

September 2011



Pintail Action Group Newsletter

2011 Waterfowl Population Breeding and Habitat Survey

The 2011 Waterfowl Population Breeding and Habitat Survey indicates average to above-average habitat condi-



tions. The total pond estimate was 8.1 million. This was 22% above 2010 and 62% above the long-term average. The [report](#) of the total duck population estimate of 45 million birds represents an 11% in-

crease over last year's estimate of 40.9 million birds and was 35% above the long-term average. This is one of the highest breeding estimates ever recorded. The estimate for northern pintails of 4.4 million was 26% above the 2010 estimate and the largest estimate since 1980. The pintail population has been steadily increasing since 2002 (1.8 million birds). Unfortunately, habitat conditions in wintering areas of the Central Flyway (playas and Gulf Coast) have experienced extreme drought conditions. Coastal Texas and

southwest Louisiana habitats have been in exceptional drought status for many weeks. Even with recent rains, though, most areas of the Gulf Coast important to wintering pintails are 12"-16" behind typical rainfall totals for the past 6 months. In contrast, exceptionally high flows through the Mississippi and Atchafalaya Rivers are likely to result in excellent habitat conditions at those 2 river deltas of substantial importance to pintails. Playas of the Southern Great Plains have also experienced extreme drought that will affect habitat availability.

Bob Clark Receives Prestigious Award

Robert G. Clark, PhD, has been recognized for his contributions to waterfowl and wetland conservation by Ducks Unlimited.

Clark, one of the original founders of the Pintail Action Group, was one of eight recipients of the 2011 Wetland Conservation Achievement Awards announced at the 76th annual North American Wildlife and Natural Resources Con-

ference in Kansas City, Mo. Clark has been an important professional partner for Ducks Unlimited for the past 25 years. Among many accomplishments, his long-term research on breeding ducks at the St. Denis National Wildlife Area outside of Saskatoon has provided many new insights into duck biology. In addition, he and his graduate students have conducted work on

other breeding ducks (notably northern pintail and lesser scaup) and impacts of botulism on duck survival, done collaborative work with Latvian scientists on duck population biology, and facilitated studies at St. Denis of prairie pothole hydrology and carbon cycling in wetlands. He has produced more than 100 peer-reviewed scientific papers, nearly all of them about waterfowl and wetland ecology.

Inside this issue:	
2011 Waterfowl Population Breeding	1
Bob Clark Receives Prestigious Award	1
Progress Report on Integrated Model	2
CWS Banding Crews Focus on Pintails	3
Report on the 2010 Annual Meeting	3
Position Announcement	4
Landscape and Habitat Influences on Pintail Ducking Survival	6
Recent Pintail Publications	7
NAWMP Plan Committee Review	7



Bob Clark

Progress Report on Integrated Model for Northern Pintail in North America

B.J. Mattsson, M.C. Runge, J.H. Devries, G.S. Boomer, J.M. Eadie, D.A. Haukos, J. P. Fleskes, D.N. Koons, W.E. Thogmartin, and R. J. Clark

The fundamental goals of this modeling project are to fully integrate information about movements, survival, harvest and reproductive rates of northern pintails in North America, and to inform pintail harvest and habitat management communities by providing a unified framework for decision-making.

Significant progress has been made by the Pintail Modeling Team (henceforth, Team: the authors) toward fulfilling specific objectives described in, “Integrating Habitat and Harvest Management for Northern Pintails: Work Plan”, including: 1) Construct a model framework consisting of distinct breeding (n=3) and wintering (n=2) populations with associated habitat-linked recruitment and survival parameters; 2) Develop submodels that link habitat actions at regional or Joint Venture levels to recruitment and survival (status: reports produced from technical workshops held in Texas, Alaska, Minnesota, North Dakota, and California); 3) Assemble all existing pintail vital rate estimates from past and ongoing pintail/waterfowl research in North America (ongoing); and 4) Consult with JVs, Flyways, and other stakeholders. Details about our progress on developing and refining the integrated population model are provided below.

