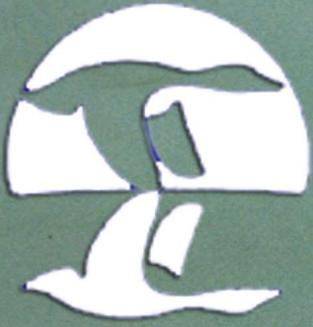


North American Waterfowl Management Plan



SCIENCE SUPPORT TEAM

www.fws.gov/birdhabitat/NAWMP/NSST

Venturing Forward

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Winter 2010



North American Waterfowl Management Plan
Science Support Team

Venturing Forward

The NAWMP Science Support Team's newsletter, "*Venturing Forward*" is published semi-annually and distributed to all NAWMP partners interested in progress relative to the NAWMP's science foundations.

The NAWMP's Plan Committee, the NAWMP Science Support Team's (NSST) Executive Committee and the NSST Committee Chairs all contribute regular updates and news to this newsletter for the benefit of all NAWMP partners and stakeholders as we strive to "*Venture Forward*."

Contributors are invited to submit news items, photos, articles, comments, etc. to the editor of "*Venturing Forward*":

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- Joint Task Group Report Review Committee
(Jorge L. Coppen, Chair)
- JV Implementation and Evaluation Plan Review Committee
(Mike Brasher, Chair)
- Landscape Monitoring Committee
(Tim Jones, Chair)
- NWI Working Group
(Rex Johnson, Chair)
- Alternative Performance metrics Working Group
(Pat Devers, Chair)
- Regional Population Abundance Objective Committee
(Mark Petrie, Chair)

NSST Action Groups

- Pintail Action Group
(Jim DeVries, Chair)
- Scaup Action Team
(Jane Austin, Chair)

PHOTO CREDITS

Front Cover: Aleutian Canada Goose by Glen Smart.

Back Cover: Geese fly in at sunrise by NCTC Video Branch.





NSST Coordinator's Message

Why are we here? Are we volunteers or STAKEHOLDERS?

The answers to "Why are we here? What are we supposed to be doing?" are primarily contained among the pages of 1) The NSST charter, 2) the 2006 NAWMP Continental Assessment (Assessment), and 3) the Joint Task Group report. The NSST is composed of individuals that represent the delivery arm of NAWMP. It follows that the NSST represents the venue for addressing the science-related recommendations made for JVs in the Assessment.

Some NSST members perceive their role on the NSST as that of a "volunteer." It would be more appropriate if they viewed themselves as "stakeholders" in addressing the priority issues we regularly discuss at NSST meetings because they are relevant at home to those JVs. This should answer any questions related to investing time & money in participation on the NSST. Simply put, if JVs value building explicit links to continental bird initiatives such as NAWMP, they must participate as stakeholders in creating the synergy and collaboration that will be required to influence integrated models, decision frameworks, and monitoring & assessment frameworks that allow them to build those linkages.

The NAWMP has established a strong legacy of leadership in the evolution of wildlife science. Key technical issues need to be addressed as stakeholders as we ply the wind, moving forward with a "New" NAWMP. Addressing the technical aspects will require synergy amongst ecologically similar JVs...and the NSST provides that venue.

