



NORTHERN PINTAIL

Prospectus for an Action Group



May 2003

Why a Pintail Action Group?

Pintail numbers have been low for some time, yet relatively little management activity, and research has been focused on pintails, particularly on the breeding grounds. At the same time, there has been a growing desire to get pintails on the “front burner”, increase management efforts, and attract additional funding to implement management programs, including adaptive evaluation of conservation actions.

Pintails are highly mobile, widely distributed, and in need of support in many parts of the continent. The North American Waterfowl Management Plan (NAWMP), through the action of Joint Ventures (JV) in North America, has made excellent progress toward achieving conservation goals that affect pintails; however, more could be done to target pintail habitats on the prairie breeding grounds, and to integrate actions on the breeding, wintering, and staging areas. Success of conservation activities in any one of these regions is inextricably linked to those in other areas of the continent. Thus, to more effectively address the challenge confronting pintails, a coordinated, multi-JV approach is required. This model is preferred to the creation of a Pintail JV because it could more efficiently mobilize, and channel energies in a timely manner from within existing JV partnerships, while not creating redundant administrative structures, and processes. A Pintail Action Group would facilitate cooperation among JV partners, and promote integrated planning, and actions for pintails from across the continent.

What's wrong with the pintails?

Northern Pintail (hereafter, pintail) have displayed sharp declines during the last 25 years, reaching lows of 1.8 million birds in 1991, and again in 2002¹. Historically, when wetlands counted during May duck surveys increased, so did pintails. May wetland counts attained record high levels in 1996, and 1997, but the pintail breeding population exhibited only a modest 30% increase during the 1990s (Figure 1) remaining 19% below the long-term average, and 36% below the NAWMP goal of 5.6 million². In contrast, almost all other prairie-nesting dabbling duck populations increased dramatically in the 1990s to levels that exceeded objectives set by NAWMP. The failure of pintails to respond strongly to improved water conditions has heightened concern, and suggests that the problems facing pintails may be more severe than previously thought.

The initial decline, and subsequent weak recovery by pintails has alarmed waterfowl managers, and enthusiasts alike³. The pintail “problem” was the focus of a meeting held in Sacramento, California in spring 2001, a forum that attracted waterfowl researchers, and managers from across North America.

Participants debated, and synthesized current information about pintails (see *“The Northern Pintail in North America: The problem and a prescription for recovery”*)⁴. Based on this review, likely causes of the pintail problem were identified, management actions recommended, and research needs outlined.

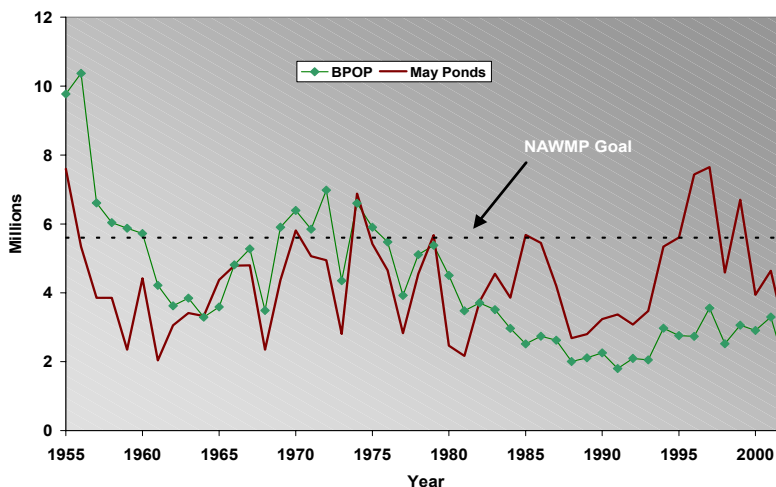


Figure 1. Northern Pintail breeding population and May Ponds in North America 1955- 2002.

Charting a path to recovery for pintails!

Like many other duck species, pintails winter in the southern United States and Mexico, migrate through important staging areas of the mid-west, and the intermountain west, and breed from the Great Plains north, and west to Alaska, and parts of Russia. Although poor breeding success on the prairies is likely the most important factor affecting population recovery, other reasonable explanations involving other regions, and times of the year cannot be ruled out. One thing is certain, however, solutions to the pintail dilemma will be found only with the resolve, and full cooperation of the NAWMP partners.

