SUBMISSION TO THE NWMB FOR

Information: **Decision: X**

Issue

This is a summary of information about the status of Ross's Geese in North America, and a proposal to designate Ross's Geese as overabundant in Canada, under the Migratory Birds Regulations. An overabundance designation would allow spring conservation harvests of Ross's geese to occur in areas of Canada where overabundant snow geese may be legally harvested in spring. Spring harvest of Ross's Geese has been legal in the United States since 1999. The Canadian Wildlife Service is seeking comment and/or support for this recommendation.

Summary

Numbers of Ross's geese in North America have increased from approximately 100,000 in the mid-1960s to as many as 3 million birds today. Like several other species of arctic-nesting geese, Ross's geese now rely on agricultural waste grain for food during

fall, winter and spring, and as a result of this superabundant food source, their survival and productivity have greatly increased. As numbers of geese have increased, they have expanded their range eastward, both on arctic nesting areas, and during migration and wintering periods. During the staging and nesting periods in subarctic and arctic regions of Canada, large numbers of lesser snow geese and Ross's geese forage for roots by grubbing in melt water areas, and also strip vegetation from the soil during nest building. This has led to widespread loss of vegetation cover, increased soil salinity, and long term damage to important habitats used by many species, in addition to geese. Despite regulation changes to increase harvest of Ross's geese in both Canada and the United States over the past 20 years, including legalization of spring hunting in the United States since 1999, survival rates of Ross's geese continue to increase, and hunters harvest only 2-3% of adult geese each year. As a result, increases in population size continue to outpace increases in harvest, and the extent of habitat loss in arctic and subarctic regions of Canada continues to expand. Continued population increases and expanded habitat damage are predicted to occur, and as a result, the Canadian Wildlife Service is considering designation of Ross's geese as overabundant, and allowing spring harvest to occur in Canada in an attempt to stabilize or reduce numbers of Ross's geese. Lesser snow geese and greater snow geese have been designated as overabundant in Canada and the United States since 1999.

Overabundance of Ross's Geese in Canada

Management actions were initiated in 1999 to reduce damage caused to arctic and subarctic ecosystems by the destructive feeding activities of increasing numbers of lesser

snow geese and Ross's geese (Batt 1997, Moser 2001). Most of these actions were aimed at reducing survival of adult geese through increased harvest by hunters, because this was thought to be the most efficient means of reducing population size (Rockwell et al. 1997). Hunting regulations were liberalized, traditional hunting restrictions (e.g., prohibition on use of electronic calls, requirement for plugged shotguns, bag and possession limits) were relaxed or removed to promote increased harvest, and habitat management regimes on some refuges in the United States were altered to increase harvest of the birds. Additional amendments to the Migratory Birds Regulations in Canada and the United States were made to allow conservation harvests of such overabundant species outside of hunting seasons.

Though most attention has focused on overabundance of lesser snow geese, Ross's geese were also designated as overabundant in the United States in 1999, and have been included in regulations allowing spring conservation harvests there ever since. Regulations allowing for the spring take of Ross's geese due to their overabundance have not been enacted in Canada, though hunting regulations have been continually liberalized in both Canada and the United States since the mid-1980s in an effort to increase their harvest.

Ross's geese are closely related to lesser snow geese, and co-occur with them throughout the year. Harvest management of the two species has been combined since 1978 because of their similarity (Moser and Duncan 2001). In the mid-1960s, most Ross's geese (>90%) nested in the central arctic of Canada, and wintered in the Central Valley of California (Melinchuk and Ryder 1980; Figure 1). Though comprehensive estimates of population size were not available until recently, photographic surveys of

known nesting areas indicated fewer than 100,000 nesting Ross's geese in the mid-1960s (Kerbes 1994), and the continental population objective for Ross's geese has been 100,000 birds since the North American Waterfowl Management Plan was implemented in 1986. By the mid-2000s, Ross's geese had expanded their range eastward on both nesting and wintering areas (Alisauskas et al. 2006a; Figs 1-3), and the population was estimated to number between 1.5-2.5 million adult birds (Alisauskas et al. 2009, 2011, 2012), despite efforts to stop the growth of the population through increased harvest by hunters. The most recent population estimates suggest that Ross's geese may now exceed 3 million adult birds (Figure 3).

Alisauskas et al. (2006a) found that survival of adults had declined during the period 1994-2000, reaching a low of approximately 0.80, apparently in response to concurrent increases in harvest. However, during this same time period, the Ross's goose population at one of the largest known breeding colonies in the Queen Maud Gulf region increased steadily, suggesting that an adult survival rate of 0.80 was unlikely to stop growth of continental Ross's goose populations. Since 2001, harvest of adult Ross's geese has apparently stabilized, and harvest rates (the annual proportion of the adult population harvested by hunters) have actually declined, so that only about 2-3% of all adult birds are harvested each year by hunters (Alisauskas et al. 2009, 2012; Dufour et al. 2012). Annual survival of Ross's geese declined from 0.897 (95% CI = 0.789-0.953) to a low of 0.827 (95% CI = 0.801-0.850) during the period 1989-1997, then increased steadily from 1998 onward, reaching a high of 0.950 (95% CI = 0.899-0.976) in 2009 (Traylor et al. 2012). Notably, this reversal of the survival trend occurred while annual harvests were at their highest levels since 1989 (Alisauskas et al. 2012).