George L. Coppen



BULLETIN BOARD

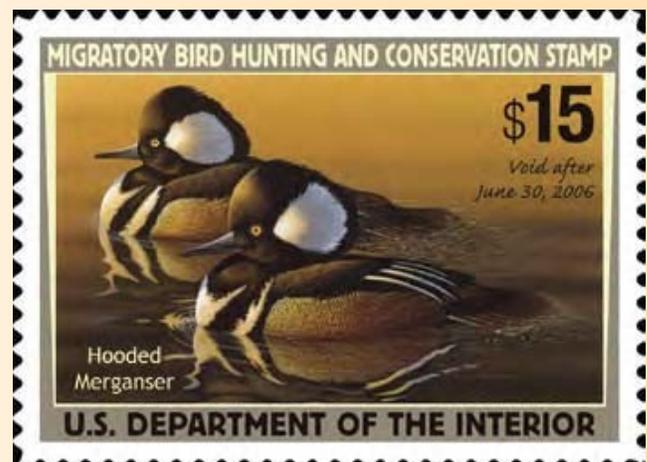
Meetings of Interest



**NSST Meeting
Memphis, TN
January 27 - 28, 2010**



**North American Waterfowl Management Plan Committee Meeting
Phoenix, AZ
February 8 -10, 2010**





Climate Change and the Future of Waterfowl

By Jorge L. Coppen

When we consider that the Prairie Pothole Region (PPR) represents the most productive breeding duck habitat in the world, and currently produces some 50 to 80% of the continent's ducks, it's no surprise that we focus so much attention and conservation efforts in this region. The importance of the PPR is magnified when one considers that it represents only 10% of the total wetland area of the continent! The Western Boreal Forest (WBF) is the second most important waterfowl breeding area in North America and it supports 12-15 million breeding ducks annually. In some years, this amounts to about 40% of the continental duck population.

Climate Change Predictions:

A wetland simulation model (WETSIM) applied to 95-year weather records suggested that the most productive habitat for breeding waterfowl would shift under a drier climate from the center of the PPR (the Dakotas and southeastern Saskatchewan) to areas currently less productive or where most wetlands have been drained — wetter eastern and northern fringes. Based on a doubling of CO₂ by 2060, a predicted 2.5°C temperature increase and no change in precipitation, researchers predict the number of ponds in the PPR will be cut by two thirds (67%), from the present 1.3 million ponds, depending on the climate scenario used.

The ecology of the WBF is partly determined by long, cold winters and short summers. Temperatures in central Canada already have warmed at a higher rate than in most of North America. With a doubling of atmospheric CO₂ in the next century, average temperatures in the WBF may increase by as much as 4.2°C. This is expected to result in drier average conditions, greater annual climatic variation, melting permafrost, altered surficial hydrology and higher rates of wildfires. Vegetation zones are likely to shift slowly northward and up to 16 million ha of new ground may become suitable for agricultural production.

Waterfowl Responses:

If pond numbers decline by two thirds, as per WETSIM model predictions, duck numbers in north-central U.S.

are expected to be reduced by almost three quarters (72%), from the present five million. New research indicates that suitable waterfowl habitat in this region could be halved as early as 2050! This clearly demonstrates that “static” bird conservation efforts based on current protected areas will be undermined by projected climate change impacts. It also presents a compelling need for a more dynamic approach to waterfowl conservation that incorporates protection and preparation of climatically-suitable habitats. At least 20% of the WBF is comprised of wetlands. Melting of the underlying permafrost there threatens its productivity and losing even a fraction of this wetland component would impact continental duck populations. Unless these wetlands are protected and restored, there is little insurance for waterfowl against future climate warming.

Significant changes in wetland ecology, including food webs that support duck populations, are likely but cannot be predicted with certainty. Clearly, wetland managers will need to make decisions for allocating restoration dollars in an uncertain climatic future.

Climate change models predict wetland numbers could decline by up to 90 %, resulting in almost a 70 % decline in the fall flight of ducks.

Addressing Predicted Impacts:

The potential impacts and uncertainties associated with long-term climate change must be accounted for in efforts of North American Waterfowl Management Plan (NAWMP) partners. Cooperation from Joint Ventures (JV), Flyway Councils, NGOs, and others in climate change management planning and waterfowl conservation strategies are imperative. Existing funding sources must be enhanced significantly for these purposes. Climate change research on wetlands and waterfowl is underfunded and must be increased to help guide appropriate adaptive management efforts. One immediate concern is the ability to detect shifts in species population dynamics that could result from change to carrying capacity and affect levels of sustainable harvest. Agencies responsible for managing exploited populations must be able to test their assumptions and harvest models in the face of climatic conditions.

The NAWMP provides a framework to address climate change impacts on waterfowl populations and habitats. The continental scope of the Plan and regional habitat JVs are suited to tackling a global phenomenon with heterogeneous impacts realized at local and landscape scales. At a landscape level, adaptive management, reliance on sound science foundations, and monitoring of Plan activities and their effects, provides the necessary



mechanisms for dealing with variable effects of climate change.

The Policy Arena:

Among these mechanisms is a provision requiring frequent review and revision of Plan objectives. The 2006 Plan Continental Progress Assessment Report (Assessment) offers several recommendations on how the Plan can incorporate climate change into management actions. Wildlife-friendly policy will have to extend beyond direct conservation programs, and into the policy arenas of energy, transportation, and climate change. The Assessment recommended direct consideration of the impacts of global climate change in the design and delivery of JV programs.