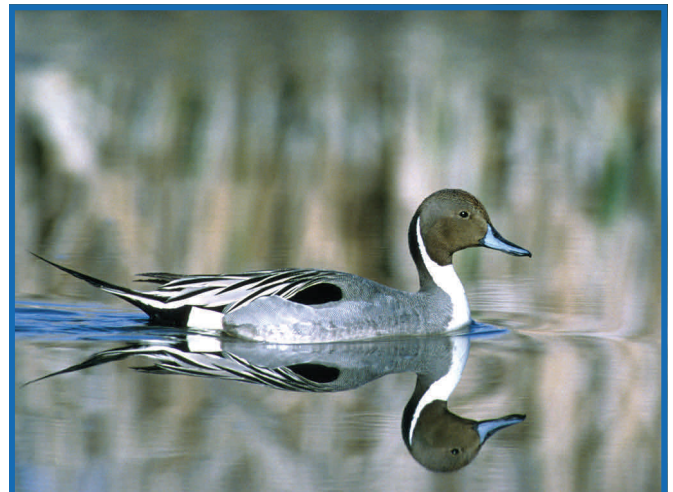
Through this effort, the Team has completed the first prototype of pintail population dynamics that includes three breeding populations (Alaska, Prairie Pothole, and Northern Unsurveyed) and two

wintering populations (California and Gulf Coast). The initial prototype accounts for reproduction and distinguishes probabilities of seasonal survival, fall-winter harvest, and migration routes for both males and females and for juveniles and adults. Reproduction and overwinter survival are considered to be a function of population size, as well as environmental and management conditions. The initial prototype was coded as a deterministic, discrete population model in program R and allows us to investigate how population dynamics change when Prairie Pothole age ratios, Gulf Coast overwinter survival rates, and harvest rates are varied. A draft manuscript has been submitted to Ecological Modeling; the paper describes fully the structure and function of the initial prototype model.

Following the technical workshops, the integrated model is now being refined based on feedback received from waterfowl experts across North America. For the Prairie Pothole region (PPR), we are predicting settling patterns within the Prairie and Parkland ecoregions based on the carrying capacity of wetlands in these ecoregions based on BPOP and May pond surveys. We are then predicting PPR fall age ratios based on the distribution of

pintails between ecoregions and heterogeneity in nest survival among landscapes based on intensive nesting studies within these ecoregions. In the nonbreeding populations, we are predicting non-hunting mortality based on food energy supply and demand by competing waterfowl based on data from bioenergetics and radio-telemetry studies. For the Alaska population, we will develop predictions of mean and variance in fall age ratio based on nesting studies and expert judgment. We are also planning to refine the transition probabilities between breeding and nonbreeding populations based on data from band returns and stable isotopes.

We are in the process of advertising a postdoctoral position to develop a hierarchical integrated population model to impute the latent or partially-observed parameters in the model so that we can then develop a more robust decision framework integrating habitat and harvest management.



CWS Banding Crews Increase Their Focus on Northern Pintails

by Jean-Michel Devink, CWS

For many years the Northern Pintail has been considered a species of conservation concern due to its consistently depressed breeding population estimates, despite improving conditions on the breeding grounds. To increase our understanding of what might be driving the population trend of this species, concerted efforts to increase banding of NOPI have occurred recently on the wintering grounds in the Pacific Flyway, and at certain sites in the Canadian Prairies.

Pintails have typically been banded as an incidental species caught during duck banding that targeted mallards. This approach has resulted in highly variable numbers over the years (Figure 1). Since 2005 the Canadian Wildlife Service (CWS) has attempted to increase its catch of pintails with moderate success. In 2011, CWS made NOPI a focus of their prairie duck banding operations. With funding support from the California Waterfowl Association to hire an additional banding technician, and the assistance of USFWS banding technicians, CWS was able to dedicate two sites to NOPI banding (South-central SK, and South-eastern AB).

Targeting Northern Pintails

Getting pintails in the trap is never a guarantee and success is largely a function of choosing the right water body to target. Sites that are suitable for post-breeding mallard banding are more or less consistently productive among years. Pintails, on the other hand, are less philopatric to moulting sites and may settle in large numbers at one site only to abandon the wetland the following year. Pintails also have a keen ability to find new water on the landscape and to capitalize on its resources.

CWS—continued on page 5

Minutes of the 2010 PAG Annual Meeting—October 5, 2010

The 2010 Pintail Action Group meeting was held October 5, 2010 in Bloomington MN in concurrence with the NAWMP NSST.

Review Previous Action Items

- Web Site to have added counter and a Flyways.US link.
- Identify long-term data to assess status and where stored.
- Conservation and Research Priorities - will not be finalized until the demographic modeling effort is complete and additional information needs identified.

Task Team Reports

Pintail Band-Recovery Data Assessment (Haukos/Rice)

Pintail Banding Project Complete; final report available on PAG Website, continental results published in May 2010 issue of Journal of Wildlife Management.

Task Team: Linking Habitat and Harvest Management for Pintails - Demographic Modeling (Mattson, Devries, Clark)

Currently primary activity of PAG Discussion on future outreach efforts to receive input for the model and garner additional support for the project.

