be detected. Wild grasslands are all around where food is readily available for foraging.

Figure 17. Fort Peck Lake. This is the crew that made the 65 mile boat trip on Fort Peck Lake to evaluate Whooping Crane "stopover habitats". The crew includes two Friends of the Wild Whoopers officials and five U.S. Army Corps of Engineers natural resource personnel.

RECOMMENDATION

1. USACE managers should place emphasis on monitoring the numerous areas with suitable roosting characteristics and safe landscapes.

2. We did not observe any invasive plants or noxious weeds on Fort Peck Lake. Patricia Gilbert, Natural Resource Specialist, Resource Specialist advised that salt cedar is under control. High water in the lake10 years ago killed all salt cedar. Fortunately phragmites, which is a serious problem on some lakes is not on Fort Peck Lake. However these plants are major problems on many USACE lakes we have visited and are plants of major concern. We urge the Natural Resource Specialist to keep a close watch on invasive plants and eradicate any as soon as they are detected.

3. Numerous fields of wild vegetation are in abundance surrounding Fort Peck Lake and should provide plentiful seed and insect for Whooping Cranes. These should provide diversity to the habitats and provide good foraging areas for Whooping Cranes and other wildlife.

4. Every effort should be made to prevent illegal off road vehicle and conflicting recreational use along the shoreline. This is especially important during the Whooping Crane migration periods of April – May and October - November

CONCLUSION

FOTWW was pleased to have the opportunity to visit Fort Peck Lake. We were delighted to learn about the numerous exceptional sites that provides excellent "stopover habitat" for Whooping Cranes and other wildlife. Only a very small amount of habitat development and management is needed to maintain additional stopover habitat areas for the cranes. USACE managers should focus on these sites with suitable roosting characteristics and safe landscapes. The lake and land area also has good fish and wildlife habitat for a large variety of species. FOTWW evaluation found that USACE is accomplishing excellent management on Fort Peck Lake and surrounding habitats.

We sincerely appreciate the interest and cooperation of the USACE officials. We are grateful to David Hoover who arranged our schedule, accompanied us on the evaluation trip and provided us with documents and photographs that assisted in our evaluation. I also appreciate FOTWW's Field Assistant Dorothy McConnell who helps guide me along the highways, keeps records of special areas visited and reviews FOTWW's reports. Likewise, I also appreciate the fabulous assistance of FOTWW Vice-President Pamela Bates in helping to preparing this report and other duties that she is responsible for.

Chester A. McConnell

Chester A. McConnell, President

Friends of the Wild Whoopers

Appendix A: USGS open file report 2015 - 1166

By Aaron T. Pearse,1 David A. Brandt,1 Wade C. Harrell,2 Kristine L. Metzger,3 David M. Baasch ,4,and Trevor J. Hefley5

Abstract: Whooping cranes (Grus Americana) of the Aransas-Wood Buffalo population migrate twice each year through the Great Plains in North America. Recovery activities for this endangered species include providing adequate places to stop and rest during migration, which are generally referred to as stopover sites. To assist in recovery efforts, initial estimates of stopover site use intensity are presented, which provide opportunity to identify areas across the migration range used more intensively by whooping cranes. We used location data acquired from 58 unique individuals fitted with platform transmitting terminals that collected global position system locations. Radio-tagged birds provided 2,158 stopover sites over 10 migrations and 5 years (2010–14). Using a grid-based approach, we identified 1,095 20- square kilometer grid cells that contained stopover sites. We categorized occupied grid cells based on density of stopover sites and the amount of time cranes spent in the area. This assessment resulted in four categories of stopover site use: unoccupied, low intensity, core intensity, and extended-use core intensity. Although provisional, this evaluation of stopover site use intensity offers the U.S. Fish and Wildlife Service and partners a tool to identify landscapes that may be of greater conservation significance to migrating whooping cranes. Initially, the tool will be used by the U.S. Fish and Wildlife Service and other interested parties in evaluating the Great Plains Wind Energy Habitat Conservation Plan.

Figure 18. Map showing migration corrudor of Aransas-Wood Buffalo Whooping Cranes population from Wood Buffalo National Park, Canada to Aransas National Wildlife Refuge, Texas.