Sound Science and Dealing With Uncertainty:

Successful incorporation of the Assessment recommendations will better position the JVs, and NAWMP, to monitor and address emerging climate-induced threats from disease, invasive species, and contaminants of water and food resources.

From the science perspective, adaptive management and structured decision making approaches may serve as critical tools to enhance decision-making in the realm of management to address climate change at regional and local scales. Adaptations to climate change pose a great challenge to waterfowl management agency decision-makers as decisions often will be made in the face of uncertainty and an incomplete understanding of climate change impacts. This will be far more critical at the local scale. Adaptive management allows decision making to proceed in an iterative fashion even in the face of high uncertainty about outcomes by treating management decisions as testable hypotheses.

The power of structured decision making is that it represents a decision analysis tool to meet such challenges by decomposing a problem into manageable parts for specific scrutiny to more effectively deal with uncertainty. As such, decisions may be more palatable to multiple stakeholders.



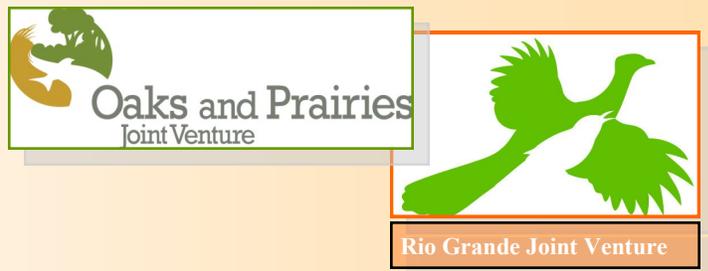
Jorge L. Copen is the National Coordinator of the NAWMP bird initiative and serves as the primary NSST representative to the Plan Committee. He currently chairs the Joint Task Group Report Review Committee.



Joint Venture Implementation Plan Review Committee Update

By Mike Brasher

No additional Joint Ventures have requested Plan Committee endorsement of their Implementation Plans since the Sonoran JV was endorsed earlier this year. However, at the request of USFWS Division of Bird Habitat Conservation, NSST reviews were conducted for the Rio Grande JV and Oaks and Prairie JV Implementation Plans to help inform DBHC approval determinations. Congratulations are in order for the RGJV and OPJV partnerships as their Implementation Plans were approved by DBHC this past summer.



As described in the March 2009 Newsletter, Mike Johnson (USFWS), Dave Smith (IWJV), and I collaborated on a draft statement describing connotations of PC endorsement of JV Implementation Plans. This draft statement was discussed at the recent PC meeting in Calgary where several suggestions were provided to improve and clarify certain aspects of the statement. These suggestions are currently being addressed, and you should look for additional updates in future Newsletters.



Mike Brasher, a Ducks Unlimited employee, is the Gulf Coast Joint Venture's Science Coordinator and is stationed at Lafayette, Louisiana.





The Scaup Conservation Action Plan: *Working toward coherence*

By Jane Austin

The last in a series of three workshops to develop a decision framework for the scaup conservation action plan was conducted in September 2009. Fifteen waterfowl biologists and managers met in Memphis, Tennessee at the Ducks Unlimited Headquarters to review and refine the decision statement, objectives, and prototype model for the continental scaup population, with a special focus on vital rate parameters that are affected during migration and winter. In a significant step toward coherence, the participants also developed models for incorporating human dimensions – hunters – into the decision framework, and to link the population of diving duck hunters with the continental scaup population.

The fundamental objectives for scaup conservation are: 1) Achieve landscape conditions (continental carrying capacity) necessary to support target scaup populations; 2) Achieve desired, sustainable harvest; and 3) Sustain diving duck hunting traditions as part of a larger waterfowling tradition. These objectives are intimately interrelated, reflect the components of the model, and clearly express the concepts of coherence as identified in the 2008 Joint Task Group report. For each fundamental objective, participants refined the stepped-down means objectives, management and policy actions, and estimated costs to implement at a level that would impact the respective population. Scott Boomer, US Fish and Wildlife Service, has taken the lead role in translating the framework and models into an interactive Excel spreadsheet for examining the effects of different management scenarios on scaup and hunter populations.