The root of the problem? – Intensification of agriculture on the Canadian prairies

As recently as the mid-1970s, 60% or more of the continental breeding population of pintails settled in southern Canada. By the early 1980s, the number of pintails that settled in southern Canada had dropped, while other

breeding areas remained relatively stable (Figure 2). This trend is consistent with the notion that a large part of the problem lies in the Canadian prairies.

As the population declined, wetland, and pintail numbers no longer fluctuated together. Habitat changes seem to be at the root of the problem. Loss of suitable breeding habitat due to changes in agriculture on the prairies, and an associated reduction in nest, and hen success are believed to be the reasons for low pintail numbers.

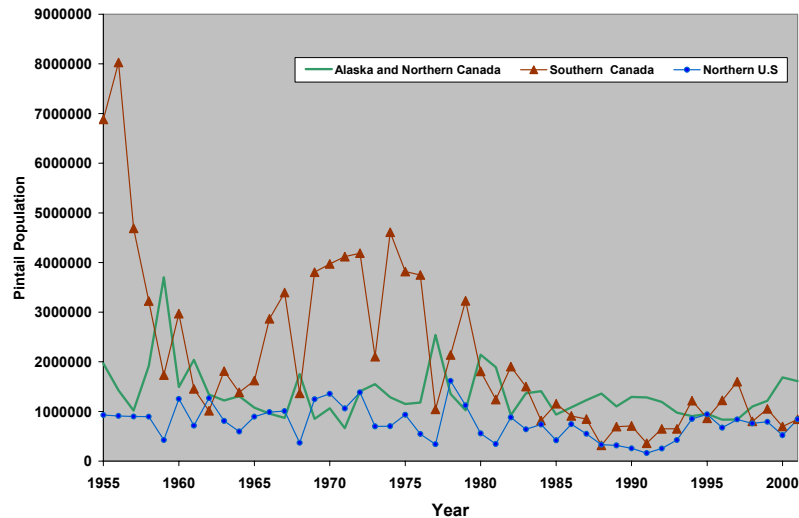


Figure 2. Pintail population trend in three regions of North America, 1955–2001.

Available evidence is entirely consistent with this view ^{5,6,7}.

Since the early 1900s, nearly 75% of the Canadian Prairies has been converted from grassland to cropland ⁸. More recent agricultural changes add to this major problem. Due to soil conservation concerns, and increasing economic pressures, farmers have greatly curtailed the practice of leaving land fallow the entire summer (summer fallow), and are changing to stubble retention, and continuous cropping of spring-seeded crops. These changes, while good for soil conservation, could be particularly detrimental to pintails since they are the only dabbling duck that will readily nest in crop stubble. Pintails nesting in spring-seeded stubble experience very low nest success, with most nest losses due to predators or farm machinery ⁹. Further uncertainty is fueled by unknown impacts of diseases like avian botulism. Failed breeders often move to large lakes to molt, where, in some years, tens of thousands have been killed by botulism. These general patterns contribute to low breeding payoff, and high mortality risk for prairie-nesting pintails.

So, now what? – Implementation and evaluation of habitat programs

To address low breeding success, large-scale habitat conservation programs are required. These programs should focus on reducing the area affected by annual or spring tillage operations within key pintail areas. Such programs would include: a) the conversion of cropland to permanent cover such as hayland,

pasture or managed-use grassland. This type of program could be achieved using both direct NAWMP land securement, and enhancement efforts, and agricultural policy initiatives; b) reduction of spring cultivation through the expansion of fall-seeded crops such as winter wheat or fall rye; and c) preventing loss of existing grassland areas such that habitat gains produce an increase in pintail recruitment. Grassland, and wetland habitats conserved in key pintail areas would benefit many grassland birds, and prairie biodiversity.

Testing key assumptions about factors limiting pintail populations, and improving habitat management programs through evaluation will be vital for effectively meeting pintail population goals. The cyclic process of planning, implementation, and evaluation of habitat programs is what allows new information, and changing circumstance to be incorporated into conservation programs. This process, known as adaptive management, acknowledges, and then strives to reduce uncertainty associated with habitat programs. Indeed, adaptive management is a central thrust of the 2003 NAWMP Update. Thus, scientific evaluation of habitat management objectives (increased nest success, and recruitment) must be conducted to improve programs designed for pintail conservation ².