Research and Management Updates

- Banding (Clark, Devries, Yarris) CWS recently changed to focus on pintails, mostly in Saskatchewan in response to the need to band species other than mallards.
- Multi-scale habitat selection of northern pintail (Devries) - Fitness consequences of avian habitat selection in dynamic landscapes: multi-scale evaluations in northern pintails
- Pintail duckling survival study (Devries)
- New Research Study, MSc at University of Saskatchewan. Objectives: (1) Determine pintail brood and duckling survival from nests hatched in various habitat; (2) Examine the influence of previously identified habitat on pintail brood and duckling survival rates; and (3) Pattern and process in pintail brood habitat selection..
- Northern Great Plains JV In conjunction with Bismarck HAPET Office conducting 5-year study of waterfowl (including pintails) in west river ND and SD.
- Estimate population size and production of waterfowl in Montana and Wyoming nearly completed
- Conservation Planning in Inter-mountain West JV included devel-

opment of population and habitat objectives for the SONEC Region.

- Development of bioenergetic models for the Great Salt Lake, which supports ~1 million pintails during fall with a significant molt migration.

Other Items

- Triennial PAG Report to the NAWMP Plan Committee
- Chair Succession—The Vice-Chair, Bob Clark will assume the duties in January 2013.

Action Items

- Develop an outline/preliminary banding needs document in association with the USFWS process.
- Continue outreach efforts related to the demographic modeling project.
- Bob Clark suggested that PAG host a multi-scale modeling symposium in the future.
- Demographic Modeling Workshop held from 1300-1700 under a separate agenda.

Postdoctoral Position

U.S. Geological Survey, Patuxent Wildlife Research Center
Northern Pintail Population Modeling

The U.S. Geological Survey, Patuxent Wildlife Research Center (Laurel, Maryland) is seeking candidates for a postdoctoral position to develop a predictive population model for Northern Pintails (*Anas acuta*) that integrates the effects of habitat and harvest management. The model will serve as a key component in addressing the challenges posed by recent reviews to better integrate objectives of waterfowl habitat and population management in a single modeling framework. The framework for the model has been developed; the focus of the postdoctoral work is on estimating the model parameters using Bayesian hierarchical methods. Relevant data exist at several spatial scales (continental, regional, and local) to inform population size, survival and reproductive rates, and harvest; these will need to be knit together to draw inference about other latent parameters in the model.

The postdoctoral position will be part of an interagency research team, including scientists from USGS, U.S. Fish and Wildlife Service, Ducks Unlimited, Environment Canada, UC Davis, and Utah State University, among others. The research team will provide substantial support, including access to appropriate data and review of model details.

The ideal candidate will have a background in population modeling, Bayesian hierarchical estimation, waterfowl population dynamics, structured decision making, and adaptive management. Proficient programming skills are required, particularly in WinBUGS and Program R, or an equivalent system for estimation. The successful candidate will also have excellent writing and personal communication skills. Applicants are expected to have earned a Ph.D. degree in a relevant discipline, preferably within the last 5 years.

The position will be located in Laurel, Maryland. The desired start date is January 2012 or sooner, and the position is funded for 13 months. The salary level is very competitive.

Applications are due no later than **September 30, 2011**. If you are interested, send a curriculum vitae, a letter describing your background and interests, and the names of three references to Michael Runge (mrunge@usgs.gov).

For further information, contact either:

Michael Runge (mrunge@usgs.gov), USGS Patuxent Wildlife Research Center
12100 Beech Forest Road, Laurel, MD 20708-4017
(301) 497-5748

Scott Boomer (scott_boomer@fws.gov), USFWS Division of Migratory Bird Management
11510 American Holly Drive, Laurel, MD 20708
(301) 497-5684

CWS Banding Crews—continued from page 3

In 2009 and 2010 Chaplin Lake, SK, held large numbers of post-breeding pintails and in 2010 we were able to band over 6000 pintails at that site alone. We were hopeful that with a larger crew on this wetland that a similar result could be achieved in 2011. Unfortunately, while we approached 5000 birds banded at the site last year the species composition shifted back to Mallards with only 1400 pintails

scaup are difficult to consistently capture and band mainly because of the logistics necessary to find adequate locations and, for divers, the equipment necessary to catch large numbers can be limiting. However, it is these same species that are of primary conservation concern and thus should remain a focus of future banding efforts. Careful planning and preparation to find ideal wetlands and proper site selection for traps are key to successfully targeting these species.



Figure 1. Joint CWS/FWS banding crew on Old Wives Lake, SK, holding a mixed catch typical of this site's 2011 banding season. From Left to Right: Nicole Tchir (CWS), Pat Bergen (CWS), John Dickson (FWS), and Calvin Lunceford (FWS).



