



NORTH DAKOTA STATE TACTICAL PLAN

A supplement to the 2017 Prairie Pothole Joint Venture **Implementation Plan**

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Photo: Casey Stemler

EXECUTIVE SUMMARY

The Prairie Pothole Joint Venture (PPJV) is a voluntary, non-regulatory, self-directed partnership involving federal and state agencies, non-governmental conservation groups, private landowners, scientists, universities, policy makers, and others interested in prairie habitat conservation. PPJV partners realize they can achieve more through collaboration than by acting alone. The PPJV was established in 1987 as one of the six original priority joint ventures under the North American Waterfowl Management Plan (NAWMP 1986). Using rigorous science and robust spatial planning tools, the PPJV partnership strategically conserves, restores and enhances high priority wetland and grassland habitat to maintain and increase priority migratory bird populations.

Each of the bird conservation plan initiatives (waterfowl, waterbird, shorebird, and landbird) identifies habitat loss in the U.S. Prairie Pothole Region (U.S. PPR) as a primary cause of population declines for species of concern in that geography. Once a vast grassland ecosystem characterized by millions of wetland depressions, the U.S. PPR is now an agrarian system dominated by cropland across much of the landscape. In general, intensive agricultural land use resulting in wetland and grassland conversion

to cropland has been detrimental to the migratory bird populations that use the PPR. In addition to the > 50% of grassland habitats converted to cropland in the U.S. PPR, > 50% of the total wetland area of the U.S. PPR has been lost to agricultural drainage.

The 2017 PPJV Implementation Plan provides a framework for delivering integrated bird conservation but it does not provide details such as specific tactics to be employed and associated acreage objectives, costs, and partner responsibilities. Historically, PPJV step-down plans have been developed as tactical plans at various geographic scales for specific bird groups. Although these tactical plans provide guidance for conservation actions according to individual programmatic elements (i.e., protection, restoration, and enhancement) in specific PPR landscapes, step-down plans do not exist in all PPJV states. The 2017 PPJV Implementation Plan incorporates step-down plans in the form of State Tactical Plans for the PPJV area in each of the states, supplemental to the Implementation Plan. The intent of North Dakota's State Tactical Plan is to provide a cohesive and science-based foundation for conservation actions directed at priority bird species within the 5-year timeline of the Implementation Plan.



Casey Stemler

North Dakota's State Tactical Plan identifies goals, objectives, and strategies with regard to spatially explicit targeting of habitat conservation for priority bird species. The plan also addresses priority action items and goals for conservation policy and legislation. Additionally, this plan explicitly recognizes the human user component of bird conservation. This is accomplished through objectives and strategies regarding

public access to wetland and upland resources in an effort to maintain the U.S. PPR migratory bird hunter constituency and associated financial and political support for bird conservation. Partners are working towards the following 5-year goals and objectives in the ND PPJV administrative area.

Five-year Goal and Objectives

WATERFOWL HABITAT OBJECTIVES:

Habitat	Perpetual Protection	Term-limited Protection	Restoration	Enhancement
Wetlands	76,500	142,800	3,725	19,600
Grasslands*	126,500	100,000	7,850	92,600

* Maintain the 1.1 million acres of restored grassland under the Conservation Reserve Program (CRP) that existed in the ND PPJV area in 2015, in addition to the acres of restored grasslands in the table above.

HUNTER RETENTION AND ACCESS:

The goal for hunter retention for North Dakota is to maintain the 1995–2015 average annual number of waterfowl hunters in the state (45,000 – 55,000; NDGFD survey estimates). The primary objectives to achieve this goal are:

- » Maintain 900,000 acres open to public access for waterfowl hunting using a combination of existing private lands programs and partnerships such as the Private Lands Open to Sportsmen (PLOTS), and federal and state public lands.
- » Conduct 65 waterfowl hunter recruitment events within the state with 4,000 participants.

- » New mechanisms via NRCS/FSA that establish or retain nesting cover (both planted cover as well as cover crops that may aid ground nesting birds);
- » Support for policies and programs that support a grass-based agricultural economy;
- » Maintain LWCF and NAWCA funding.

MONITORING AND EVALUATION:

The goal of North Dakota PPJV monitoring programs is to evaluate the effectiveness of conservation delivery, gauge progress toward stated objectives, validate assumptions used in conservation design, and incorporate learning into future conservation planning and decision through targeted and purposeful monitoring.

PRIORITY ACTIONS

FOR POLICY AND LEGISLATION:

- » Maintain Swampbuster and Sodsaver provisions in the next Farm Bill;
- » Increase CRP acreage cap in the next Farm Bill and address structural impediments that exist in the Ecological Benefits Index (EBI) for North Dakota and the PPJV area as a whole;
- » Maintain \$40 million funding cap for the North Dakota Outdoor Heritage Fund and minimize efforts to constrain/limits grant dollars;
- » New programming via NRCS/FSA to conserve small “at risk” wetlands;

EDUCATION AND OUTREACH:

The goal of the North Dakota PPJV outreach programs is to continue to support an array of education and outreach tools to increase interest in conservation activities in the state, increase hunter recruitment and retention, and provide technical assistance targeted to agricultural producers to support conservation programs on working lands.

INTRODUCTION

The Prairie Pothole Joint Venture (PPJV) is a voluntary, non-regulatory, self-directed partnership involving federal and state agencies, non-governmental conservation groups, private landowners, scientists, universities, policy makers, and others interested in prairie habitat conservation. It has long been realized by PPJV partners that they can achieve more through collaboration than by acting alone. The PPJV was established in 1987 as one of the six original priority joint ventures under the North American Waterfowl Management Plan (NAWMP 1986). Using rigorous science and robust spatial planning tools, the PPJV partnership strategically conserves, restores, and enhances high priority wetland and grassland habitat to maintain and increase priority migratory bird populations.

Although population limiting factors have yet to be identified for species in all of the bird groups, the four bird conservation plans identify habitat loss in the PPR as a primary cause of population declines. Once a vast grassland ecosystem characterized by millions of glacially formed wetlands, the U.S. PPR is now an agrarian system dominated by cropland. Wetlands and grasslands have been converted to intensive agricultural land use that has been detrimental to the migratory bird populations that inhabit the PPR. In addition to the >50% of grassland habitats converted to cropland in the U.S. PPR, >50% of the total wetland area of the U.S. PPR has been lost to drainage for conversion to agriculture. In addition to habitat loss, other anthropogenic disturbances including energy development, urban

The PPJV Implementation Plan addresses the conservation needs of four species groups: waterfowl, shorebirds, waterbirds, and landbirds.

The PPJV is committed to addressing the conservation needs of all avian species that inhabit the U.S. portion of the Prairie Pothole Region (U.S. PPR). This is a formidable task, because each species occupies a unique ecological niche and may be subject to a unique set of limiting factors. Effective conservation requires a strategic, science-based approach. The PPJV Implementation Plan addresses the conservation needs of four species groups: waterfowl, shorebirds, waterbirds, and landbirds. For waterfowl, planning relies on the North American Waterfowl Management Plan (NAWMP 2012), and its various derivatives specific to the PPR. Shorebird conservation plans are derived from the United States Shorebird Conservation Plan (Brown et al. 2001). Waterbirds are addressed as a component of the North American Waterbird Conservation Plan (Kushlan et al. 2002), and the associated step-down plan for the PPR, the Northern Prairie and Parkland Waterbird Conservation Plan (Beyersbergen et al. 2004). Last, the Partners in Flight North American Landbird Conservation Plan (Rosenburg et al. 2016) is the foundation for conservation planning for this diverse group of species that includes passerines.

expansion, pattern tile drainage, road construction, and climate change continue to threaten breeding bird populations in the U.S. PPR.

