



CHASE LAKE



National Wildlife Refuge



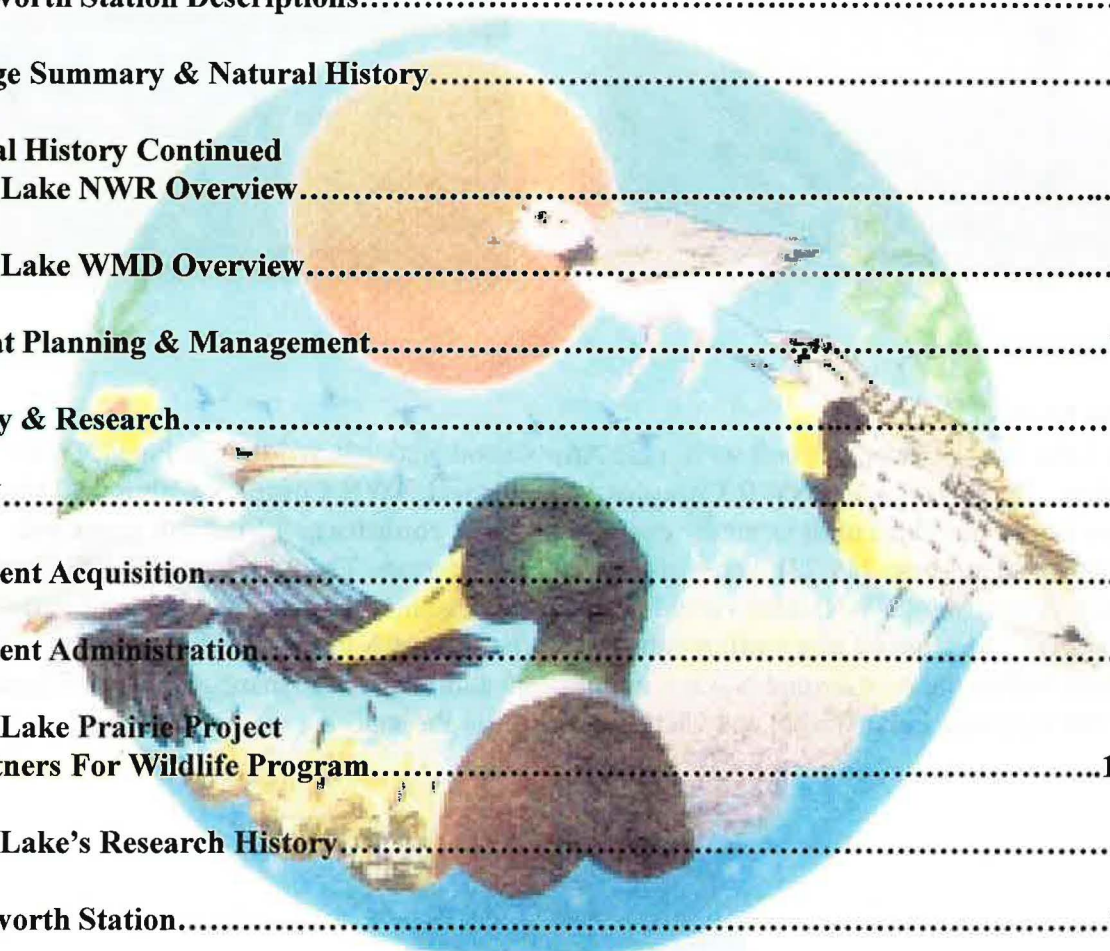
Wetland Management District



Prairie Project

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Vision

Administer a diverse system of lands that provide optimal habitat for Service Trust Species and other wildlife through acquiring, protecting, and holistically managing and restoring native upland and wetland habitats on public and private lands.



Station Facts

Chase Lake is a management unit within the Arrowwood National Wildlife Refuge (NWR) Complex. The **Arrowwood NWR Complex** is the **largest NWR Complex** within the Dakotas. It spans nearly one-third of the state by encompassing **17 counties** or **12 million acres** and administers a land base **249,731 acres** of Service land interests. The Arrowwood NWR Complex includes: Arrowwood NWR; Arrowwood Wetland Management District (WMD); and Valley City WMD. The **Chase Lake station** administers the **largest** National Wildlife Refuge System land base within the Arrowwood NWR Complex and administers the management of: Chase Lake NWR; Chase Lake WMD; and Chase Lake Prairie Project.



Chase Lake National Wildlife Refuge was established on August 28, 1908 making it the **2nd** National Wildlife Refuge in North Dakota and the **15th** National Wildlife Refuge in the United States and is one of only two National Wildlife Refuges in North Dakota that contain designated **Wilderness Areas**. CLNWR is home to the largest breeding colony of American White pelicans and has been identified by the American Bird Conservancy as one of the **top 100 Globally Important Bird Areas** in the United States.



Chase Lake Wetland Management District was created in 1993 and manages and protects over **138,000** acres of National Wildlife Refuge System lands in two North Dakota counties.



Chase Lake Prairie Project was dedicated in 1989 and is a **national flagship project** of the **North American Waterfowl Management Plan**. The CLPP was established to enhance wildlife on public and private land, provide landowner incentives for sound soil and water management, and provide increased public awareness and recreational opportunities. These actions were developed with the overall philosophy that wildlife and landowners cannot only co-exist, but flourish. The CLPP covers **5.5 million acres** of the Missouri Coteau in portions of **11 counties** in south-central North Dakota.



The Chase Lake headquarters is located within the **Woodworth Station Waterfowl Production Area (WPA)**. The Woodworth Station WPA is well known for its importance to waterfowl and wildlife management. It was formally known as the Woodworth Study Area, established in **1963**, a research and field station ran by the Northern Prairie Wildlife Research Center. The purpose was to conduct research on the relationships of land use and other environmental factors that affect the production of waterfowl and other species of wildlife. **Many of the driving principals of habitat management especially as it relates to waterfowl management were created here at the Woodworth Station.**