There is additional evidence that Ross's goose populations have continued to grow, both in the central arctic and at the continental level (Alisauskas et al. 2009, 2012). Observations suggest that, like snow geese, increases in harvest of Ross's geese have been outpaced by concurrent increases in abundance, reducing the effects of harvest on adult survival (Dufour et al. 2012). In fact, Ross's goose numbers have continued to increase at a higher rate than have lesser snow geese since the start of conservation actions in 1999, and continued growth of the Ross's goose population is predicted to occur (Alisauskas et al. 2006a, Alisauskas et al. 2012, Dufour et al. 2012, Traylor et al. 2012).

At the same time, it is clear that Ross's geese contribute to habitat degradation on nesting and staging areas where they occur in large numbers (e.g., Alisauskas et al. 2006b, Abraham et al. 2012), and it has also been suggested that occupation of nesting areas previously degraded by lesser snow geese may slow recovery of those areas due to the ongoing effects of foraging and nest building by Ross's geese (Didiuk et al. 2001). Leafloor et al. (2012) recommended that Ross's geese be designated as an overabundant species in Canada, and that spring conservation harvests be expanded to allow take of Ross's geese throughout their range.

A species can be considered overabundant in Canada if: (1) as a result of the rate of increase of the population of that species, it is injurious to or threatens agricultural, environmental or other similar interests, such that Article VII of the Migratory Birds Convention applies, (2) it is above negotiated population objectives, or new evidence demonstrates that the objectives are too high, (3) it causes damage because it is overabundant at the population level, not just because there is an unfavourable

distribution of birds causing local conflicts, and (4) it is a game bird, and it is desirable to make use of hunters for purposes of population control. It is clear that Ross's geese meet all of these criteria, and the designation of Ross's geese as overabundant is therefore being considered by the Canadian Wildlife Service.

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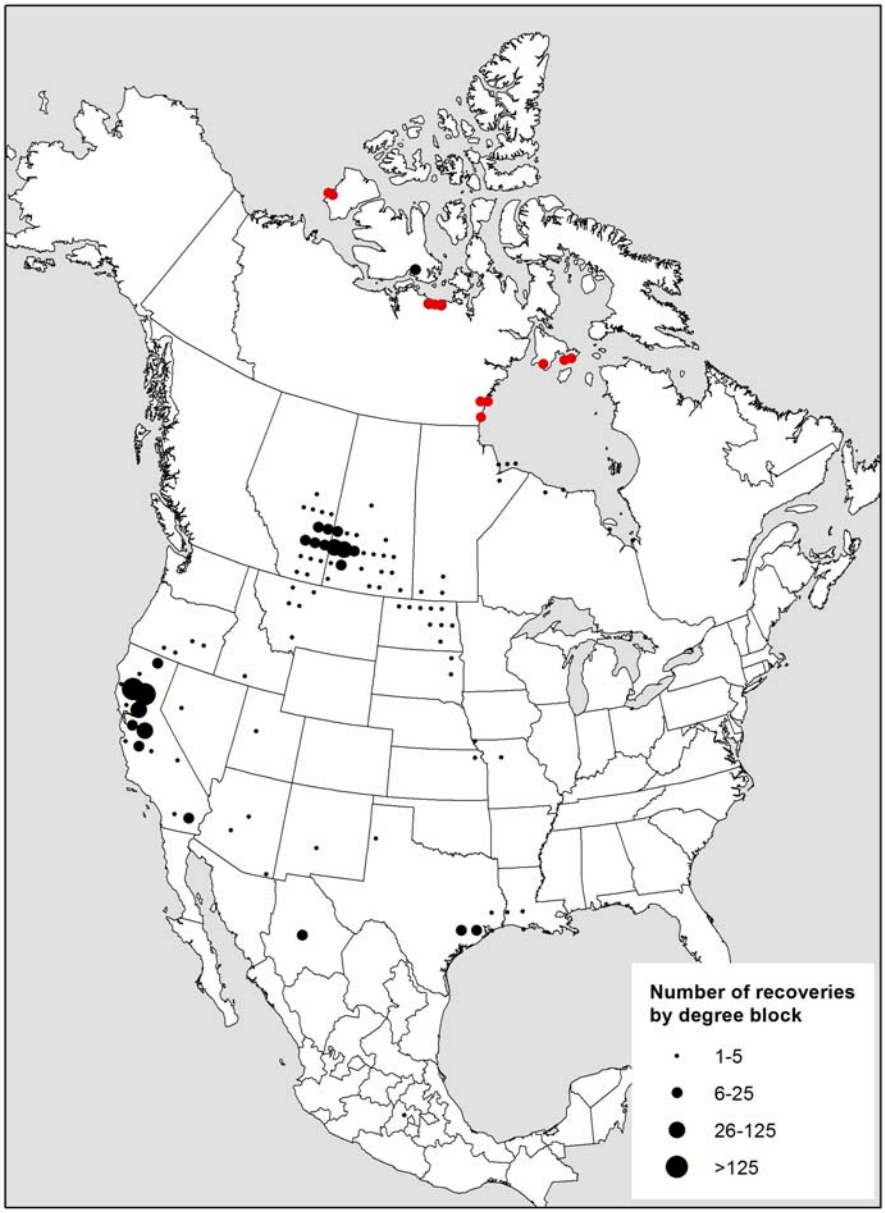