To address the negative effects of habitat loss, the PPJV uses an integrated approach to bird conservation through Strategic Habitat Conservation (SHC). Implementation of SHC to conserve waterfowl populations is based on a foundation of decades of research and planning. The process is an adaptive approach to species conservation characterized by four programmatic elements: biological planning, conservation design, conservation delivery, and research and monitoring. As a whole, the elements are designed to maximize desired biological outcomes resulting from conservation treatments for priority species. The PPJV concept of “separate planning, integrated action” for the different bird groups provides a strategy allowing the best available science to drive habitat and population conservation.



Chuck Loesch

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In addition to stepping down the conservation framework identified in the PPJV Implementation Plan, the North Dakota State Tactical Plan concisely describes the priority resources and the strategies to conserve those resources over the next five years. Future conservation needs are also identified in the context of research, funding, staff and public policy at the state level. Additionally, the plan provides a mechanism to track accomplishments at the state level. Finally, methods for monitoring and evaluating the efficacy of conservation strategies and the resulting effects on priority species are described. The North Dakota State Tactical Plan will complement the adaptive planning framework the PPJV has embraced since its inception and provide a level of partner collaboration for leveraging resources to accomplish the overarching PPJV goals at the state level.

THE PRAIRIE POTHOLE REGION OF NORTH DAKOTA

Located entirely north and east of the Missouri River, the PPJV area of North Dakota encompasses over 51,000 square miles (72% of the state; Figure 1). The North Dakota portion of the PPJV administrative area comprises about 28% of the entire PPJV area and is composed of three primary ecoregions: the Missouri Coteau, the Drift Prairie, and the Red River Valley (Figure 2). The North Dakota State Wildlife Action Plan (Dyke et al. 2015) contains detailed descriptions of the climate and land use in the different ecoregions of the state.

Shaped by Pleistocene glaciation, the North Dakota PPR landscape is characterized by >1.5 million shallow basins that constitute one of the richest wetland systems in the world. These “prairie potholes” and their surrounding grasslands provide breeding habitat for a diversity of wetland and grassland-dependent birds. Approximately 196 species of waterfowl,

landbirds, shorebirds, and waterbirds depend on the ND PPR for breeding habitat. Additionally, significant numbers of spring and fall migrants also use these productive habitats. Many of these species are PPJV priorities for conservation while others are identified as species of conservation priority by the North Dakota State Wildlife Action Plan (Dyke et al. 2015; Table 1).

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Table 1. North Dakota Birds of Conservation Priority (Dyke et al. 2015) in the ND PPR. Species in bold are also PPJV priority species

LEVEL I	LEVEL II	LEVEL III
Horned Grebe	American White Pelican	Whooping Crane
American Bittern	Northern Pintail	Red Knot (Rufa)
Swainson's Hawk	Canvasback	Peregrine Falcon
Ferruginous Hawk	Lesser Scaup	
Yellow Rail	Northern Harrier	
Marbled Godwit	Golden Eagle	
Wilson's Phalarope	Bald Eagle	
Franklin's Gull	American Kestrel	
Black Tern	Prairie Falcon	
Black-billed Cuckoo	Sharp-tailed Grouse	
Red-headed Woodpecker	Greater Prairie-Chicken	
Sprague's Pipit	Piping Plover	
Grasshopper Sparrow	American Avocet	
Baird's Sparrow	Willet	
Nelson's Sparrow	Upland Sandpiper	
Lark Bunting	Least Tern (Interior)	
Chestnut-collared Longspur	Short-eared Owl	
	Burrowing Owl	
	Loggerhead Shrike	
	Dickcissel	
	Le Conte's Sparrow	
	Bobolink	
	Western Meadowlark	

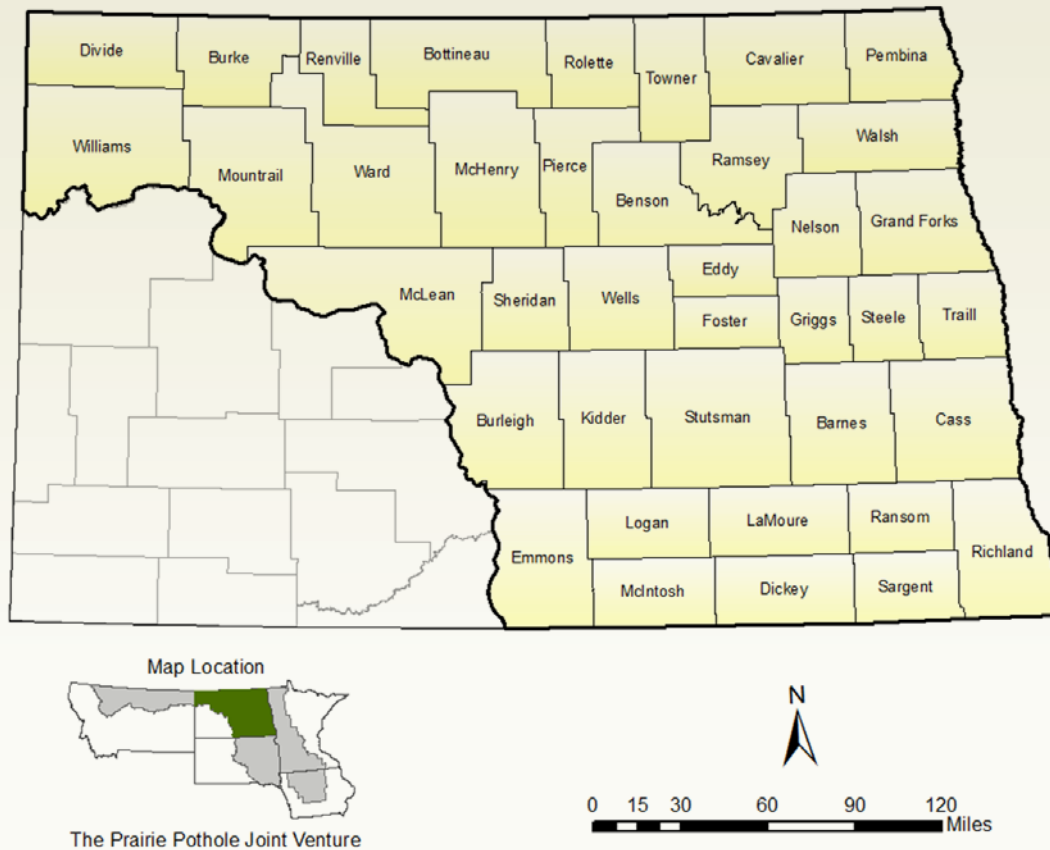


Figure 1. The Prairie Pothole Joint Venture area of North Dakota



Figure 2. Ecoregions of North Dakota

Grassland and wetland loss within the PPJV portion of North Dakota, primarily through agricultural conversion, has been extensive and is ongoing. Five million wetlands were estimated to historically exist in North Dakota (Dahl 1990). By the 1980's, >50% of the wetlands were drained in the state. Johnston (2013) estimated an annual NWI wetland loss of 0.28% / year for the PPJV areas of North and South Dakota as a result of row crop expansion. Dahl (2014) estimated 3.3% of the total number of wetlands in PPR portion of the state were drained from 1997-2014. Despite those losses, the North Dakota PPR contains the greatest number of remaining wetlands relative to other PPJV states. These remaining wetland basins highlight the importance of the state to priority PPJV species. Indeed, North Dakota has an estimated 1.68 million wetlands remaining, approximately 50% of all wetlands currently in the PPJV administrative area. Those wetland basins provide breeding habitat for an estimated 49% of the entire U.S. PPR upland nesting waterfowl population (HAPET office, unpublished data).

In the recent decade, high commodity prices and biofuel mandates for corn and soybeans have driven a surge in additional grassland loss across the PPJV area. Wright and Wimberly (2013) documented loss rates as high as 5.4% annually, with conversion of grasslands to row crop production from 2006-2011 estimated to be 671,000 acres across North and South Dakota alone. Landcover data from 2015 indicates 8.7 million acres of grasslands existed in the North Dakota PPR (Figure 3), comprised of < 1%

of the original eastern tall-grass prairie, and 30% of the mixed-grass prairie that once existed in the state. Doherty et al. (2013) estimated that 54% of historic grasslands within North Dakota's PPR had been converted by 2006 to agricultural production. Since then, the continued loss of USDA Conservation Reserve Program (CRP) acres has resulted in millions of acres of perennial nesting cover reverted to cropland (Figure 4).