Figure 2. Joint CWS/FWS banding crew at Tide Lake, AB, hauling out a day's catch of northern pintails. A small crew of 3 with minimal equipment produced excellent results with over 3000 NOPI banded. From Left to Right: Collin Holderness (CWS), James Hoskins (FWS), and Steve Leach (Environment Canada).

banded. Our second site at Tide Lake, AB (near Brooks) had a different outcome. With some early pre-scouting of the area, we found a site with a high proportion of pintails and ideal banding conditions. With a daily crew of two or three we banded more than 3000 pintails at that site with >90% being hatch-year birds. This particular waterbody had been dry for many decades prior to 2011.

Through continued collaborative initiatives with partner agencies and conservation organizations and with the additional experience our banding staff are gaining, we hope to be successful in banding these species in adequate numbers to provide data necessary for robust analyses. Refinement of NOPI banding needs and associated sample sizes will guide future spatial-temporal banding objectives for the breeding grounds.

Moving Forward

Species like pintails and

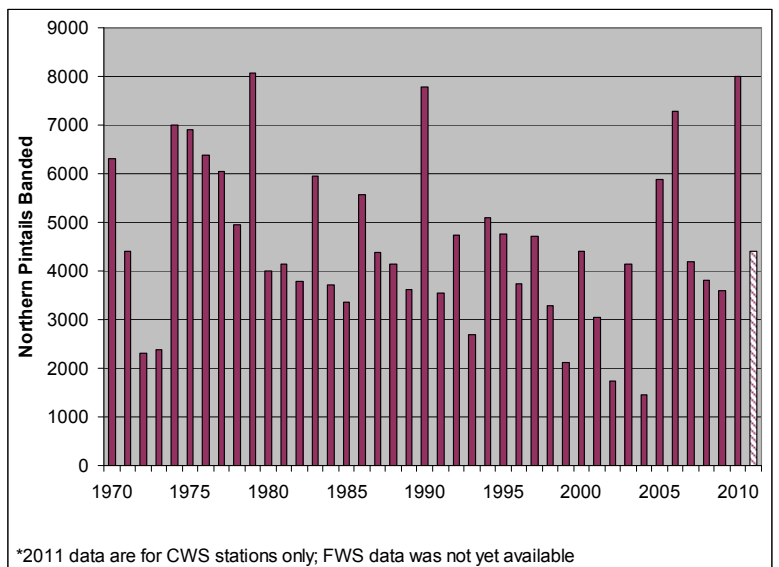


Figure 3. Number of Northern Pintails banded in the Canadian Prairies since 1970 by CWS and FWS banding crews.

Landscape and Habitat Influences on Pintail Duckling Survival

David Johns, James H. Devries, Dr. Robert Clark.



Reduced production of fledged young from the Prairie Pothole Region (PPR) is suspected to be a primary factor for low pintail populations. While factors affecting pintail nest success have recently received the most attention, knowledge of pintail brood and duckling survival in PPR landscapes remains scant. Studies in a native prairie-dominated landscape of southern Alberta in the mid-1990s reported average pintail brood and duckling survival of 80% and 50%, respectively over 3 years. However, research in a cropland-dominated landscape in Saskatchewan in the late 1990s, found these rates to be 46% and 29%, respectively, over 2 years. Previous work in the prairies of Canada and the U.S. has established the influence of landscape composition (grassland vs. cropland) on nest survival, but whether such landscape effects extend to other demographic processes like brood and duckling survival remains unclear.

Brood and duckling survival rates often decline during the brood-rearing season and early hatched nests typically recruit more individuals to the population. Grassland dominated landscapes and specific nesting habitats like winter wheat, which provide safe nesting habitat for early nesting pintails, may enhance pintail production. Therefore, study objectives are to 1) estimate

landscape-specific pintail brood and duckling survival rates, 2) identify habitat selection patterns in pintails to determine if source/sink dynamics are influencing pintail duckling production, and 3) investigate the possible effects of agricultural fragmentation and land use on duckling survival and movements.

Research began this year in southwestern Saskatchewan and will continue in northwestern North Dakota in 2012. Each year, we will examine and contrast breeding ecology of pintails in cropland and grassland-dominated landscapes.

Extensive nest searches will be conducted in all habitat types present. Each year, our goal is to deploy 50 radio transmitters on nest-trapped female pintails, stratifying the radio deployment among available habitats and landscapes. Following hatch, we will attempt to observe all broods on a weekly basis and obtain counts of surviving ducklings (to 30 days post-hatch) while recording ancillary data on types and characteristics of landscapes and wetland habitats being used by brood-rearing females and also determining features of available habitats within each landscape.