Acreage Summary

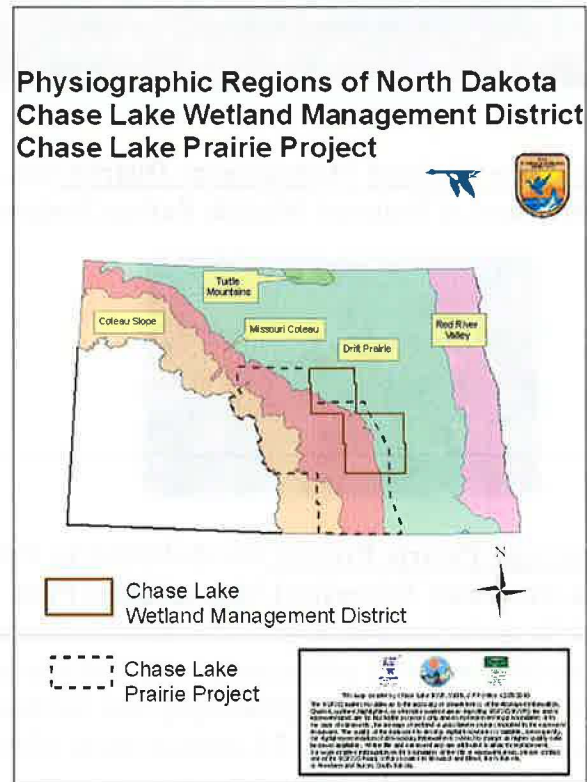
	Number	Acres
Waterfowl Production Areas (WPAs) and Wildlife Development Areas (WDAs)	136	43,344
Chase Lake National Wildlife Refuge (NWR)		4,449
Wetland, Grassland, and FmHA Conservation Easements*	886*	95,318*
*As of July 2010		
Chase Lake Prairie Project	1	5,500,000

Natural History

The Chase Lake station manages, protects, and enhances lands within **three distinct physiographic regions** in North Dakota. These regions are: the Drift Prairie; the Missouri Coteau; and the Coteau Slope.

The **Drift Prairie** includes parts of Stutsman and Wells Counties within the Chase Lake WMD and parts of Dickey, LaMoure, and Sheridan Counties within the Chase Lake PP. The Drift prairie is composed of a glaciated plain that is nearly level to undulating with generally less than 20 feet of relief. The most common surface material is glaciated sediment (till) deposited by meltwater (Bluemle, 1979). The vegetation community that formed on the Drift represents a transitional area between the tall grass prairie of the east and the short grass prairie of the west.

The **Missouri Coteau** is an escarpment extending from northwest to southeast across the state. It includes the other parts of Stutsman and Wells Counties within the Chase Lake WMD as well as parts of Dickey, Kidder, LaMoure, Logan, McIntosh, and Sheridan Counties within the Chase Lake PP. The Missouri Coteau is composed of morainic hills that rise 300-500 feet above the adjacent Drift Prairie. The Missouri Coteau is characterized by end moraine hills, non-integrated drainage, numerous sloughs, and lakes (Bluemle, 1979). The Missouri Coteau contains some of the **highest wetland densities** within the Prairie Pothole Region, in some areas up to **100 per square mile**. The high wetland densities and large expanse of grasslands that still exist make this area especially important not only to waterfowl but other wetland and grassland dependant species.



The **Coteau Slope** is differentiated from the Missouri Coteau by nearly complete, integrated drainage that flows westward toward the Missouri River (Clayton, 1962). It includes parts of Burleigh, Logan, McIntosh, and McLean Counties within the Chase Lake PP. Generally, the glacial sediment is thinner in the Coteau Slope. Grasslands remaining in the area represent mixed grass prairie with many plant species in common with the short grass prairie to the west. Wetland density is much lower than in the Missouri Coteau but it is still vitally important to grassland and wetland dependant species.



The Drift Prairie



The break between the Missouri Coteau & the Drift Prairie



The Missouri Coteau

CHASE LAKE NATIONAL WILDLIFE REFUGE

Chase Lake National Wildlife Refuge (NWR) was established on **August 28, 1908**, by Executive Order under President Theodore Roosevelt. Chase Lake has historically been an important nesting area for American White Pelicans. When the first European settlers came to the area in the mid to late 1800s there were great numbers of American White Pelicans on Chase Lake. However, by the turn of the century, those numbers were reduced dramatically. The nearby settlers made it a practice to go to Chase Lake on Sunday afternoons to see how many pelicans they could kill with their rifles.



Their numbers continued to decrease. In 1905 when a man by the name of H. H. McCumber came to the area there were only 500 pelicans. Seeing their numbers continue to decrease, H. H. McCumber petitioned the U.S. Biological Survey, predecessor to the U.S. Fish and Wildlife Service, to designate the area a bird refuge. In August of that year it was established as North Dakota's second NWR and the 15th in the United States. In 1908, there were only 50 pelicans remained. H. H. McCumber was designated the first federal game warden for the new refuge until 1918. In 1918, before he left, McCumber states that there were 2,500 to 3,000 pelicans at the refuge.

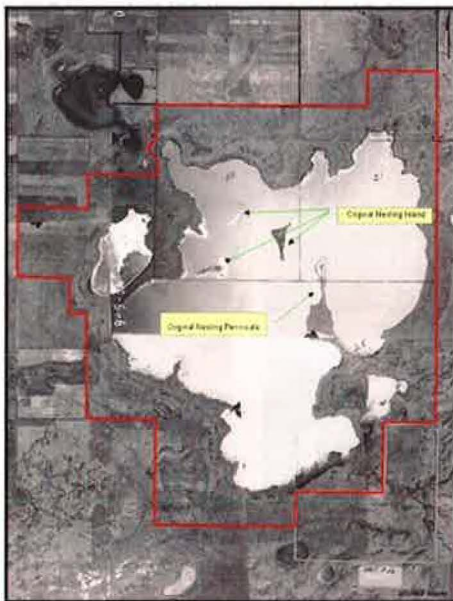


Mr. and Mrs. H. H. McCumber



H. H. McCumber at Chase Lake with the pelicans

Pelican counts in recent years have shown the population at Chase Lake to be one of the largest nesting colony in North America. The population fluctuates between 4,000 and 35,000. Nearly one-third of the continents population of American White pelicans nest at Chase Lake NWR.



Historic Nesting Areas



Current Nesting Areas

Pelican counts in recent years have shown the population at Chase Lake to be the largest nesting colony in North America. The population fluctuates between **4,000** and **35,000**. Nearly **one-third of the continental population** of American White pelicans nest at Chase Lake NWR. In 2001 Chase Lake NWR was designated as a **Globally Important Bird Area** by the American Bird Conservancy.



In 2004 approximately 30,000 pelicans abandoned the colony, leaving behind their nests, eggs, and young. Although it is unknown what for certain caused the abandonment, coyotes were documented within the mainland colony and there were several weather events that moved through the area. In 2005, only 280 out of 9,000 chicks were alive and only 2,000 out of 18,850 adults remained. West Nile is suspect in causing the mortality. Since 2005 the population has again been increasing. **In 2010 there were 20,470 adults and 10,235 nests. However, overall nest success remains low.** Data shows that pre-2002 chick mortality rates averaged **4-5%** while post-2002 chick mortality rates are averaging **15-44%**. **The earlier arrival of the birds by 16 days in the last 40 years makes the chicks more susceptible to major weather events and large West Nile events have been suspect.** The count for 2011 is 10,427.