Farm Bill programs like CRP have proven critical to supplementing duck production in the PPR for over 30 years. Reynolds et al. (2001) estimated that CRP contributed 2.1 million ducks to the annual fall flight between 1992 and 1997. Additional analysis by Reynolds et al. (2006) estimated that 25.7 million ducks were produced on CRP acres within the PPJV area from 1992 -2003. Unfortunately, CRP acres are rapidly disappearing from the PPJV landscape. Acreage in CRP reached its peak across the PPJV administrative area in 2007 with 8.35 million acres and declined to 4.19 million acres by 2015, a reduction of 50%. North Dakota contains the most CRP acres in the PPJV area with 1.26 million acres enrolled in 2015, but has experienced a 49% reduction since 2008. At current rates of grassland loss and grassland conservation, it is estimated that between 30% and 70% of grasslands that existed in 2006 will remain before protection rates and conversion rates intersect, representing protection of only 8-18% of historic grasslands (Doherty et al. 2013; Figure 5).

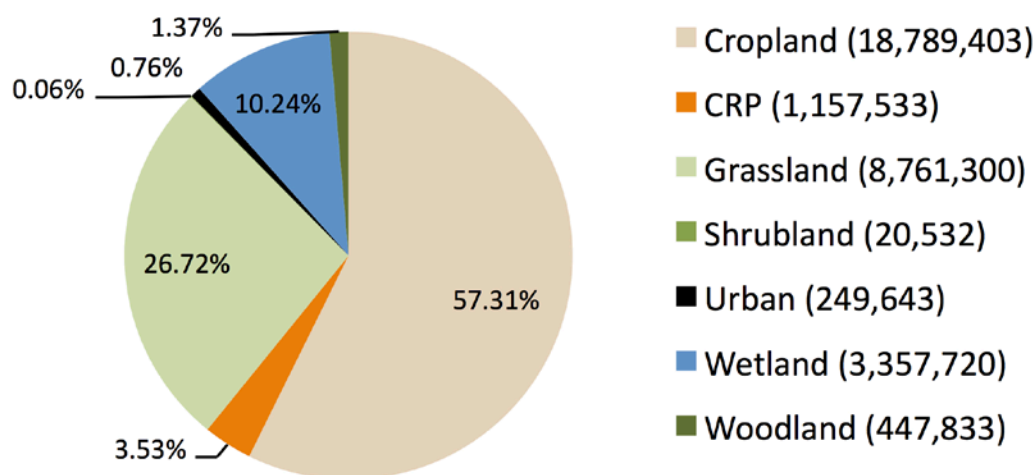


Figure 3. Landcover composition of the ND PPJV based on 2011 imagery. Acres are in parentheses

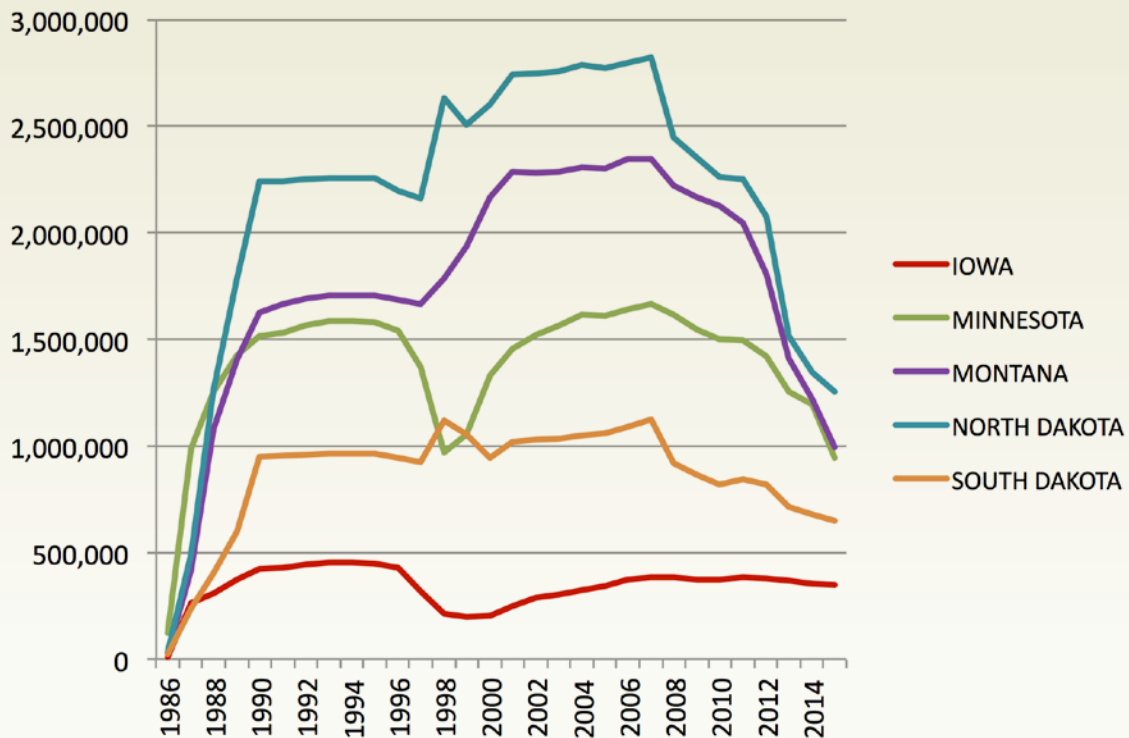


Figure 4. Conservation Reserve Program (CRP) acres for Prairie Pothole Joint Venture counties 1986–2015. Acres include all CRP parcels for all Conservation Practice Types (USDA 2014, FSA unpublished data)

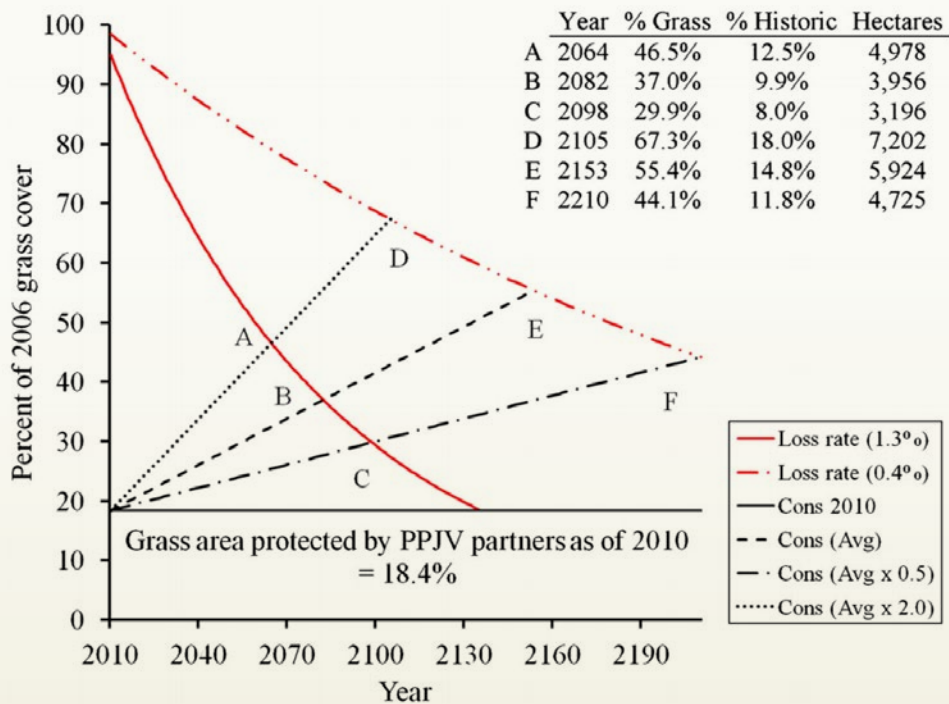


Figure 5. Percent of grass cover protected within the Prairie Pothole Joint Venture (PPJV) of the United States, and 200 year projections of grassland protection and grassland loss (Doherty et al. 2013).



