

Update of NAWMP Population Objectives for Geese

The latest revision of the North American Waterfowl Management Plan provides an opportunity to update population objectives for geese in North America. Over the past 25 years, there have been substantial changes in the size and distribution of some populations, as well as in the ways that they are managed. For example, most management populations were originally described based on their wintering distributions, and most monitoring was based on surveys and banding that were conducted on migration and wintering areas. Over time, the flyways and AGJV have expanded research and monitoring efforts on the breeding grounds to improve our understanding of associations between breeding and wintering areas, and in some cases this has led to changes in our perceptions of population size, and in some cases this has also directly influenced population objectives.

As a result of improved monitoring, and in some cases due to dramatic changes in population size and/or distribution, population objectives and monitoring techniques have changed, and in some cases this has led to re-defined populations and management goals. Examples of populations that have been recently re-defined include: (1) Eastern and western portions of the Midcontinent White-fronted Goose population were amalgamated by the AGJV because banding data showed substantial overlap of birds in winter from across the Canadian arctic nesting range. (2) Midcontinent lesser snow geese and Western Central Flyway snow geese were amalgamated in the latest AGJV status report because of substantial overlap in nesting range (Leafloor et al. 2012). (3) Short Grass Prairie and Tall Grass Prairie populations were amalgamated into a single population of white-cheeked geese for management purposes (Central Flyway Council Technical Committee 2013, Mississippi Flyway Technical Committee 2013). In other cases, population objectives have not kept pace with changes in population size or monitoring programs, and may need to be reconsidered (e.g., the population objective for Ross's geese has been 100,000 birds since the inception of NAWMP in 1986, but the population now exceeds 1.5 million adult birds; Alisauskas et al. 2012). Population definition or delineation is listed as a high priority information need for 8 goose populations in the current AGJV Strategic Plan, and may be a logical consideration in other cases also.

In addition to changes in population definitions, in some cases there have been changes to monitoring tools and/or management paradigms that could result in changes to population objectives (e.g., Aleutian cackling geese; Sanders and Trost 2013). Some population objectives that were formerly based on winter survey results have been changed to make use of data from surveys on nesting or staging areas (e.g., many populations of Canada geese, white-fronted geese). In the Mississippi Flyway, population objectives for three populations of Canada geese (SJB, MVP, and EPP) have changed as a result of changes in harvest management. Instead of aspirational population objectives, these populations are now managed to ensure that minimum threshold breeding populations are maintained,

and as a result the population objectives appear to be lower than they were previously. Some large and geographically widespread populations, like midcontinent lesser snow geese and Ross's geese, are difficult to monitor using conventional survey techniques, and as a result, alternative monitoring techniques have been proposed that could result in substantial changes to our perceptions of population size, and this could also affect objectives for several populations (e.g., Alisauskas et al. 2009, 2011, 2012).

The AGJV is seeking input regarding any recent changes to population objectives and/or population definitions for geese harvested in each of the four flyways. If population objectives have changed, or if new population delineations are being used or contemplated, then those changes should be incorporated into the updated AGJV Strategic Plan, management plans, and other NAWMP documents.

Literature Cited

- Alisauskas, R. T., K. L. Drake, and J. D. Nichols. 2009. Filling a void: abundance estimation of North American populations of arctic geese using hunter recoveries. Pages 465-492 in Thomson, D. L., E. G. Cooch, and M. J. Conroy (editors). *Modeling Demographic Processes in Marked Populations*. *Environmental and Ecological Statistics* 3:465-492.
- Alisauskas, R. T., R. F. Rockwell, K. W. Dufour, E. G. Cooch, G. Zimmerman, K. L. Drake, J. O. Leafloor, T. J. Moser, E. T. Reed. 2011. Harvest, survival, and abundance of midcontinent lesser snow geese relative to population reduction efforts. *Wildlife Monograph* 179: 1-42.
- Alisauskas, R. T., J. O. Leafloor, and D. K. Kellett. 2012. Population status of midcontinent Lesser Snow Geese and Ross's Geese following special conservation measures. Pages 132-177 in Leafloor, J. O., T. J. Moser, and B. D. J. Batt (editors). *Evaluation of special management measures for midcontinent lesser snow geese and Ross's geese*. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service, Ottawa, Ontario.
- Central Flyway Council Technical Section. 2013. Management guidelines for Central Flyway arctic nesting Canada Geese., July 2013. 25 pages.
- Leafloor, J. O., T. J. Moser, and B. D. J. Batt (editors). 2012. Evaluation of special management measures for midcontinent lesser snow geese and Ross's geese. Arctic Goose Joint Venture Special Publication. U.S. Fish and Wildlife Service, Washington, D.C. and Canadian Wildlife Service, Ottawa, Ontario.
- Mississippi Flyway Council Technical Section. 2013. Management plan for midcontinent Cackling Geese in the Mississippi Flyway, July 2013. 21 pages.
- Sanders, T.A., and R. E. Trost. 2013. Use of mark-recapture models with mark-resight data to estimate abundance of Aleutian Cackling Geese. *Journal of Wildlife Management* 77:1459-1471.