The Service has been **partnering** with other entities to assist in monitoring the colony. These include: **USGS Northern Prairie Wildlife Research Center** – Assist in monitoring colony, monitor disease, and population trends; **NDSU** – Disease monitoring (West Nile Disease sampling); and **USDA National Wildlife Research Center** – Monitoring and Nutrition to assist in monitoring the colony.



CHASE LAKE NATIONAL WILDLIFE REFUGE NOT JUST PELICANS!

Chase Lake NWR is also becoming recognized as an important nesting area for other water birds as well. In recent years, the Chase Lake islands likely comprised nests of over **40,000 breeding birds** (pelicans, cormorants, gulls, herons and egrets), making this one of the **most significant mixed-species waterbird colonies in the northern plains** and **certainly one of the most important colonies managed by the USFWS in this region**. Cattle egrets, Snowy egrets, Great egrets, Double-Crested cormorants, Black-Crowned night-herons, Little blue herons, White-Face ibis, Glossy Ibis, California gulls, and Ring-billed gulls all nest on the islands.

However, very little is known about these other species at Chase Lake NWR.



Chase Lake NWR contains 4,385 acres of which 4,155 acres were designated a **Wilderness Area** in 1975. Wilderness Areas are "...lands designated for preservation and protection in the natural condition...". There is only one other Wilderness Area in North Dakota, Lostwood NWR.



CHASE LAKE WETLAND MANAGEMENT DISTRICT

The purpose of the Chase Lake WMD is to assure the long-term viability of the breeding waterfowl population and production through the acquisition and management of Waterfowl Production Areas (WPAs) and Service wetland and grassland easements, while considering the needs of other migratory birds, threatened and endangered species, and other wildlife.

This is implemented by “**tying**” together a **systems of lands** that provide the necessary habitat at a **landscape level** and it is accomplished by the acquisition of Fee and Easement lands within the two counties.



CONSERVATION
EASEMENT
BOUNDARY

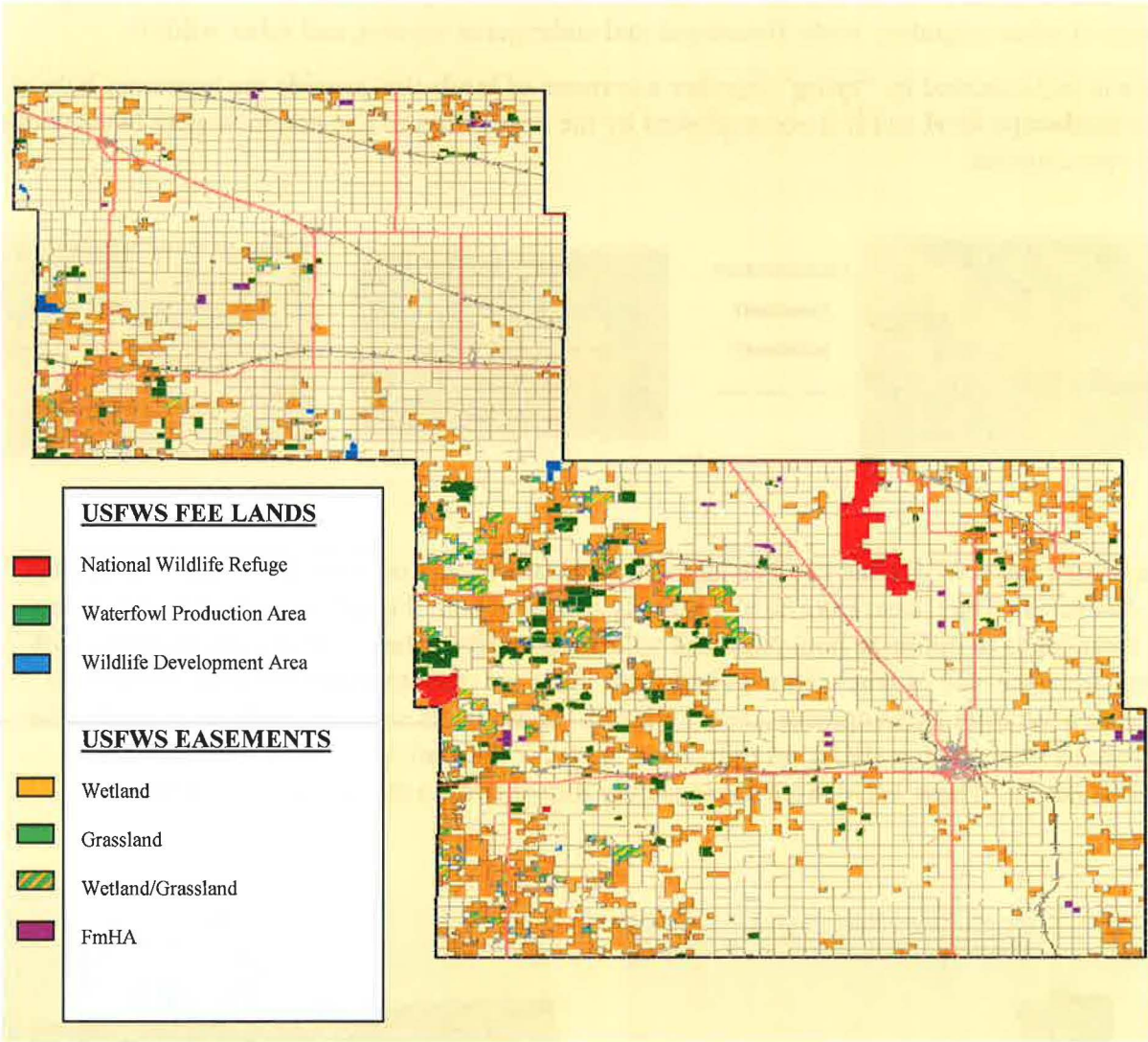
U.S. Fish & Wildlife Service



The Chase Lake WMD has **136** Fee lands, Waterfowl Production Areas (WPAs), totaling over **43,344** acres. The Chase Lake WMD actively manages both the upland and wetland habitats on these lands to optimize both plant and wildlife diversity. These WPAs were purchase with funds from the sale of **Duck Stamps** and these lands are open to public hunting. Within the 136 are **5** Wildlife Development Areas (WDAs). These lands were originally acquired by the Bureau of Reclamation (BOR) as mitigation lands for the Garrison Division project here in North Dakota. These WDA were subsequently turned over to the Service for management.