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The foundation of the 2017 PPJV Implementation Plan is to maintain the prairie ecosystem to support pulses of landscape level productivity to maximize reproductive potential for breeding waterfowl. Recent work by Walker et al. (2013) highlights the importance of maintaining functioning wetland complexes within cropland matrices to take advantage of pulse landscape productivity following dry cycles. Once wetlands are drained, breeding duck pair habitat is permanently reduced unless the wetlands are restored. By protecting intact grassland and wetland complexes, and restoring and enhancing wetlands in areas of higher agricultural intensity, PPJV partners are able to take advantage of the inherent variability of the ND PPR, specifically in years with increased landscape productivity. These highly productive years enable managers to actively manage habitats in degraded landscapes to increase nest success, hen survival, and duckling recruitment.

Intensive management techniques that increase nest success should have the greatest impact on population dynamics of prairie nesting ducks, particularly in areas where nest success is below maintenance levels (Hoekman et al. 2002). Numerous studies have shown predator removal to be effective at increasing nest success on a local scale (Garrettson and Rohwer 2001, Chodack and Chamberlain 2006, Perion and Rohwer 2010, Amundson and Arnold 2011, Perion et al. 2012). Priority should be given to predator removal areas with adequate wetland densities to support high duckling survival (Amundson et al. 2012). Duck nesting structures are also a useful tool to increase local nest success for mallard production in areas with adequate wetland habitat but nesting cover is limiting, particularly in large semi-permanent wetlands with an abundance of emergent vegetation (Stafford et al. 2004, Mammenga et al. 2007).

PRIORITY WETLAND AND GRASSLAND HABITAT

Priority Waterfowl Habitat

Identifying the habitat resources necessary to support target breeding waterfowl populations in the U.S. PPR is a critical element to the foundation of the 2017 PPJV Implementation Plan. Waterfowl nest success has been identified as a major factor driving reproductive success and recruitment in the PPR. Hoekman et al. (2002) concluded that nest success was the single most important life cycle factor influencing population change in mid-continent mallards. Further, nest success in North Dakota is positively correlated with patch size and the amount of landscape scale grassland habitat (Reynolds et al. 2001, Stephens et al. 2005, Horn et al. 2005), reinforcing the need for grassland protection and restoration within the PPJV to support NAWMP waterfowl population objectives into the future. Additionally, duck breeding pair densities are directly correlated with wetland densities across the landscape (Johnson and Grier 1988, Cowardin et al. 1995) and maintaining functional wetlands with periodic wet-dry episodes is important to duck recruitment in the PPR, even in cropland-dominated landscapes (Walker et al. 2013).

As a first step in the development of habitat goals for the 5-year duration of the Plan, a geospatial landscape assessment of PPJV-wide resources and their protection status was conducted to inform the overall long-term needs to maintain current carrying capacity for waterfowl recruitment. The analysis was used to develop short-term (5-year) habitat objectives for each of the 5 PPJV states. As a primary part of North America's "duck factory," the North Dakota PPR provides breeding habitat to millions of ducks annually (Figure 6). This critically important area currently contains 1.7 million acres of priority wetland and 6.6 million acres of priority grassland habitats remaining (Table 2). The wetland and grassland habitat objectives were based on the acres of unprotected, priority wetlands and grasslands located within the >25 breeding pair threshold derived from the waterfowl upland accessibility and distribution models (a.k.a. thunderstorm map; Figure 6) developed in the US Fish and Wildlife Service HAPET Office.

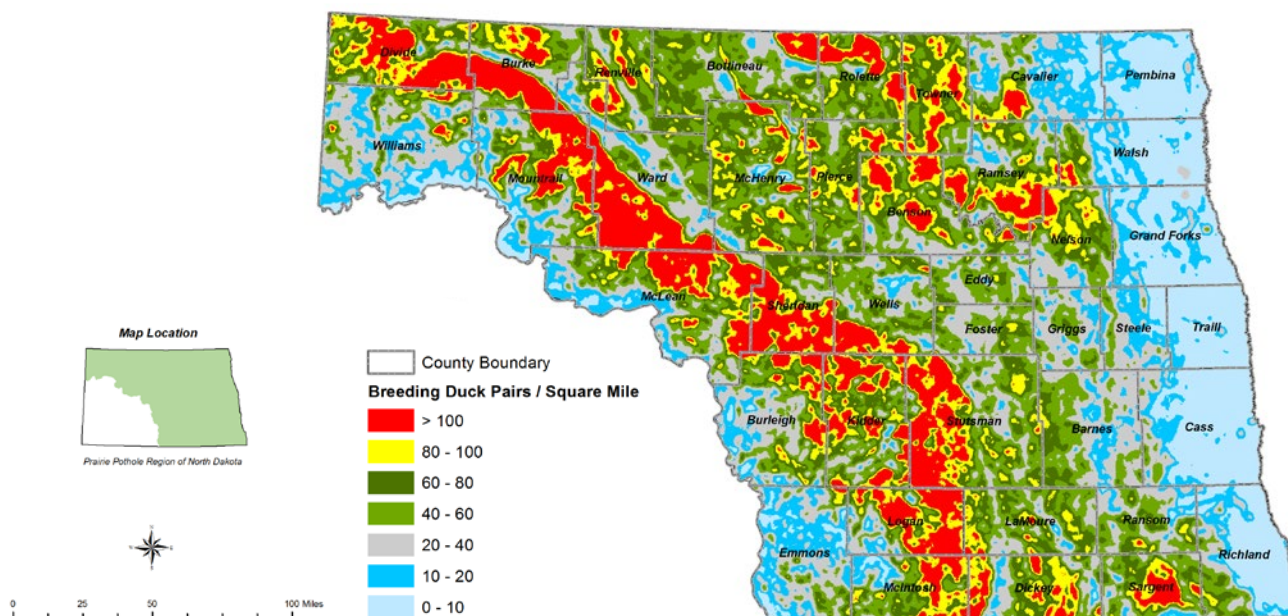


Figure 6. Upland accessibility of breeding duck pairs in the ND PPR (a.k.a. "thunderstorm map"). Mallard, northern pintail, gadwall, blue-winged teal and northern shoveler are included in the model.