Actions for Pintail Habitats Outside the Prairies

Maintenance of existing high-quality habitats on wintering, staging, and northern breeding areas (e.g., Alaska) is required to ensure that efforts to enhance pintail recruitment on Canadian prairie breeding grounds are not compromised by habitat loss or degradation in other areas. Currently, wintering areas in California appear to be meeting or exceeding demands of wintering pintails. However, human pressures on the Central Valley are growing, and wintering areas in Texas, and Louisiana are undergoing dramatic transformation. Wintering pintails are dependent on rice fields for winter habitat in California, and to a great extent in Arkansas, Louisiana, and Texas. Rice acreage has declined 40% in Texas in recent years, and some forecasts predict elimination of rice in the state within a decade. The west coast of Mexico was a historically important wintering area for pintails, and its future integrity must be considered in pintail conservation plans. Thus, programs to offset habitat losses and to mitigate existing and anticipated threats to key wintering areas will be essential.

Spring staging, and stop over areas is another concern. Shallow, ephemeral wetlands used by pintails for spring staging in the Rainwater Basin of Nebraska, Klamath Basin of California and Oregon, and other areas, continue to be threatened by degradation and loss. Although their precise importance in the pintail life cycle is unclear, understanding their pattern of use, and importance to productivity and body condition is a priority.

Broad Scale Research Needs

A Pintail Action Group - with participation from Canadian and U.S. Federal, State, and Provincial agencies, and non-government organizations - would help to identify, and coordinate action within multiple JVs to address broad scale, multi-flyway management and research needs, several of which are described below.

Adaptive Harvest Management – Adjusting harvest regulations potentially has far-reaching implications for survival of pintails. Unfortunately, despite advances in monitoring, and managing waterfowl populations, we still have only a limited understanding of ecological relationships linking harvest to biological processes. One way to reduce this uncertainty is through adaptive harvest management (AHM), a formal process that seeks not only to identify optimal harvest strategies but also to improve the understanding of biological processes affecting population dynamics. Although a preliminary AHM model has been developed for pintails¹⁰ it has yet to be implemented or evaluated, in part because of the inadequacy of banding data, concerns about timing, and distribution of population surveys, and difficulty integrating it with the mallard harvest strategy. A better understanding of factors affecting northern pintail breeding success, and survival would support the development of better recruitment models for AHM. The Pintail Action Group will support existing Flyway and federal management teams in the development of AHM models by facilitating needed research.

Population Size and Distribution - AHM is most informative when precise population estimates are available. Recent work suggests that some of the pintail population is missed during the annual May survey in North America, with the missed proportion increasing as the average latitude of the breeding population moves north during prairie drought^{10,11}. To address this deficiency two approaches are possible: 1) expand the size of existing survey strata or add new ones in Alaska, and elsewhere, to include areas not currently surveyed but suspected to contain substantial numbers of pintails during the survey period; or 2) adjust the current breeding population estimates to account for the fraction of birds likely missed on existing survey strata. The Pintail Action Group will support responsible agencies in assessing the adequacy of existing surveys for pintails.

Pintail survival estimates - Information derived from banding data is critical to support AHM for pintails, determine reliable survival, and harvest rate estimates, and establish band-reporting rates. Unfortunately, except for Alaska, existing banding programs target mallards, and trap sites are placed in regions, and wetlands supporting large mallard populations rather than pintails. An operational pre-season pintail banding program implemented by the U.S. Fish and Wildlife Service, the Canadian Wildlife Service, and the flyway councils could rectify this problem. Important regions, habitat types, and specific lakes, and

marshes for pre-season trapping, and banding of pintails need to be determined in Alaska, Northwest Territories, the Prairie Provinces, and the Northern Great Plains in the U.S. Consideration should be given to the potential effect of late summer botulism mortality on subsequent band recovery analyses. The Pintail Action Group will support responsible agencies in the development of programs that enhance our understanding of annual and breeding season survival rates.