CHASE LAKE WETLAND MANAGEMENT DISTRICT



Chase Lake WMD Land Interests

	#	acres
WPAs & WDAs.....	136	43,344
Easements (Grass, Wet, FmHA)..	886	95,318*

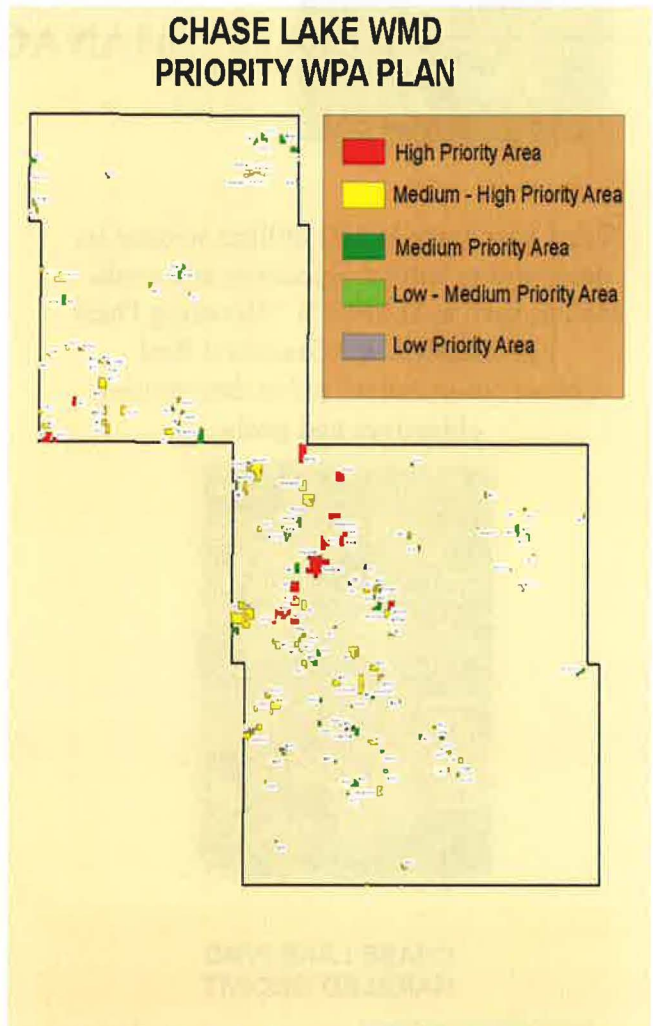
*As of July 2010

HABITAT PLANNING & MANAGEMENT

The Chase Lake WMD utilizes the ranking system outlined in its **Comprehensive Conservation Plan (CCP)** to determine priority management of its WPAs. This system is based on:

- Waterfowl Pair Densities
- Landscape Context (Grassland Bird Conservation Areas)
- WPA size
- Ecological Integrity (large tracts of native prairie)
- Ducks Unlimited Priority Areas

Prioritizing habitat management on a select few WPA's insures consistent, science based management with limited funds and personnel.



Chase Lake WMD Management Matrix

WPA NAME	Realty Acres	Acres pts >635-3 >315-2 >155-1	Mixed Grass Prairie	Seeded Native Grasses	Natives seeded & Prairie	Native grass %	Native >49 = 5 >24 = 3 >1 = 1	T-storm Color	Red5 Yell4 DKG3, LTG2 Gray1	GBCA	DU Priority Areas	Total pts	Leafy Spurge	Canada Thistle	Wormwood	Knapweed	Toadfl.
Mt. Moriah	640.000	3	535.8		536.8	84%	5	red	5	1	1	15	X				
Mud Lake	724.050	3	603		603	83%	5	red	5	1	1	15					
Whipple	640.000	3	377.7	26	403.7	63%	5	red	5	1	1	15			X		
Woodworth Station	2625.000	3	1082.62	230.5	1313.12	50%	5	red	5	1	1	15	X	X	X	X	X
Northwestern Lake	473.000	2	364.8		364.8	77%	5	red	5	1	1	14	X				
Perin	615.870	2	495.7		495.7	80%	5	red	5	1	1	14	X		X		
Winberg	458.390	2	290.89		290.89	63%	5	red	5	1	1	14	X				
Dunphy Lake	316.400	2	213.63		213.63	68%	5	yellow	4	1	1	13					
Foley	320.000	2	225.3		226.3	70%	5	red	5		1	13	X				
Hawks Nest	934.040	3		525	525	56%	5	yellow	4		1	13	X				
Hoffman	317.790	2	181.3		181.3	57%	5	red	5	1		13					
Vasini	160.000	1	129		129	81%	5	red	5	1	1	13	X				
Frederick	160.000	1	105.7		105.7	66%	5	yellow	4	1	1	12					
Indian Hills	1386.440	3	27	748.5	775.5	56%	5	dark green	3		1	12					
Paris	80.000	0	42.9		42.9	54%	5	red	5	1	1	12	X				
Roosevelt	320.000	2	123.2		123.2	35%	3	red	5	1	1	12	X	X			
Barnes Lake	986.690	3	194		194	20%	1	red	5	1	1	11	X	X			
Chase Lake	2870.820	3	1991.39		1991.39	69%	5	light green	2		1	11	X	X			
Crystal Springs	880.830	3	215.8		215.8	24%	3	yellow	4		1	11	X	X	X		
Goter	300.800	1	97.9		97.9	33%	3	red	5	1	1	11					
Haglund	721.500	3	177		177	25%	3	yellow	4		1	11	X	X			
Hart	160.060	1	100		100	62%	5	dark green	3	1	1	11	X		X		
Heeren	153.940	0	84.94		84.94	55%	5	red	5		1	11					
Odgaard	160.000	1	82		82	51%	5	yellow	4		1	11		X			
Rott	245.490	1	134.2	31.1	165.3	67%	5	yellow	4		1	11	X	X	X		
Smith Bingham	239.050	1	134.85		134.85	56%	5	dark green	3	1	1	11					