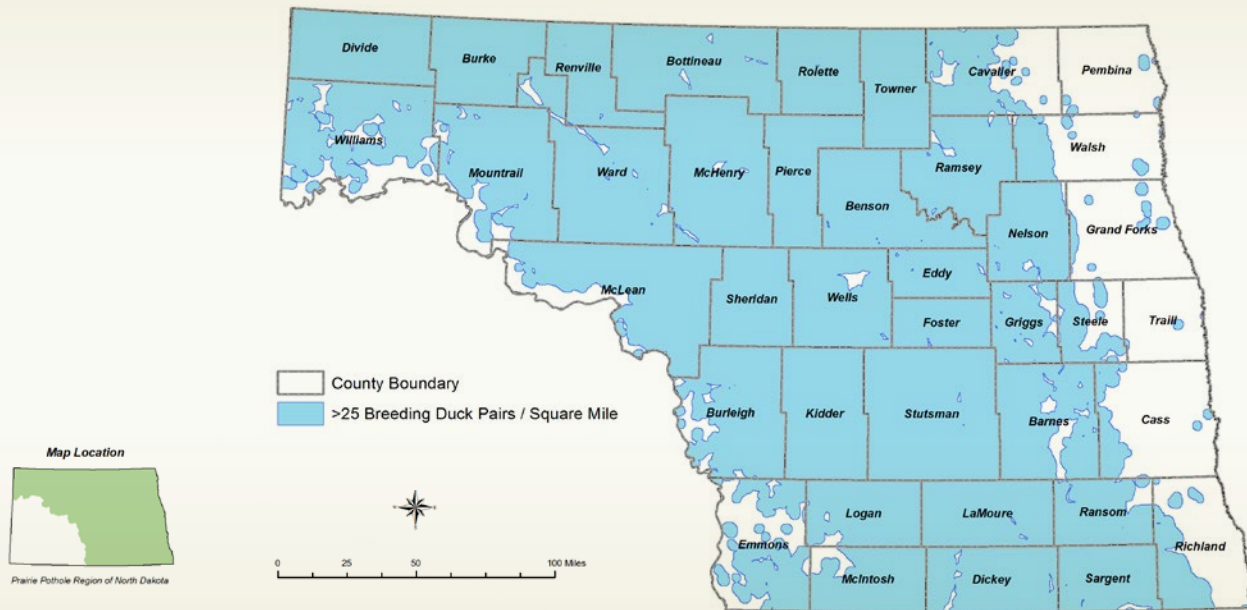


Figure 7. Grassland Priority Areas in the PPR of North Dakota with > 25 predicted duck pairs per square mile.

Priority grasslands are those patches exceeding 55 acres in size (Johnson et al. 2010) and their accessibility by > 25 duck pairs per square mile (Figure 7). The 55 acres threshold represents the minimum block of grass required for several species of area-dependent birds and integrates conservation actions for grassland nesting species. Priority wetlands were identified as small and shallow wetlands totally or partially embedded in cropland that support > 25 duck pairs per square mile. PPJV partners consider these priority wetlands are at the greatest risk of drainage. Additionally, any small shallow wetland totally or partially embedded in priority grasslands are also considered priority wetlands (Table 2)

Hunter Retention and Access

During the most recent NAWMP revision, it was acknowledged that hunters are a critical, equal component often referred to as the “third leg of the stool” along with habitat and waterfowl populations. Migratory Bird Conservation and Hunting Stamps (i.e., Federal duck stamps) are required for waterfowl hunters 16 years of age and older in the United States. Sales from duck stamps go directly towards conservation of waterfowl habitats. Ensuring public access to waterfowl hunting opportunities is critical to sustain conservation of the migratory bird

public trust. Furthermore, PPJV partners provide abundant upland game bird hunting opportunities and license sales contribute considerably to hunter access programs and habitat.

Determining goals to provide habitat to sustain waterfowl hunting can be difficult. Not every location will be a heavily used destination and not every heavily used destination can have public access. Access to lands varies across the PPJV due to availability of open public land, different trespass laws, and sentiment among private land owners. However, over the past 20 years, accessibility to private lands has decreased. Areas that once were accessible through private lands permissions have now become difficult to access in some places. Waterfowl hunting can also vary considerably in the type of hunting undertaken (e.g., diving duck hunting on a large open wetland, a teal hunt in shallow water, or hunting in an agricultural field for upland feeding geese and ducks).

Additionally, an important factor to consider is that not all areas should be open for public access. Excess hunting pressure can be detrimental to the overall hunting experience in a given area. Hunting some large wetlands is unpopular locally because those wetlands may be roosting areas for waterfowl, and if disturbed too often, birds may leave the area or exhibit decreased physiological status

(Szymanski et al. 2013).. Therefore, a certain mix of public access and lesser disturbed areas are important for maintaining quality hunting opportunities, yet ensuring suitable staging habitat for waterfowl during migration.

Currently, there are approximately 285,000 acres of USFWS Waterfowl Production Areas (WPAs) in North Dakota. While many provide good waterfowl hunting opportunities, there are not enough acres available on these and other state and federal public lands alone to support public waterfowl hunting needs. In an analysis completed by the North Dakota Game and Fish Department (NDGFD; Szymanski 2008), only 3.9% of semipermanent or permanent basins that are 1-20 acres in size had substantial access provided by state or federal fee-title lands. This example only examines a subset of waterfowl hunting opportunities, as stated above. Use of the NDGFD Private Land Open to Sportsmen (PLOTS) Program along with other innovative private/public partnerships is necessary to fulfill the need for public access to waterfowl hunting in North Dakota.

The goal for hunter retention is to maintain the 1995 – 2015 average annual number of waterfowl hunters in North Dakota (45,000 – 55,000). The objectives to reach this goal include increasing hunter access and introducing new hunters to the sport while promoting ethical behavior (see detailed objectives below).

Table 2. PPJV priority wetland and grassland habitats in North Dakota and in the 5-state administrative area. All numbers are in millions.

Wetlands		
Analysis Area	PPJV-wide	ND
Total Breeding Duck Pairs	5.00	2.45
Total Wetland Acres	8.74	3.16
Protected ¹ Acres	3.61	1.49
Unprotected Acres	5.13	1.67
Total Breeding Pairs on Unprotected Wetlands	3.17	1.45
Unprotected Priority ² Wetland Acres	1.78	0.87
Grasslands		
Analysis Area	PPJV-wide	ND
Total Grassland ³ Acres	37.89	9.94
Total Priority ⁴ Grassland Acres	15.54	6.56
Protected ¹ Acres	4.74	1.86
Unprotected Acres	10.80	4.70
Associated unprotected wetland acres	1.09	0.33

1 – Protected acres include all federal, state, county and NGO fee lands, FWS perpetual easements, CRP and WRP.

2 – Priority wetlands are those small shallow wetlands totally or partially embedded in cropland without protection

3 – Grasslands include grass, shrub, and CRP landcover classes

4 – Priority grasslands are patches of grassland over 55 acres in size that are accessible to over 25 duck pairs per square mile.

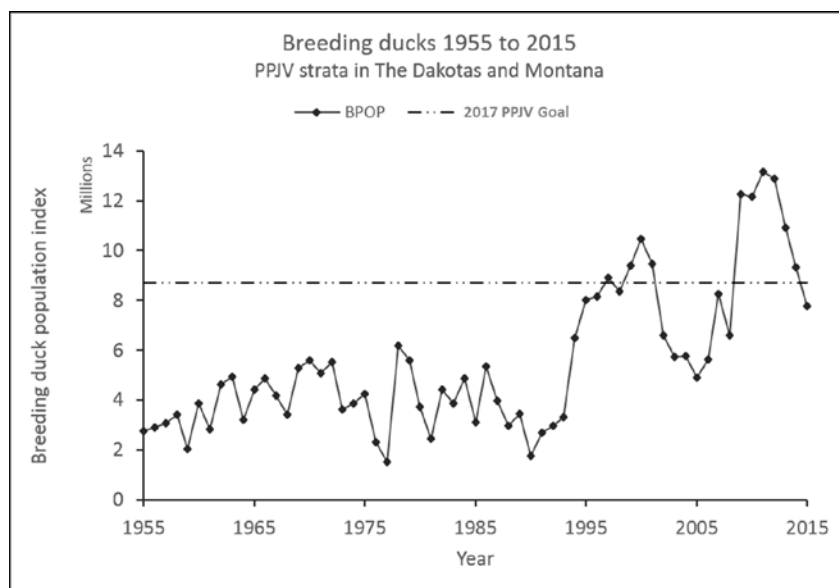


Figure 8. Breeding population index for the ten most abundant species of ducks in the PPJV survey strata of the Waterfowl Breeding Population and Habitat Survey.

USFWS acquisitions represent the majority of land protection efforts in the PPJV, and include easements donated to the USFWS by partners.

The two-year total habitat protected by fee and easements in North Dakota was 68,738 acres.



