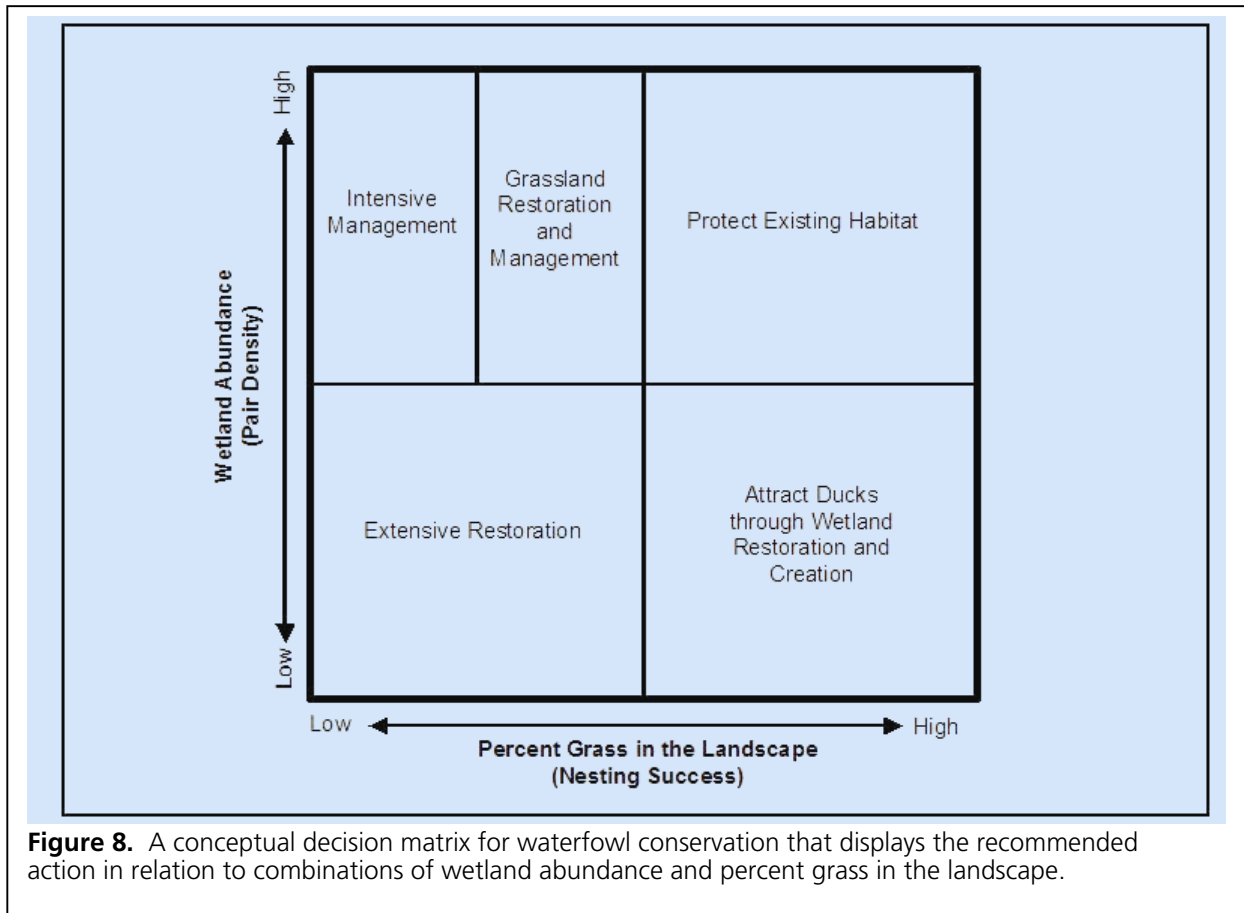


Monitoring Landscape Change and Evaluating Demographic Response

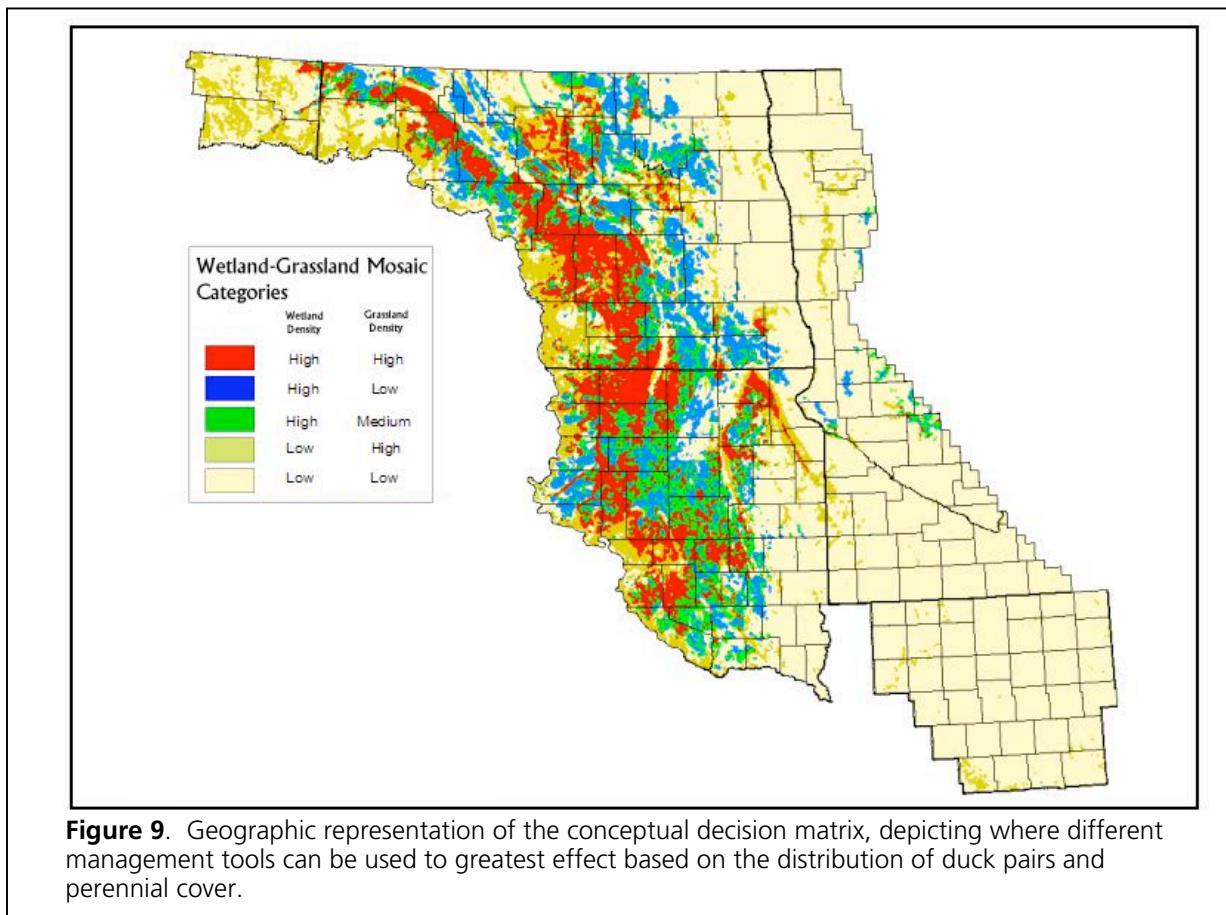


Waterfowl conservation programs in the PPJV will follow the dynamic objective setting approach described in Section I of the PPJV Implementation Plan. Specifically, we intend to document the critical landscape features (particularly wetlands and grasslands) that existed during the duck boom years of 1994-2002 to establish a habitat baseline. On a large spatial scale, LANDSAT satellite imagery and the digital National Wetlands Inventory database can serve this purpose. Those database have already been obtained for most of the PPR.