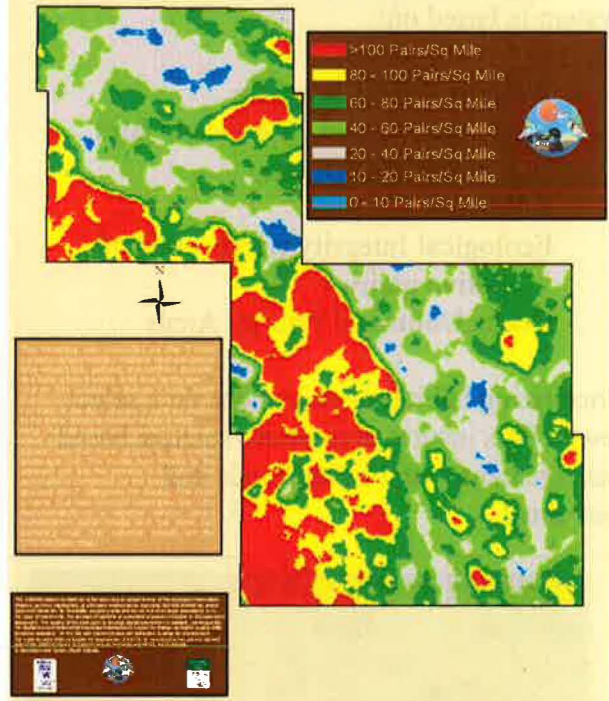
CHASE LAKE WMD RESEARCH RUN MANAGEMENT



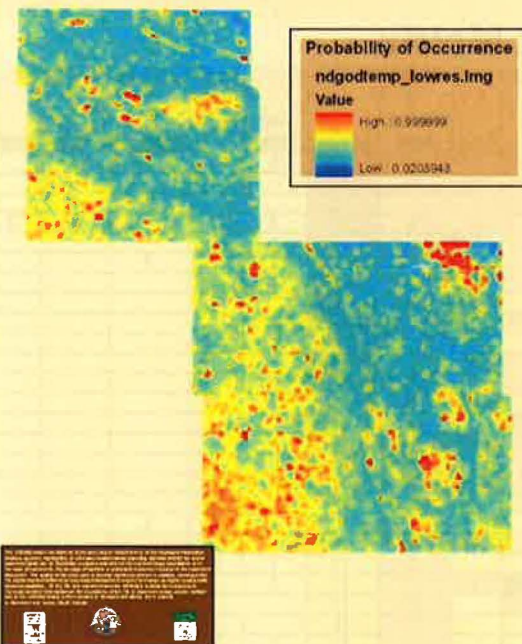
The Chase Lake WMD utilizes science in determining habitat objectives and goals. Models such as HAPET's "Breeding Duck Pair Density" & "Grassland Bird Conservation Areas" aid in determining objectives and goals.



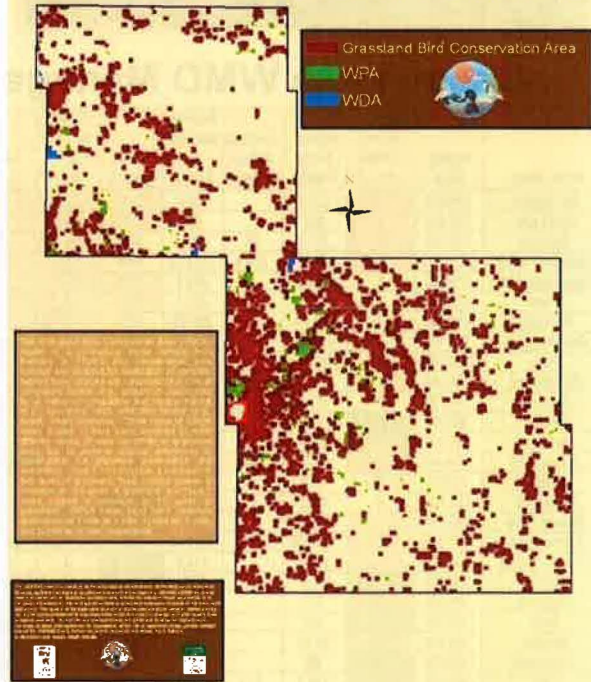
CHASE LAKE WMD BREEDING DUCK PAIR DENSITIES



CHASE LAKE WMD MARBLED GODWIT



CHASE LAKE WMD GRASSLAND BIRD CONSERVATION AREAS



HABITAT PLANNING & MANAGEMENT

2011 PROPOSED ACTIVITIES

<u>Activity</u>	<u># of WPAs</u>	<u>Acres</u>
Prescribe Fire.....	2.....	497 acres (Spring)
.....	6.....	2,983 acres (Fall)
Grazing.....	9.....	3,138 acres
Seeding Maintenance.....	6.....	685 acres
Weed Control (2010 data)		
Haying.....	17.....	1,151 acres
Chemical.....	5.....	~15 acres
Other (hand).....	2.....	~5 acres
Biological*.....	4.....	~50 acres
*Canada thistle, Leafy spurge, Spotted Knapweed		
Wetland Restoration.....	1.....	9 wetlands
Fencing	2.....	
Seedbed Prep.....	2.....	~300 acres

John Manages – Roosevelt & Vashti WPAs

Other Projects in FY11: Crystal Springs interpretive overlook



BIOLOGY & RESEARCH



Chase Lake WMD has a history of being at the **forefront** of **waterfowl & prairie research** and this rich history continues today.

All habitat management activities have a system of biological **monitoring** establish to ensure **goals** and **objectives** are being met. Examples include: Belt Transects, Photo Points, Daubenmire Method , Breeding Bird Surveys, Pollinator Surveys, etc.

Chase Lake WMD has the **most comprehensive data** set for vegetative and animal communities than any other Service land interest in the Dakotas. This **Legacy Data** includes but is not limited to: Vegetation transects, photo points, surveys, and counts and censuses.

Chase Lake WMD currently has 4 WPAs within the Region's **Adaptive Management Program**. The District may wish to include more sites.

Woodworth Station is one of nine **National Ecological Observatory Network (NEON) Core Sites** established in the country and the only one of FWS lands. NEON is a corporation funded by the NSF to monitor and document the effects of climate change on an ecological scale. This partnership with NEON has led to **4** proposals for additional research on WWS looking at climate change. We expect, as NEON comes on, there will be **many more** proposals for additional research at WWS.

Chase Lake WMD has also been **partnering** with NDSU on establishing a **Field School** for the university's **Natural Resource Management Program**.



NEON

What Is NEON?

The National Ecological Observatory Network (NEON) is a proposed continental-scale research platform for discovering and understanding the impacts of climate change, land-use change, and invasive species on ecology.

What Will NEON Do?

NEON has partitioned the U. S. into [20 eco-climatic domains](#), each of which represents different regions of vegetation, landforms, climate, and ecosystem performance. In those domains, NEON will collect site-based data about [climate and atmosphere](#), [soils and streams and ponds](#), and a [variety of organisms](#). Additionally, NEON will provide a wealth of regional and national-scale data from [airborne observations](#) and [geographical data](#) collected by Federal agencies and processed by NEON to be accessible and useful to the ecological research community. NEON will also manage a long-term multi-site [stream experiment](#) and provide a platform for future observations and experiments proposed by the scientific community.

The data collected and generated across NEON's network – all day, every day, over a period of 30 years — will be synthesized into information products that can be used to describe changes in the nation's ecosystem through space and time. It will be readily available in many formats to scientists, educators, students, decision makers and the general public.



What Is A Core Site?