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GOALS, OBJECTIVES, AND STRATEGIES

The goal of the 2017 PPJV Waterfowl Plan is to sustain the overall duck production capability that existed in the PPJV during 1994-2015 (Figure 8). The Waterfowl Breeding Population and Habitat Survey (WBPBS) portion of the PPJV area (including MT, ND, and SD) averaged 8.7 million breeding ducks per year of the ten species with NAWMP objectives over this time period. Nearly half (49%) of these pairs were estimated to breed in North Dakota. Maintaining this breeding population will require habitat restoration and enhancements in areas where wetlands and grasslands continue to be lost to conversion. Additionally, existing habitat will need to be protected in areas that are attractive to breeding ducks.

Five-year habitat objectives – Protection

To generate wetland and grassland habitat protection objectives for the 5-year implementation plan, we reviewed USFWS fee and habitat easement purchases from 2013 and 2014. USFWS acquisitions represent the majority of land protection efforts in the PPJV, and include easements donated to the USFWS by partners. The two-year total habitat protected by fee and easements in North Dakota was 68,738 acres. The vast majority of North Dakota habitat protection was in perpetual easements (99%) and the remainder in fee acquisition (1%). Assuming the conservation climate remains the same for the next five years, the ND PPJV partners can protect an estimated 172,000 acres, with 1,000 and 171,000 acres in fee and easement acquisition, respectively. Furthermore, if PPJV partners experience a 25% increase in funding over the 5-year duration of the plan through programs such as the Land and Water Conservation Fund, an additional 31,000 acres in perpetual easements and 200 acres in fee acquisitions may be realized.

The proportional distribution of recent accomplishments (fee and easement, wetland and grassland) and average cost per habitat acre form the basis for estimating the 5-year wetland and grassland protection objective for the 2017 plan.

DEFINITIONS:

High priority wetlands – unprotected small and shallow wetlands totally or partially embedded in cropland that exist in landscapes that support over 25 duck pairs per square mile. Additionally, wetlands embedded in priority grasslands.

Priority grasslands – unprotected grassland patches exceeding 55 acres located in landscapes that support over 25 duck pairs per square mile.

WETLAND PROTECTION

Protect 219,300 acres of high priority wetlands at risk and wetlands associated with priority grasslands using perpetual and term-limited programs over the next 5 years.

Sub objective 1: Protect 76,000 acres through perpetual easements.

Strategy: Enroll 76,000 wetland acres in USFWS perpetual wetland easements.

Sub objective 2: Protect 500 acres through fee title acquisitions.

Strategy: Purchase 500 USFWS NWR/WPA wetland acres.

Sub objective 3: Protect 142,800 acres through term-limited programs.

Strategy A: Maintain 74,000 wetland acres embedded in CRP administered by FSA.

Strategy B: Protect 17,500 wetland acres through USDA Wetland Reserve Easements administered by NRCS.

Strategy C: Protect 4,800 wetland acres through the Delta Waterfowl Working Wetlands Program.

Strategy D: Enroll 42,500 wetland acres into the USDA Water Bank Program administered by NRCS.

Strategy E: Protect 4,000 wetland acres through the NDGFD Private Lands Program.

GRASSLAND PROTECTION

Protect 326,500 acres of priority grassland (as defined above).

Sub objective 1: Protect 126,000 acres through perpetual easements.

Strategy: Enroll 126,000 grassland acres in USFWS perpetual grassland easements.

Sub objective 2: Protect 500 acres through fee title acquisitions.

Strategy: Purchase 500 NWR/WPA grassland acres

Sub objective 3: Protect 100,000 acres through term-limited programs.

Strategy A: Enroll and maintain 100,000 acres of grasslands through cooperative agreements administered by NDGFD Private Lands Initiative.

Strategy B: Increase the enrollment of acres in the CRP-Grasslands Program, including marginal pasture CRP (CP 29, CP 30) and working lands CRP (CP 87, CP 88) administered by FSA. Only 30 acres are enrolled as of 2015, all in CP 29.

Five-year habitat objectives – Restoration and Enhancement

To generate wetland and grassland habitat restoration and enhancement objectives for the 5-year implementation plan, USFWS North Dakota Partners for Fish and Wildlife (PFW) accomplishments from 2014 and 2015 were reviewed. These projects include several PPJV partners that work with the PFW program (NDGFD, Ducks Unlimited, Pheasants Forever, etc). The two-year restoration total in North Dakota was 4,360 acres, with the majority applied to grasslands (91%) and the remainder in wetlands (9%). For the enhancement total of 11,320 acres, the majority was applied to grasslands (88%) and the remainder in wetlands (12%). Assuming funding and partnerships continue for the next five years, PPJV partners can restore an estimated 1,000 wetland acres and 9,900 grassland acres and enhance an estimated 3,300 wetland acres and 25,000 grassland acres. Furthermore, if PPJV partners experience a 25% increase in funding over the 5-year duration of the plan, an additional 9,800 acres can be restored or enhanced. This analysis forms the basis for the following 5-year wetland and grassland restoration and enhancement objectives for the implementation plan:



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Sub Objective 1: Enhance 19,600 acres of priority wetlands (as defined above).

Strategy A: Enhance 4,000 wetland acres of high priority wetland acres through cooperative PLA agreements administered by the PFW program.

Strategy B: Enhance high priority wetlands with the installation and maintenance of 800 waterfowl nesting structures in eastern North Dakota administered by Delta Waterfowl.

Strategy C: Enhance 15,600 acres of wetlands through EQIP practices administered by NRCS.

Sub Objective 2: Restore 3,725 acres of priority wetlands.

Strategy A: Restore 625 wetland acres of wetland through cooperative Private Landowner Agreements (PLA) administered by the USFWS Partners for Fish and Wildlife (PFW) program.

Strategy B: Restore 3,100 acres of wetlands through EQIP practices administered by NRCS.

Sub Objective 3: Enhance 92,600 acres of priority grasslands

Strategy A: Enhance 40,000 grassland acres through cooperative PLA agreements administered by the PFW program.

Strategy B: Enhance 2,000 grassland acres through cooperative agreements administered through the NDGFD Private Lands Initiative.

Strategy C: Enhance 43,600 grassland acres through EQIP practices administered by NRCS.

Strategy D: Maintain 15 predator management sites administered by Delta Waterfowl annually.

Sub Objective 4: Restore 7,850 acres of grassland.

Strategy A: Restore 6,250 grassland acres of through cooperative PLA agreements administered by the PFW program.

Strategy B: Restore 1,600 grassland acres through cooperative agreements administered by the NDGFD Private Lands Initiative

Sub Objective 5: Maintain 1.1 million restored grasslands acres associated with CRP practices

Strategy A: Maintain 200,000 grassland acres enrolled in CRP-SAFE projects (CP38), CP27/28 (Farmable Wetland Buffer) and CP37 (Duck Habitat Initiative).

Strategy B: Maintain political support and funding for CRP practices in North Dakota.

Sub Objective 6: Enhance 500,000 acres of cropland undertaking wildlife friendly cropping systems.

Strategy A: Maintain 500,000 acres of winter cereals in North Dakota, engage producers to incorporate winter cereals into crop rotations.

Strategy B: Engage and encourage producers to adopt precision agricultural systems to identify under-producing acres most appropriate for conservation practices.

Hunter Retention and Access

The objective for hunter retention and for providing public hunting access for waterfowl hunters is to **maintain the 1995 –2015 average annual number of waterfowl hunters in North Dakota.**

Sub Objective 1: Purchase 1,000 acres of public grasslands and wetlands open to hunting as part of the National Wildlife Refuge System

Sub Objective 2: Maintain 900,000 acres open to public access for waterfowl hunting using a combination of existing private lands programs and partnerships such as the Private Lands Open to Sportsmen (PLOTS), and federal and state public lands.

Sub Objective 3: Conduct 65 hunter recruitment events across the state with 4,000 participants.

Sub Objective 4: Provide improved access for waterfowl hunters to existing public lands (access trails, boat access, etc.).

Sub Objective 5: Promote ethical and respectful hunter behavior on private and public lands to help insure that some private land remains available to responsible hunters.