Unfortunately, some important habitat features cannot be identified and tracked over time using LANDSAT imagery. These include subtle changes in the quality of upland and wetland habitats, and the loss or partial drainage of small wetlands. Using remote sensing (satellite) information with higher resolution capabilities creates an unworkably large data file if this information is collected for the entire PPR. The solution is to utilize a statistically valid design that identifies sample plots which are representative of the PPJV as a whole. That sampling frame exists

already, in the form of the FSM plots developed and monitored by FWS personnel. These plots have already formed the basis for much of the information used by waterfowl planners in the PPJV.

We intend to continue and expand the utility of the FSM surveys to detect changes in the PPJV landscape at periodic (i.e., 5-year) intervals. Aerial videography, coupled with field surveys, will be used to detect changes in important habitat features on FSM plots. Enhanced monitoring of waterfowl pairs, nests, and broods will be considered, so changes in landscape features can be related to vital rates of waterfowl. With these data, the Mallard productivity model can be updated and expanded. It may also be possible to “scale up” some results and use LANDSAT and similar products to view changes in the PPR landscape in totality. The intention is to develop and employ GIS and simulation models to estimate the net change in the duck production capacity of the U.S. PPR, and use that information to realign conservation priorities in recognition of habitat that has been lost and in anticipation of future changes and threats.



Development of Tactical Plans

Tactical Plans, as described in Section I of this Implementation Plans, will be developed by PPJV partners in coordination with the Waterfowl Working Group of the PPJV Technical Committee. These plans will flow from the foundation and priorities presented here, and will describe specifics of approaches to be used, budgets, timetables, partner involvement, and monitoring/evaluation.

Some tactical plans already exist; for example, the MAAPE plans whose objectives are described in Waterfowl Plan Appendix A. Ducks Unlimited, Inc. has prepared analyses, GIS products, and long-range business plans for conserving grasslands through easements and fee title acquisitions in collaboration with the FWS Realty program. FWS staff are taking the lead in preparing a tactical plan that addresses waterfowl management on cropland-dominated landscapes in the Dakotas. Delta Waterfowl Foundation is developing plans to implement a landscape-level predator control program. The Northern Great Plains Farm Bill Working Group is coordinating efforts on the Farm Bill, with many PPJV member organizations involved.

As long as the plans being developed have a solid scientific foundation and contribute positively to the conservation goals in the PPJV, they should be encouraged and supported by the joint venture. At the same time, partners should carefully consider how their individual interests can be harmonized with those overarching needs and goals of the PPJV. Progress will be greatest when partners' individual causes coalesce around the common objectives of the PPJV.

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WATERFOWL PLAN APPENDIX A

Combined North Dakota, Minnesota, South Dakota, and northeast Montana MAAPE Objectives (Iowa objectives not available)

Category	Treatment	Totals
Predator Barriers	Exclosures (acres)	
	Objective	56,310
	Accomplished	
	Fenced and Cut-off Peninsulas (acres)	
	Objective	9,404
	Accomplished	
	Cylindrical Nesting Structures (number)	
	Objective	15,603
	Accomplished	
	Culverts (number)	
	Objective	91,244
	Accomplished	
	Managed Natural Islands (number)	
	Objective	1,268
Accomplished		
Agricultural Lands	Create Nesting Islands (number)	
	Objective	1,222
	Accomplished	
	Convert Cropland to Cover (acres)	
	Objective	677,163
	Accomplished	
	Delayed Hay (acres)	
	Objective	58,454
	Accomplished	
	Winter cereals (acres)	
Objective	991,454	
Accomplished		
Sweetclover Underseeding (acres)		
Objective	82,278	
Accomplished		
Grazing programs (acres)		
Objective	3,037,241	
Accomplished		
Maintain CRP (acres)		
Objective	5,305,206	
Accomplished		