In 2011, the Canadian prairies were *extremely* wet in spring and summer resulting in an extended nesting effort by resident pintails (i.e., nests were still being *initiated* at the end of June!). Nest searching efforts this year occurred over approximately 2,000 acres of winter wheat, 3,300 acres of spring-seeded crops

and summer fallow, 3,900 acres of tame and native grassland, and 720 acres of haylands. This effort resulted in 195 pintail nests being found of which 53 attending females

were captured and radio-marked just prior to hatch. To date, this has resulted in 33 broods providing interval counts and our last 30-day count was scheduled for the end of August. Analy-

sis of survival and associated covariates will occur over the winter.

Funding for this study is provided by Bayer Cropscience through a grant supporting research on waterfowl use of winter wheat, the United States Fish and Wildlife Service through the North American Wetland Conservation Council, Ducks Unlimited Canada's Institute for Wetland and Waterfowl Research, Environment Canada, and several private donors.



Recent Pintail Publications

Rice, M.B., D.A. Haukos, J.A. Dubovsky and M.C. Runge. 2010. Continental survival and recovery rates of northern pintails using band-recovery data. *Journal of Wildlife Management* 74(4): 778-787.

Miller, M.R., J.Y. Takekawa, D.S. Battaglia, R.T. Golightly and W.M. Perry. 2010. Spring migration and summer destinations of northern pintails from the coast of southern California. *The Southwestern Naturalist* 55(4): 501-509.

Pearse, A.T., G.L. Krapu, R.R. Cox, and B.E. Davis. 2011. Spring-migration ecology of northern pintails in south-central Nebraska. *Waterbirds* 34(1):10-18.

Mattsson, B.J, M.C. Runge, J.H. Devries, G.S. Boomer, J.M. Eadie, D.A. Haukos, J. P. Fleskes, D.N. Koons, W.E. Thogmartin, and R. J. Clark. 2011. A prototypical modeling framework for integrated harvest and habitat management of North American waterfowl: case-study of northern pintail metapopulation dynamics. *Ecological Modeling* *In Press*

NAWMP Plan Committee Review

On January 10, 2011, David Haukos presented a progress report on behalf of the Pintail Action Group (PAG) to the NAWMP Plan Committee as part of the Triennial Review of all Joint Ventures. The response of the Plan Committee to PAG activities, especially the demographic modeling effort, was very positive.

In a letter to PAG, the Plan Committee outlined (1) roles for PAG in NAWMP activities, (2) recommendations for future actions, and (3) considerations for future progress reports. Specifically, the Plan Committee stated "... we hope the PAG can provide clarity regarding integration of the full range of potential objectives for managing pintail populations that meets the needs of multiple partners."

In regard to the demographic modeling effort, the Plan Committee believes that the effort should provide the key elements for technical integration of habitat and harvest management programs. They stated that the model is "... a fine example of how assessments can be conducted across smaller systems to provide clarity regarding proper conservation program investment levels across complex and variable landscapes..."

The PAG was complemented on its communication efforts and encouraged to continue to communicate our

progress to the multiple groups involved in waterfowl management. The PAG structure of using task teams to address issues was complimented and we are encouraged to continue this structure.

The Plan Committee Recommends the following for PAG:

- Continued communication efforts to disseminate knowledge gained on pintail biology.
- Intensified efforts to incorporate stochasticity in the Pintail model, including assessments of short- and long-term landscape change.
- Rapid development of a vision for how the pintail model will recognize and adapt to large-scale systems changes such as critical issues as rice culture declines.
- Greater attention to identifying and nurturing research support and banding efforts.
- Intensified attention to the study of spring migration and its relation to habitat se and cross-seasonal defects.

The Plan Committee encouraged increased dialogue among JVs and NSST action groups to develop synergistic relationships to improve efficiency and effectiveness, especially in establishing links to continental bird initiatives goals.

Future progress reports should consider the following questions:

- What is the best set of actions the NAWMP can take to assist this action group?
- How can we (i.e., Plan Committee) most effectively identify financial and support deficits for the action group relevant to NAWMP progress?
- Do action groups need greater funding or better match opportunities?
- What is the relevance of progress in the policy arena?

The PAG is committed to continuing our activities and incorporate the recommendations of the Plan Committee in our future planning and activities. We look forward to working with the Plan Committee to address issues related to pintails.

The complete letter from the Plan Committee will be available on the PAG website.

The next meeting of the Pintail Action is currently anticipated to be at the 2013 Ecology and Conservation of North American Wildfowl - a joint meeting between the North American Duck Symposium and North American Arctic Goose Symposium in Memphis, TN during 27-31 January.