FUNDING

The majority of funding to accomplish the 5-year protection, restoration, and enhancement of priority habitats outlined in this plan will originate from the following sources:

- » **Migratory Bird Conservation Fund (MBCF)**
 - » USFWS Small Wetlands Program
- » **Land and Water Conservation Fund (LWCF)**
 - » Dakota Grassland Conservation Area
 - » Dakota Tallgrass Prairie Conservation Area
- » **North American Wetlands Conservation Act (NAWCA) grant program**
 - » Standard grants ($\leq$ \$1,000,000)
 - » Small grants ($\leq$ \$100,000)
- » **USDA conservation program funding**
- » **North Dakota hunting license revenues**
- » **Federal Aid in Wildlife Restoration Act (Pittman-Robertson) funding**
- » **Operational funding from respective conservation partner programs (e.g., USFWS Partners for Fish and Wildlife program)**

The annual funding necessary to accomplish the 5-year wetland and grassland perpetual protection objectives in North Dakota is estimated to be approximately \$21,000,000. The restoration and enhancement objectives will require an estimated additional \$10,000,000 annually. Objectives for public policy, outreach, and monitoring will incur additional costs

to PPJV partners. Maintaining and advocating for increased funding for conservation actions will be paramount to accomplishing this plan. The following recent conservation successes clearly show the strength of the North Dakota PPJV partnership.

- » From 2013-2015, MBCF funding for the perpetual easement and fee land acquisition authorized by the USFWS Small Wetlands Program totals \$51,347,631. Those funds perpetually protected 46,609 acres of wetland and grassland habitats. Maintaining the current annual MBCF allocation for North Dakota at approximately \$17,000,000 will be necessary to accomplish the habitat objectives outlined in this plan.
- » From 2013-2015, NAWCA standard grant funding for North Dakota totals \$16,300,000 leveraging \$17,385,000 of partner matching funds. Maintaining \$4,000,000 annual NAWCA funding for the next 5 years will be required for partners to accomplish the habitat objectives outlined in this plan.
- » From 2013-2015, LWCF funding for perpetual easements authorized by the USFWS Dakota Tallgrass Prairie Wildlife Management Area, Dakota Grasslands Conservation Area, and North Dakota Wildlife Management Area totals \$18,405,750 invested to protect 37,812 acres of wetland and grassland habitats. Maintaining \$8,000,000 annual LWCF funding for the next 5 years will be required for partners to accomplish the habitat objectives outlined in this plan.
- » From 2013-2015, USDA conservation programs funding averaged approximately \$9,800,000 annually. Maintaining and increasing these funds for the next 5 years will be required for partners to accomplish the habitat objectives outlined in this plan.



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FUTURE NEEDS

Research and Data Needs

- » An updated National Wetland Inventory for North Dakota.
- » A restorable basins inventory for North Dakota.
- » Evaluating how wetland contaminants may be impacting PPJV bird reproduction and survival.
- » Quantifying ecosystem services and economic benefits generated by wetlands and grasslands within the PPJV administrative area.
- » Understanding what motivates the public and landowner to support wetland and grassland conservation within the PPJV administrative area.
- » Evaluating how wetland drainage, basin consolidation, connectivity, and pattern tile drainage may be impacting wetland-dependent species in North Dakota.
- » Evaluating how soil health practices benefit ground nesting birds.
- » Evaluation of tile setbacks for impacts to wetlands.

- » Acquire/develop a process to obtain growing season/spring aerial imagery to improve the NRCS Certified Wetland Determination process and align with the wet portion of the growing season.
- » Evaluating energy development and impacts to waterfowl productivity
- » Evaluating cross-seasonal use of priority wetland habitats within the PPR
- » Evaluating the direct and indirect impacts of climate change to ensure conservation delivery has long term resilience in the U.S. PPR.
- » Evaluating wetland degradation (e.g., salinity, siltation, pesticides) in cropped landscapes and the effect on breeding waterfowl.

Additional Funding Needs

- » Maintain \$40 million dedicated funding for the North Dakota Outdoor Heritage Fund accessible to North Dakota conservation partners (non-federal) via competitive grants.

POLICY AND LEGISLATION IN NORTH DAKOTA

Public policy decisions, legislation and administrative action can create both opportunities and challenges for PPJV partners attempting to meet waterfowl population objectives and large scale habitat conservation, management and restoration activities within the State. Policy actions in the federal Farm Bill, legislation passed in the State Legislature, decisions by the State Water Commission and county Water Boards and even township actions can aid or impair conservation delivery or impact the condition of the landscape.



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North Dakota is unique in that a number of encumbrances impact conservation delivery. County caps on wetland easement acres secured through the Migratory Bird Conservation Fund (MBCF), the prohibition on the use of MBCF funds for the purchase of grassland easements, and the State's Corporate Farming Act which limits (with exceptions) the fee title acquisition of agricultural lands for conservation purposes. These structural impediments are unique to North Dakota and need to be considered in the development and delivery of conservation strategies.

There is growing awareness that state legislative action has impacts on conservation and PPJV partners are increasingly involved in the state legislature. In 2015, the first North Dakota State Legislative Sportsmen's Caucus event was led by Ducks Unlimited as was the first ever Outdoors Day in the North Dakota legislature. It is hoped that this engagement with North Dakota political leaders will help to raise the issues of conservation amongst key decision makers.

One tangible product of the growing emphasis on the State legislative measures is the creation of the Outdoor Heritage Fund (OHF) in 2013. This state granting program has allowed authorizations up to \$40 million per biennium (amounts dictated by oil and gas revenues) represents a new opportunity for wetland and grassland conservation as well as a variety of management and enhancement activities undertaken amongst PPJV partners. OHF represents a significant, new source of conservation funding in the State. It will be imperative that PPJV partners continue to advocate for robust funding for the OHF.

Because of North Dakota's continental importance to breeding ducks, grassland nesting birds, and the relative richness in wetland and grassland resources, the State continues to be prioritized amongst various federal farm programs. North Dakota has led all PPJV states in total CRP acreage and considerable investment in NRCS programming. It is understood that these additional conservation tools delivered by USDA can significantly enhance the achievement of population and habitat goals.

The sheer scale of financial resources spent by USDA on conservation actions demonstrates the realized and potential impact. CRP payments in

North Dakota peaked at \$120 million in 2007 alone, coupled with very significant investments in Conservation Stewardship Program (CSP), Environmental Quality Incentives Program (EQIP), and Agricultural Conservation Easement Program (ACEP) demonstrate the large scale of effect that can be achieved when federal farm programs can be congruent with PPJV conservation priorities. In recent years a number of PPJV partners have worked in partnership with NRCS and FSA to provide technical support, spatial planning tools and even programmatic design to help guide conservation outcomes to priority landscapes and specific resource concerns of interest to the PPJV. We believe these successes can be built upon to further develop congruence between FSA and NRCS and the PPJV. We believe this to be a high priority.

Policy priorities for the next five years include:

- » **Maintain Swampbuster and Sod saver provisions in the next Farm Bill;**
- » **Increase CRP acreage cap in the next Farm Bill and address structural impediments that exist in the EBI for North Dakota and the PPJV as a whole;**
- » **Increase acres of CRP Grasslands, CRP-SAFE, CP37 and other special initiatives;**
- » **Maintain \$40 million funding cap for the North Dakota Outdoor Heritage Fund and minimize efforts to constrain/limits grant dollars;**
- » **New programing via NRCS/FSA to conserve small “at risk” wetlands;**
- » **New mechanisms via NRCS/FSA that establish or retain nesting cover (both planted cover as well as cover crops that may aid ground nesting birds);**
- » **Support for policies and programs that sustain a grass-based agricultural economy;**
- » **Maintain LWCF funding;**
- » **Maintain NAWCA funding.**



MONITORING AND EVALUATION

PPJV conservation programs will follow Strategic Habitat Conservation (SHC) described in Section I: Plan Foundation of the PPJV Implementation Plan. Monitoring for priority species across the PPJV administrative area is a fundamental element of SHC that informs the iterative adaptive process whereby conservation partners learn and improve conservation outcomes (i.e., population responses). Through targeted and purposeful monitoring, partners can evaluate the effectiveness of conservation delivery, gauge progress toward stated objectives, validate assumptions used in conservation design, and incorporate learning into future conservation planning and decision making. North Dakota partners have identified appropriate monitoring activities to help determine the effectiveness of conservation delivery and whether refinements need to be made.