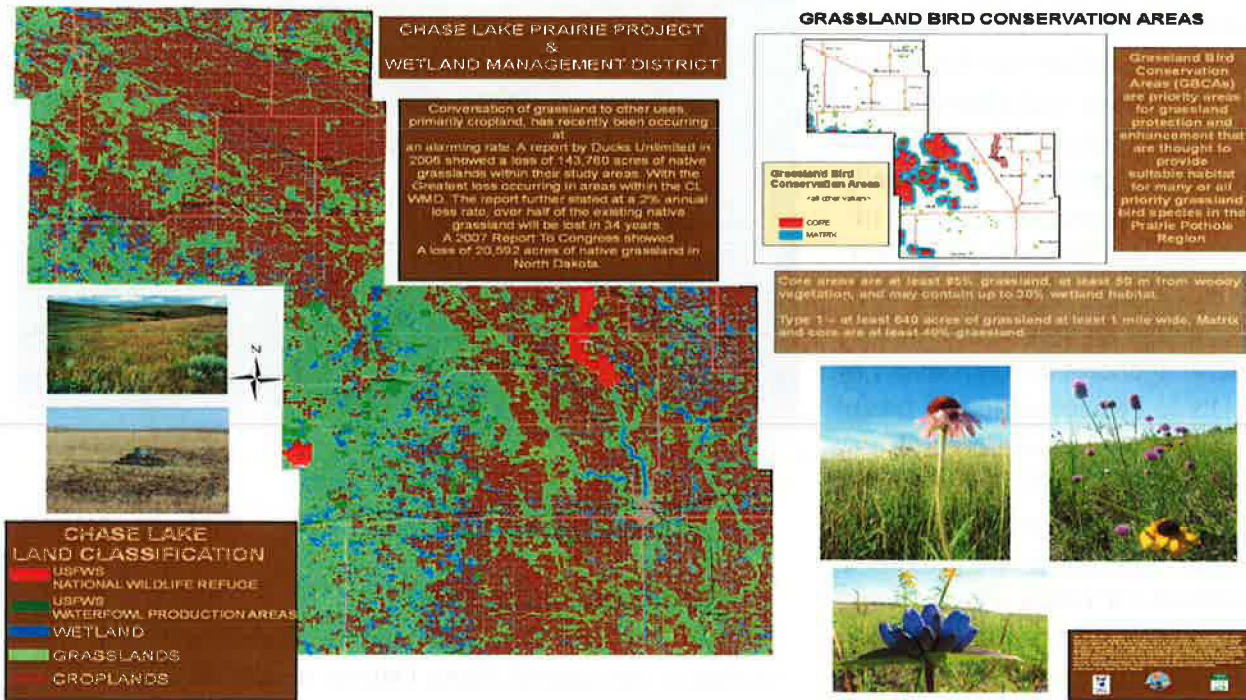
The NEON candidate core site at the Woodworth Field Station in east central North Dakota represents the Northern Plains Domain, a region that includes a large swath of Montana, northwestern Wyoming, almost all of the Dakotas, and much of western Minnesota. The station is representative of the prairie pothole ecosystem, an area of importance for breeding waterfowl and other wildlife dependent on wetlands. Land use is the NEON focus in the Northern Plains, and the domain shares an agriculture and biofuels research emphasis with the Prairie Peninsula (Domain 6, Konza Prairie Biological Station, Kansas). Collaborators at the site and in the region include North Dakota State University, the United States Geological Survey Northern Prairie Wildlife Research Center, and the US Fish and Wildlife Service.

CHASE LAKE WMD Easement Acquisition

Conversion of grasslands to other uses, primarily cropland, has recently been occurring at an **alarming rate**. A report by **Ducks Unlimited** in 2006 showed a **loss of 143,760 acres** of native grasslands within their study areas.

With the **greatest loss** occurring in areas within the **Chase Lake WMD**. The report further stated at a **2% annual loss rate**, over half of the existing native grasslands will be lost in **34 years**. A **2007 Report To Congress** showed a loss of **20,592 acres** of native grassland in **North Dakota**.

In order to acquire as many easements as possible the Chase Lake WMD **coordinates** easement acquisition with the Valley City WMD, Arrowwood WMD, Long Lake WMD, and Kulm WMD offices. The Chase Lake station has one Ducks Unlimited NAWCA Technician to evaluate easement offers.

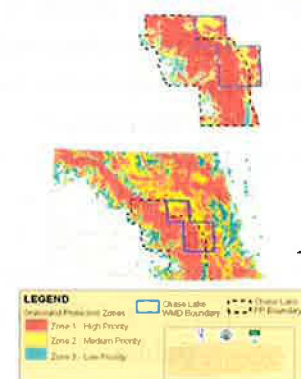


Chase Lake WMD Easement Evaluations

	# of Wetland Evaluations	Wetland Acres	# of Grassland Evaluations	Acres
FY09	8	1,021	10	7,700
FY10	11	535	17	9,108
FY11*	15	4,446 (Not all the acres have been totaled)	9	8,880 (Not all the acres have been totaled)

*FY11 as of 6/01/2011

Grassland Protection Priority Areas
Chase Lake Wetland Management District
Chase Lake Prairie Project



EASEMENT ADMINISTRATION

Administering the Chase Lake easement program is the **number one priority** for the WMD. Chase Lake WMD has **one** Refuge Manager/Law Enforcement Officer to administer the program so resources are **shared** across the Arrowwood Complex.

Even with the sharing of Complex resources, the Chase Lake WMD manager/LEO spends **over 60%** of their time administering the easement program (excluding acquisition).

Easement Workload

	Easement Requests	Easement Violations	Open
FY10	6	2	
FY11	36	12	18 Request 2 Violation



The Chase Lake WMD has developed strong **partnerships** with State and Local USDA Natural Resource Conservation Service offices; County Water Resource Boards; and Township Boards. **These partnerships have resulted in more information dissemination about the easement program resulting in fewer violations.**

The Chase Lake WMD is currently working with USDA/NRCS in creating a **Local Working Group** to aid in developing solutions to some current issues within the Conservation and Agriculture Communities. Such as: projected loss of CRP acres, tile and watershed concerns, etc.





CHASE LAKE PRAIRIE PROJECT & PARTNERS FOR WILDLIFE PROGRAM



CHASE LAKE PRAIRIE PROJECT

Initiated in 1989, the Chase Lake Prairie Project (CLPP) embraces 5.5 million acres (8,600 square miles) in 11 counties; 97% of this land is privately owned. **CLPP is a national flagship project of the North American Waterfowl Management Plan (NAWMP).** Under this plan, 14 cooperative habitat improvement focus areas were started and the one encompassing the CLPP came to be known as the Prairie Pothole Joint Venture (PPJV). A major source of project funding is provided through the North American Wetlands Conservation Act (NAWCA) in the form of grant money.