The report from the third workshop will be released via the USGS Scaup wiki in December. Results from all workshops are being melded into the draft conservation plan this fall, with draft sections available on the Scaup wiki for >30 invited biologists and managers, representing all flyways and work-

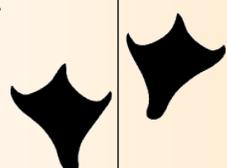


shop participants, to review as the writing progresses. A final draft of the conservation action plan will be provided to the Service Regulations Committee and flyways in time for their meetings in February and early March.

As part of the communications process for the plan development, the Scaup Action Team (SAT) met 17 August 2009 at the Fifth North American Duck Symposium in Toronto (NADS5). Participants were provided an overview of the plan development process and opportunity to provide comments and questions.

Jane Austin also gave an oral presentation about the scaup planning process and the issues related to coherence during the special session, “Linking harvest, habitat, and human dimensions: an update.”

The SAT also organized a special session at the NADS5, “Riches of the Boreal forest: waterfowl populations and conservation challenges.” The objective of this plenary session was to explore and discuss the trends in breeding populations, breeding ecology, and conservation and management challenges for waterfowl in the boreal forest. This ecosystem encompasses the core of the breeding range for lesser scaup and is also very important to other waterfowl species. Six presentations described the waterfowl populations in the boreal forests, challenges in monitoring and detecting trends, breeding ecology, and the diverse problems facing waterfowl and the ecosystem. For abstracts from both sessions, go to <http://www.northamericanducksymposium.org/>.



Jane Austin, Ph.D. is a Research Wildlife Biologist with USGS at Northern Prairie Wildlife Research Center in Jamestown, ND & SAT Chair.





Pintail Action Group Update

By David Haukos



The Pintail Action Group (PAG) held its annual meeting on August 17, 2009 in conjunction with the 5th North American Duck Symposium and Workshop in Toronto, Ontario. The meeting was attended by 35 participants. After 4 years serving

as Chair and Vice Chair, Jim Devries was succeeded by myself. Robert Clark accepted the Vice Chair position. Updates on previous projects and publications were provided by project leaders with information on these efforts available on the PAG Website (<http://wildlife.siuc.edu/PAG/>). Much of the meeting was devoted to the initiation of a large-scale demographic modeling effort.

Our work to date has included significant progress toward the objectives described in “**Integrating Habitat and Harvest Management for Northern Pintails: Work Plan**”. These objectives include the following: 1) Construct a model framework consisting of 2 breeding and 2 wintering areas with associated habitat-linked recruitment and survival parameters (status: in development); 2) Develop submodels that link habitat actions at regional or Joint Venture levels to recruitment and survival effects (starting winter 2010); 3) Assemble all existing pintail vital rate estimates from past and ongoing pintail/waterfowl research in North America (first phase completed; ongoing); 4) Build the first prototype life-cycle model (anticipated completion spring 2010; further details below). Progress toward the fifth and final objective, involving consultations with JV, Fly-way and other stakeholders, has only just begun and most work toward this objective will commence following a technical workshop in spring 2010. Details about our progress on the first prototype are pro-

vided below.

Brady Mattsson started work on the pintail modeling effort at USGS Patuxent in late October 2009, and is continuing progress toward objectives 1-4 in consultation with several members of the Task Team. To date, he has constructed the first prototype of pintail population dynamics that includes movements between two breeding areas (Alaska and Prairie Pot-hole) and two wintering areas (California and Gulf Coast). The initial prototype also 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, environmental conditions, and management conditions. Brady coded the initial prototype as a deterministic, discrete population model in program R, and investigated how 100-year population trajectories changed when Gulf Coast overwinter survival and harvest rates were varied to represent a

subset of management options. During the December 2009 Adaptive Harvest Management Working Group Meeting in Portland, Oregon, Brady presented the results of this perturbation analysis using the initial prototype model. Next, Brady will develop the second prototype, which will include refining input values to better represent known estimates and will account for demographic and environmental stochasticity. This work will involve winter meetings with a range of pintail experts to discuss these refinements. When the second prototype has been completed and evaluated, Brady will begin to engage the waterfowl management community this spring and/or summer to receive feedback and to develop plans for the third prototype.

David Haukos is a USFWS Regional Migratory Bird Management Specialist at Texas Tech University in Lubbock, TX. He currently serves as Chair, Pintail Action Group.





North American Waterfowl Management Plan

Science Support Team

The NAWMP Science Support Team's mission:
To help strengthen the biological foundations of the North American Waterfowl Management Plan and facilitate continuous improvement of Plan conservation programs.