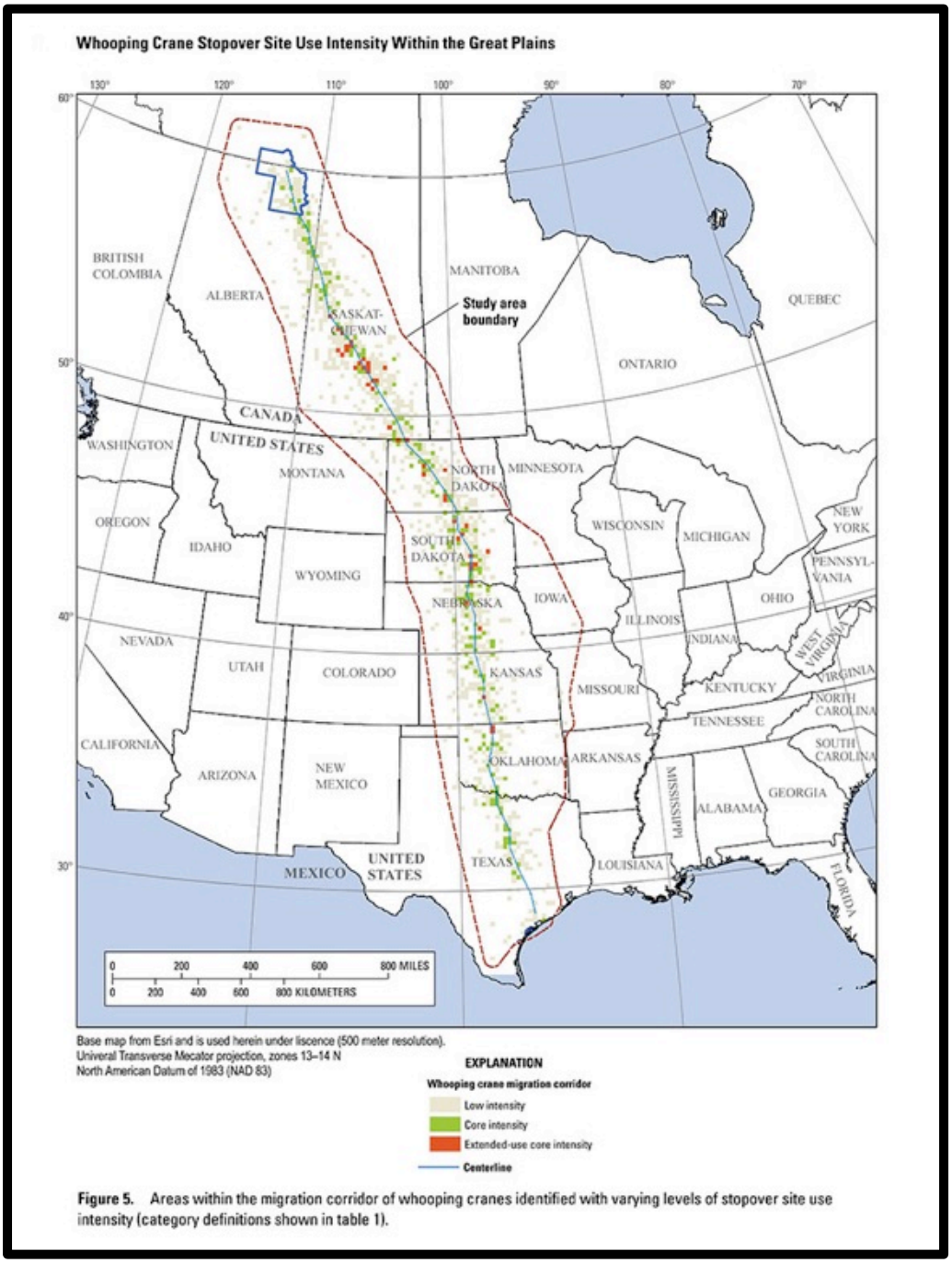

Figure 5. Areas within the migration corridor of whooping cranes identified with varying levels of stopover site use intensity (category definitions shown in table 1).