	Convert non-native grassland to native (acres)	
	Objective	94,340
	Accomplished	
	Protect Grasslands (acres)	
	Objective	12,843,000
	Accomplished	
	No-till Spring Small Grains (acres)	
	Objective	1,058,865
	Accomplished	
	Waterway buffer strips (acres)	
	Objective	8,451
	Accomplished	
Public Land Management	No Mow Right-Of-Way (acres)	
	Objective	21,090
	Accomplished	
Wetlands	Wetland restoration focus primarily on temporary and seasonal wetlands – ND, SD, MT (acres)	
	Objective	226,147
	Accomplished	
	Wetland Creation – ND, SD, MT (acres)	
	Objective	75,989
	Accomplished	
	Temp. Wetland Restoration/Creation - MN (acres)	
	Objective	7,627
	Accomplished	
	Seasonal Wet. Restoration/Creation – MN (acres)	
	Objective	46,821
	Accomplished	
	Semi-perm. Wet. Restoration – MN (acres)	
	Objective	53,143
	Accomplished	
	Cattail Control (acres)	
	Objective	47,400
	Accomplished	
	Protect Existing Wetlands (acres)	
	Objective	5,990,638
	Accomplished	
	Water Control Structures/Wetland Enhancement (acres)	
	Objective	3,364
	Accomplished	
Total Acres		30,694,385

WATERFOWL PLAN APPENDIX B

Directed Research Needed in Support of PPJV Waterfowl Programs

The PPJV has a rich research history that has provided the knowledge upon which most of our waterfowl programs are founded. Cox et al. (2000) summarized waterfowl research needs for the Northern Great Plains. In addition, ongoing research or important information needs within the PPJV are summarized below.

Effectiveness of Landscape-Level Grassland Restoration/CRP evaluation – During initial planning for the JV, the USDA Conservation Reserve Program was changing the landscape in the PPR. By 1992, over 5 million acres of cropland had been converted to undisturbed grass cover in the PPJV area, and it was assumed this cover would provide benefits to nesting ducks. A study conducted by Kantrud (1993) showed duck nest success in CRP to be higher than that reported for other types of cover, but his study was conducted during drought years and was limited in geographic scope. In response to the need for better data, the FWS's Region 6 HAPET office, in cooperation with numerous partners, conducted an evaluation of duck nest success in CRP fields. Results from this study provided important insight about the landscape effect the CRP had on duck productivity in the PPR (Reynolds et al. 2001). This information has been used by the NPWRC to improve the productivity models used by the JV for monitoring and planning.

Effectiveness of Wetland Restorations – Thousands of wetland restorations have been conducted in the PPJV. The most comprehensive evaluation of the efficacy of these restorations was conducted by Ratti et al. (2001), who compared the avian use and abundance on restored wetlands with those on nearby, comparable, “natural” wetlands. They found avian use (including waterfowl and associated grassland songbirds) to be the same on both natural and restored wetlands.

Survival Rates for Breeding Duck Populations in the PPJV – Knowing annual survival rates of duck populations is important for calculating recruitment rates needed to achieve specific levels of population growth. Annual survival rates currently used in the Mallard Model are based on banding analysis done by Anderson (1975). More recent estimates of survival rates of Mallards are available for eastern North Dakota, but precision is poor because of low-band recovery rates, and there are little or no data for many of the remaining areas of the PPJV. In response to the need for improved data, The Central Flyway Council, in cooperation with PPJV partners, conducted a banding program from 1996-2001 across much of the northern CF states including North and South Dakota. The data are currently being analyzed and results will be incorporated into population models as it becomes available.

Duck Nesting Success in Relation to Landscape Configuration in the Missouri Coteau – The PPJV has spent millions of dollars acquiring perpetual grassland easements based on a targeting criteria that emphasizes the need to have at least 40% grassland in the landscape. Stephens et al.

(2005) examined the relationship between nesting success in native grasslands and the amount of grass at various spatial scales. Although the research is ongoing, results to date indicate that easements are being targeted to the landscapes that, over time, result in the highest duck nest success rates.

Determinants of Mallard and Gadwall Nesting on Constructed Islands in North Dakota

–Numerous artificial islands have been constructed in an effort to provide secure nesting areas for upland nesting ducks in the PPJV. During the MAAPE process, questions were raised about some of the predictions made by the Mallard Model relative to the relationship between nest density and certain landscape characters, particularly the amount of cropland in the surrounding area. Partners in the PPJV studied island nesting by Mallard and Gadwall during 1996 and 1997. Results from this study are *in-prep* for publication in the *Journal of Wildlife Management*. Improved guidelines for island placement have been developed as a result of this study.