“Progress Through Partnerships”

The following is a list of impressive milestones the CLPP has achieved:



Wetland Restoration: Over 3,890 Acres= \$560,121

Wetland Creation: Over 710 Acres= \$382,987

Grassland Easements: Over 67,239 Acres= \$2,531,350

Wetland Easements: Over 21,222 Acres= \$1,652,775

Grazing Systems: Over 97,540 Acres= \$522,067



Nesting Islands: 40 Islands > 1/3 Acre and 35 Small 1/10th Acre Islands= \$300,000 (program no longer available)

Peninsula Cutoffs: 12 produced by physical manipulation and electric fences= \$225,000 (program no longer available)

Fee Title Acquisitions: 9,576 Acres Acquired= \$1,089,000

Adopt-A-Pothole: 949.1 Acres Acquired= \$208,182 (program no longer available)

Prairie and Wetlands Lease: 108,005 Acres Acquired= \$175,130

Predator Enclosures: 17 Predator Fences enclosing 750 Acres= \$160,000 (program no longer available)

Nesting Structures: 2,500 various structures= \$50,000 (program no longer available)

Grass Seeding: 21,736 Acres= \$164,636

Cattail Control: 135 Wetland Basins Totaling 3,256.8 Acres= \$80,456 (program no longer available)

Idling Land: 6,064 Acres= \$51,820.09 (program no longer available)

Endangered Species Upland: 66 Acres= \$9,743.75 (program no longer available)

Delayed Haying: 1,427 Acres= \$9,190.00 (program no longer available)

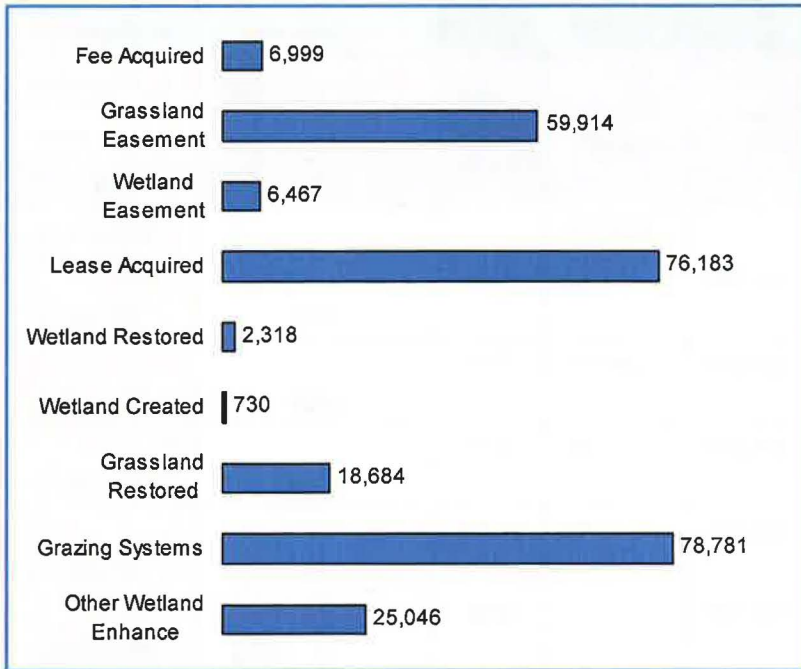
No Till/ Minimum Till: 8,221 Acres= \$110,073.10 (program no longer available)

No Till Drill (2) and Undercutter (1)= \$73,344.00 (program no longer available)

CHASE LAKE PRAIRIE PROJECT ACCOMPLISHMENTS

The Chase Lake series of NAWCA grants is **the most successful** series of grants in NAWCA history. More habitat has been restored, enhanced, and/or protected through the Chase Lake Prairie Project than any other project to date..

Accomplishments of the Chase Lake NAWCA Grants 1 through 9 (1993-2010)



**TOTAL ACRES:
294,775 completed**



**TOTAL FUNDS:
\$14,850,363**



CHASE LAKE GRANT - X

Initiated Planning in 2011

Chase Lake-X Projects to Accomplish				New Partner \$\$	\$189,000.00
				NAWCA funds	\$1,000,000.00
				Total Available \$\$	\$1,189,000.00
				Total Project list below	\$1,189,000.00
PROJECTS TO ACCOMPLISH DURING GRANT PERIOD	Grant Funds	Partner Funds	Cost per Acre	Match Remaining	\$0.00
				Acres	\$
NAWCA Techs (Mazur, Carlson)		\$135,000			\$135,000.00
New Wetland Restorations	\$50,000	\$0	\$250	200	\$50,000.00
New Grazing Systems (50/50 cost share)	\$54,000	\$54,000	\$18	3,000	\$108,000.00
New Grass Plantings (\$40k NAWCA, \$10k Priv. Land)	\$70,000	\$0	\$70	1,000	\$70,000.00
New Wetland Creations	\$30,000	\$0	\$2,000	15	\$30,000.00
Grassland Easements	\$796,000		\$300	2,653	\$796,000.00
Total	\$1,000,000	\$189,000		6,868	\$1,189,000.00



PROJECT TYPES IN FY 2010			
PROJECT TYPE	WEA'S	SITES	ACRES
Wetland Restoration	2	22	34.9
Native Grass Planting	3	4	84.1
Tame Grass Planting			
Wetland Creation			
Grazing Systems	8	8	2,300.0
Idling Land	3	4	66.9
Nesting Structures	1	6	
Wetland Enhance (misc)			
TOTAL	17	44	2,486

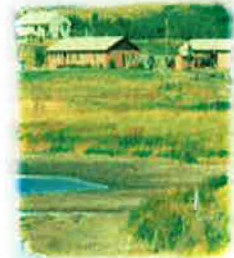
Chase Lake WMD's Research History



The Woodworth Station WPA is well known for its importance in waterfowl and wildlife management. The Woodworth Station WPA was formally known as the Woodworth Study Area established in 1963, a research and field station ran by the Northern Prairie Wildlife Research Center (NPWRC). Many of the **driving principals of habitat management**, especially as it relates to waterfowl management, were created here at the Woodworth Station and continue throughout the Service.



50 YEARS OF RESEARCH



NPWRC continues to conduct research within the Chase Lake WMD and Chase Lake NWR. One of the main sites is the The Cottonwood Lake Study Area, Cottonwood Lake and Eddy WPAs. Cottonwood Lake WPA consists of 17 wetlands on a 200-acre Waterfowl Production Area. This intensively instrumented wetland complex has been the site of cooperative studies involving Northern Prairie, the USGS Water Resources Discipline, the U.S. Fish and Wildlife Service, Bureau of Reclamation, and several universities. The project goal is an ecosystem-level understanding of the dynamics and interrelationships among water chemistry, hydrology, climate, soils, and the biota of a prairie wetland complex.



WOODWORTH STATION STUDY AREA & WATERFOWL PRODUCTION AREA



The **Woodworth Station Waterfowl Production Area (WPA)**, or formally called the Woodworth Station Study Area, was purchased as a WPA in the early 1960's. Unlike most WPA's, whose purposes are to provide waterfowl breeding habitat, Woodworth Station WPA's primary purpose is **dedicated to research of upland and wetland habitats**. This purpose has led the Woodworth Station WPA to become the most scientifically studied WPA in the Service.