Pintail Nesting Ecology - Additional work needs to be done across the pintail nesting range in Canada, and the U.S., including northern areas, to increase our knowledge, and confidence about factors influencing recruitment rates. Nesting studies must be comprehensive (estimating multiple vital rates), coordinated (yielding comparable data), and of a magnitude (spatially replicated, and extended over a number of years) appropriate to produce results relevant to continental population dynamics. Studies need to be of sufficient length to allow estimation of annual, geographic, and habitat variation in nesting propensity, nest success, female survival, and brood and duckling survival. Particular emphasis should be placed on nest success, and female survival, as these factors are believed to be most responsible for reduced productivity. Such studies should be coordinated where possible to take advantage of natural comparisons between regions. Ideally, opportunities should be pursued where pintail research can be combined with other waterfowl research for the efficient use of limited funds. Companion documents to this prospectus are being developed to address key uncertainties in pintail reproductive ecology, and population management.

Factors Explaining Pintail Settling Patterns - The number of pintails that settled on the prairies had a consistent, positive relationship with numbers of wetlands surveyed in May until the 1980s, after which, the strength of the relationship weakened greatly. The present relationship between wetland, and upland habitats, and pintail populations remains unclear. Interestingly, recent analyses suggest that pintails are not necessarily distributed, either in wet or dry years, where May Ponds (Type 3 - 5) are distributed. Therefore, pintails could be responding to other features of the prairie landscapes of Canada, and the U.S. Investigations using long-term data sets, and new field studies are needed to better understand pintail settling relative to wetland types, and other landscape features.

Structure and Function of the Pintail Action Group

Because NAWMP Joint Ventures currently exist in most key pintail habitats, a less formal structure seems appropriate. We recommend that the Pintail Action Group function as a sub-group of the NAWMP Science Support Team (NSST).

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The NSST provides technical advice to the Plan Committee and the Pintail Action Group would support the NSST in this task.

The Mission of the Pintail Action Group is:

“To advocate and support planning, coordination and evaluation of northern pintail management and research actions among the NAWMP Joint Ventures, Flyways, government agencies and other organizations”.

Objectives

1. Identify unaddressed conservation actions (including habitat improvement techniques that could inform JV implementation strategies), and the research, monitoring, and assessments required to evaluate performance of these programs.
2. Serve as a forum for the exchange of technical information about pintail biology and conservation, and development of new research and improved analytical methods to enhance studies of pintail demography.
3. Synthesize new information, and facilitate directed, retrospective analyses of existing data.
4. Work with interested JVs and other agencies to develop and promote science and communication plans for pintail recovery.
5. Help increase funding to partners for the needed work.
6. Report progress annually to the Plan Committee via the NSST.
7. Aid the NSST, JVs and other agencies in developing general approaches for planning, monitoring, and assessing pintail management issues at multiple spatial scales.

Habitat Joint Ventures conduct habitat conservation and restoration work, while a Pintail Action Group would facilitate technical information exchange, acquisition of knowledge related to pintail population status, and coordination of management and research activities at regional and continental levels. Additionally, the Pintail Action Group would provide a forum for discussions on pintail-related planning, and evaluation issues, and identify key information needs that may fall outside the scope of individual JVs. The Pintail Action Group would identify and promote needed work that would be accomplished with incremental funding channeled through existing or new regional partnerships.

The Pintail Action Group would consist of biologists from a cross-section of JVs that are key for pintails, government agencies and nongovernmental groups. Official recognition from the Plan Committee, and the NSST would provide credibility and profile to the work of the group, and help position it to achieve its mission.

A Pintail Action Group would meet once annually in conjunction with NSST or similar meeting. To facilitate efficient information transfer a Pintail Action Group would be linked via an electronic network.

Funding

Governmental agencies, non-governmental organizations, and other companies will share funding for the habitat conservation work, evaluation, monitoring, and research needed to support the recovery of Northern Pintails. Direct expenses for the Pintail Action Group are expected to be limited to meeting expenses, and communication materials. The Pintail Action Group will seek funds from partner agencies to offset these operating costs. Initially, federal, state, and provincial governments, and waterfowl conservation organizations will provide funding and staff to identify specific research needs, and to facilitate communication, coordination, and fundraising efforts. Incremental actions will be pursued through these same partner organizations.

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Acknowledgements

The writing team of Karla Guyn, Michael Miller, Dave Duncan, Robert Clark and Michael Anderson thank Ken Richkus, Jane Austin, Steve Davis, Greg Yarris, Dave Smith, Joe Fleskes, Jim Devries, Michael Hill, Jim Ringleman, Jeff Nelson, Mark Petrie, Dale Caswell, Michael Runge, Bob Trost, Seth Mott, Pat Kehoe, and others for their encouragement and suggestions in the development of this prospectus.