Through targeted and purposeful monitoring, partners can evaluate the effectiveness of conservation delivery, gauge progress toward stated objectives, validate assumptions used in conservation design, and incorporate learning into future conservation planning and decision making.

Monitoring is clearly an important aspect to informing conservation for North Dakota partners. Standardized monitoring for species in each of the bird groups has occurred for several decades. The North Dakota State Wildlife Action Plan (Dyke et al. 2015) provides detailed information for each of the species of conservation priority in the PPJV area of the state. A subset of those ongoing monitoring programs is considered to be the most important for PPJV priority species (Table 3). PPJV partners are continuing to invest resources to improve monitoring capacity to help prioritize efforts that are most likely to give partners the greatest returns on conservation investments.

In addition to priority bird population monitoring, PPJV partners invest resources to monitor landscape habitat features. Upland and wetland habitats are monitored periodically through programs such as the USFWS Four Square Mile Survey, USFWS Waterfowl Breeding Population and Habitat Survey, NDGFD waterfowl and wetland surveys, NDGFD

Wildlife Management Area Field Mapping, and Natural Heritage Inventory of Rare Communities. Additionally, research studies (see Loesch et al 2012, Dahl 2014, Niemuth et al. 2014, Lark et al. 2015) investigate how landscape changes relate to anthropogenic impacts (e.g., pattern tile drainage, grassland conversion) and climatic changes (e.g., wetland hydro-period). These monitoring efforts provide the foundation to inform and adapt management and conservation activities accordingly as spatial and temporal changes in priority habitats occur in the future. Considering the great amount of uncertainty associated with anthropogenic impacts and climate change, continuing to intensively monitor habitat and populations to detect changes through time is an approach embraced by PPJV partners.



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Table 3. Monitoring programs for priority bird species in North Dakota.

Bird Group	Monitoring Programs	Primary Agency
Waterfowl	Waterfowl Breeding Population and Habitat Survey	USFWS DMBM ¹
	Four Square Mile Survey	USFWS HAPET ² , NWRS ³
	Brood Counts	NDGFD, USFWS, DU ⁴
	Nest Surveys	NDGFD, USFWS
	May Waterfowl Survey	NDGFD
	Preseason Duck Banding	NDGFD, CF ⁵ , R6DMB ⁶ , PPJV
	Goose Banding	NDGFD
	Mid-winter Waterfowl Survey	NDGFP, NWRS
	Waterfowl Nest Searching	DW ⁷ , USGS
Landbird	North American Breeding Bird Survey	USGS
	Lek surveys (sharp-tailed grouse, greater prairie-chicken, greater sage-grouse)	NDGFD
	Pheasant Surveys	NDGFD
Shorebird	Breeding Shorebird Surveys	USFWS HAPET
	North American Breeding Bird Survey	USGS
Waterbirds	Colonial Waterbird Inventory and Monitoring Program	BCOR ⁸
	Whooping Crane Migration Monitoring	NDGFD, USFWS
	North American Breeding Bird Survey	USGS
	Local-level NWRS4 Monitoring Programs	USFWS

1 – USFWS Division of Migratory Bird Management

2 – Habitat and Population Evaluation Team Office

3 – National Wildlife Refuge System

4 – Ducks Unlimited

5 – Central Flyway

6 – USFWS Region 6 Division of Migratory Birds

7 – Delta Waterfowl

8 – Bird Conservancy of the Rockies



Casey Stemler

OUTREACH AND EDUCATION

PPJV partners consider grasslands and wetlands essential to sustaining wildlife and providing key ecosystem services. The partners, biologists, and land managers work to conserve and enhance these habitats. PPJV partners recognize the loss of these habitats is resulting in decreases in wildlife populations. Yet after decades of conservation efforts, the general public of North Dakota still seems to underestimate the value of prairie and wetlands. It is difficult to convey the plight of prairie and wetlands when wildlife species such as Canada geese and mallards are thriving. In November 2014, the citizens of North Dakota overwhelmingly rejected a measure to dedicate a small percentage of oil and gas revenue for conservation and outdoor recreation areas, in part because the opponents argued there is enough land set aside for wildlife habitat.

Yet, so many grassland birds are in serious decline and altered hydrology continues to negatively affect public and private infrastructure. The majority of North Dakotans can probably easily list or identify the wildlife we enjoy to hunt, or watch at bird feeders. However, a walk in the prairie during June will probably leave the average North Dakotan stumped

as to all the birds seen or heard. North Dakotans are proud of their heritage and life on the “prairie;” however, a migration of people from rural to urban areas in recent decades has resulted in the loss of an understanding of the workings of the prairie environment. Although agricultural producers are deeply connected to the land and nature, some of the intimacy of the relationship has been lost as farming has become more “industrialized” and scaled up to much larger sized fields with much larger equipment.

The five-year PPJV Strategic Communications Plan (Dayer 2013) was designed to help promote, coordinate and deliver bird habitat conservation. The plan advances the PPJV’s efforts to build public and private partnerships for bird conservation by outlining the core components of effective communications campaigns and providing a path for implementation. The plan identified private landowners as being critical to conservation with 85% of the land privately owned in the U.S. PPR. Indeed, private landowners who engage in conservation programs (e.g., sell perpetual easements, participate in Farm Bill programs, restore wetlands, implement grazing systems) are a

primary constituency supporting PPJV goals and objectives. However, recent analysis by Doherty et al. (2013) suggests the need to increase this group's interest and acceptance of conservation programs to bridge the gap between habitat loss rates and conservation gains. The communications plan provides a framework to engage diverse supporters, including private landowners. A range of tactics are outlined in the plan, including educational (e.g., workshops, tours, demonstrations) and informational (e.g., newsletters, factsheets, popular magazine articles) product delivery. To increase private landowner participation in conservation programs, PPJV partners must continue to engage this group using all of these tactics.

North Dakota conservation partners continue to support an array of education and outreach tools to increase interest in conservation activities in the state, from sponsoring outdoor education programs and workshops (e.g., youth conservation programs) to publishing popular magazines (e.g., North Dakota Outdoors Magazine). The North Dakota Game and Fish Department communications division uses a combination of digital media, video, and print media for public coordination on an array of conservation issues. Similarly, many North Dakota conservation partners have dedicated communications and public affairs staff, although probably the most effective outreach tool is personal interaction between PPJV partners and the general public.

Technical assistance targeted to agricultural producers through PPJV partners (e.g., FSA, NRCS, North Dakota State University Extension) provide opportunities to support various conservation programs on working lands. Demonstrations, tours,

and workshops designed to improve habitat through agricultural practices directly engage producers and help develop community-based conservation. These interactive outreach programs build trust and credibility between PPJV partners and private landowners and help bridge the gap between habitat loss and conservation gains.

North Dakota conservation partners continue to support an array of education and outreach tools to increase interest in conservation activities...

Finally, the PPJV partners should work to develop novel or popular messages for prairie conservation and use social media to deliver the message to the public. Many people are using electronic means as their primary communication tools. For example, seventy-two percent of Americans who use the internet are Facebook users (Duggan 2015). The younger generations, such as millennials and those born thereafter, use social media frequently and there is an increasing movement among these consumers to eat locally grown food. A local/regional food system often involves grass-based ranching and sustainable agriculture. The future of grassland-dependent wildlife in North Dakota is contingent on keeping ranchers on the landscape. Using contemporary communication tools to make the connection of locally grown agriculture products and conservation of the land will help sustain North Dakota prairie wildlife as well.

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