Some of the important outcomes from the research derived here at the Woodworth Station WPA has been:

- Provided new information for wetland hydrology concepts and programs of the USFWS, USGS, Natural Resources Conservation Service (NRCS), and the U.S. Army Corps of Engineers (COE).
- Reinforced knowledge of the values of seasonal wetlands to waterfowl production.
- Identified the true impact of mammalian predation on production by waterfowl and other ground nesting birds, and the role of dense cover in reducing such impacts.
- Developed the dense nesting cover concept that is being applied internationally in wildlife management and land retirement programs.
- Provided new information on the use of prescribed burning to maintain optimum grassland conditions for nesting waterfowl, other migratory species, and resident species.
- Reinforced values of land retirement programs of the U.S. Department of Agriculture (Soil Bank, Water Bank, set aside acres) to wildlife.
- Provided strong scientific and socio-economic support for the 1980 and 1985 Farm Bills with data resulting from studies at WSA and the Mid-Continent Waterfowl Project at Fergus Falls, MN that led to the current Conservation Reserve Program (CRP). Similar information was used in developing programs for wetland restoration on private lands, and the Wetland Reserve Program (WRP).



- Applied pertinent habitat management techniques to Canadian programs through close coordination and interchange of current information with federal and provincial agencies and private natural resource organizations in Canada.
- Provided data bases from 1984-1986 to prepare the North American Waterfowl Management Plan and the 1994 update. This information was also used extensively in the establishment of the Joint Ventures under the plan and development of 15 Joint Venture Management Plans (10, 11, 12).
- Focused new emphasis on the seasonal food requirements of prairie waterfowl and the importance of invertebrates in diets of adults and ducklings through limnological studies.
- Shed new light on the species composition and growth forms of plants preferred by waterfowl and other migratory birds through grassland studies.



Research Facilities

The former Northern Prairie Wildlife Research Center's property was transferred to the U.S. Fish and Wildlife Service, Chase Lake Headquarters. This property includes a fully functioning laboratory and bunkhouse.

FY12 the Chase Lake headquarters and Northern Prairie Wildlife Research Center will partner to hire a joint Term Biological Technician. The USFWS/USGS position will not only foster the renewing of Northern Prairie's presence and research at Woodworth Station but will also aid the Service in developing, implementing, coordinating, and publishing needed research.



COTTONWOOD LAKES STUDY AREA

The Cottonwood Lake Study Area is a collection of 6 WPAs and is **one of only three long-term wetland ecosystem monitoring sites** in the prairie pothole region of North America. Of the three, Cottonwood Lake has by far **the longest continuous data collection record**. Research was initiated at the Cottonwood Lake site in **1966** and an intensive investigation into the site's surface and groundwater hydrology was initiated in 1978.



Today the Cottonwood Lake Study Area is **internationally recognized** as one of the most intensively studied wetland complexes in North America. More than **80** scientific publications, graduate theses, and presentations at scientific conferences resulting from these studies provide the bulk of information currently available to guide wetland management in the prairie pothole region of the U.S. and Canada. According to Chip Euliss, NPWRC, one of the greatest contributions of the Cottonwood Lake effort is that it **"provides invaluable baseline data on the hydrological, chemical, and biological attributes upon which to base comparisons with ongoing research, including studies on wetland restoration and wetland monitoring."** In addition, the understanding of the interrelation of hydrological, chemical, and biological processes revealed by research at the site provides the scientific foundation that allows wetland managers to understand the outcome of different management options.



The current objectives of the Cottonwood Lake Study are **1)** to continue the collection of data related to the **long-term monitoring of climate, hydrology, water chemistry, and biotic communities** of this prairie wetland to ensure continuity of the site's long-term data sets, **2)** continue investigations into the effects of **climate change** on diverse ecosystem services through the use of these historic data sets, and **3)** provide baseline long-term monitoring data to the **Integrated Landscape Monitoring Initiative** for the development of frame-based models to simulate the functioning of prairie ecosystems under various climate change scenarios downscaled from **International Panel on Climate Change (IPCC)** scenarios.

ARROWWOOD NATIONAL WILDLIFE REFUGE COMPLEX

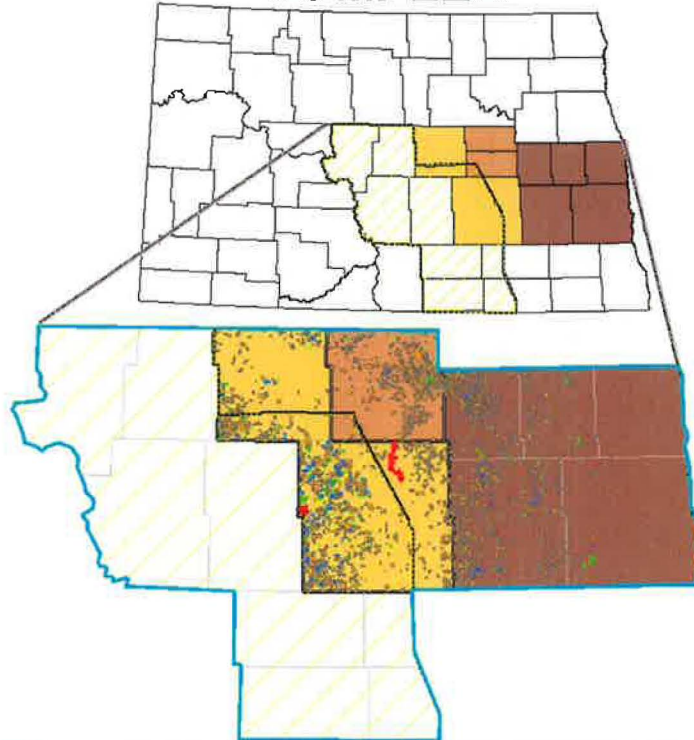


Arrowwood National Wildlife Refuge

Arrowwood Wetland Management District



Chase Lake National Wildlife Refuge

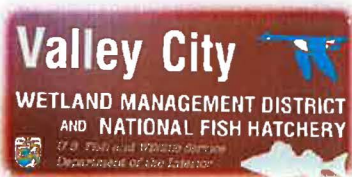


- Arrowwood National Wildlife Refuge
- Arrowwood Wetland Management District
- Chase Lake National Wildlife Refuge
- Chase Lake Wetland Management District
- Chase Lake Prairie Project
- Valley City Wetland Management District



Chase Lake Prairie Project

Chase Lake Wetland Management District



Valley City Wetland Management District





Chase Lake NWR/WMD/PP Vision

Administer a diverse system of lands that provide optimal habitat for Service Trust Species and other wildlife through acquiring, protecting, and holistically managing and restoring native upland and wetland habitats on public and private lands.