Figure 1. Locations of band recoveries from Ross's geese shot by hunters before 1980. More than 95% of Ross's geese nested in the central arctic of Canada at that time.

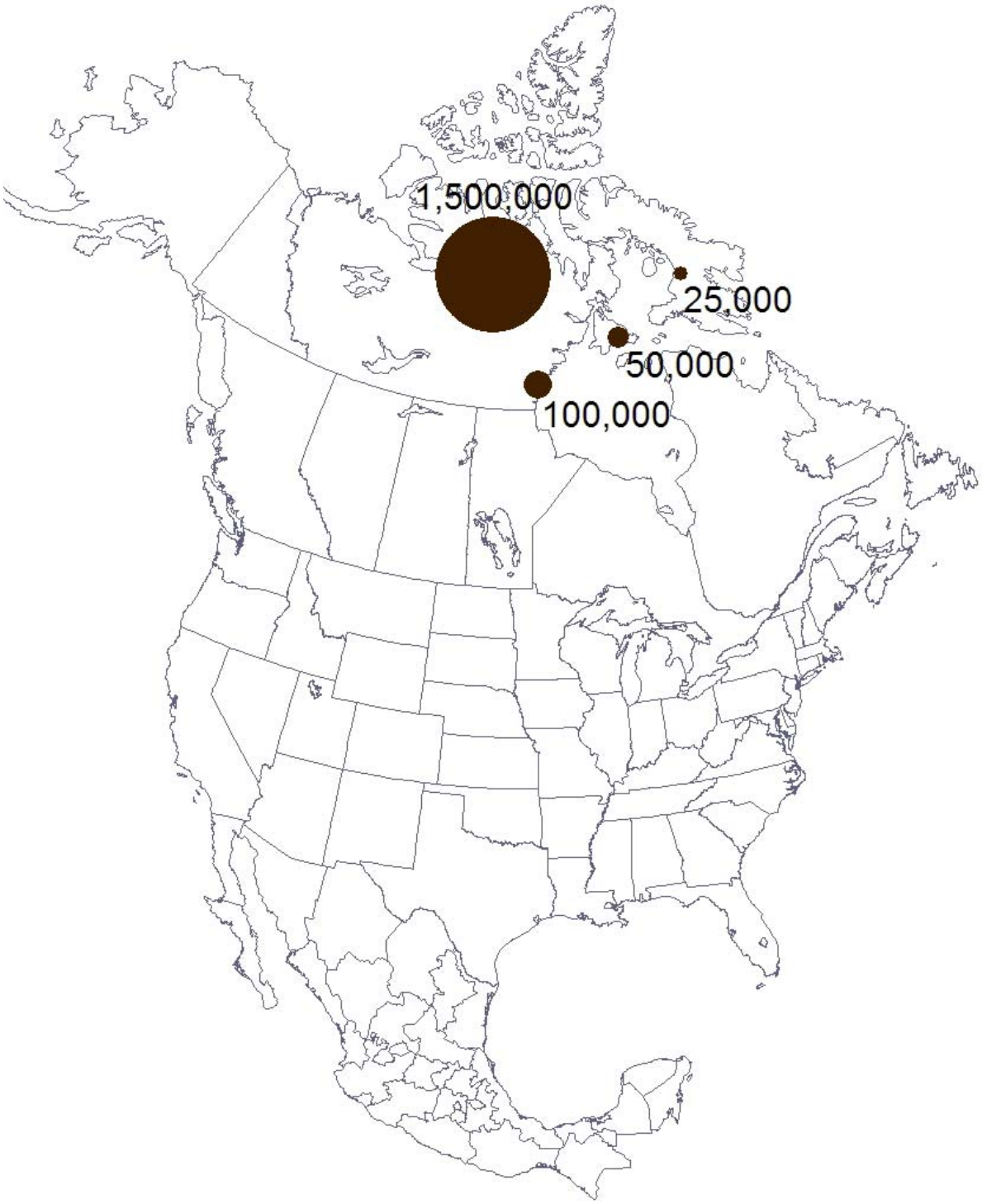

Figure 2. Approximate numbers of nesting adult Ross's geese at known nesting areas in Canada's central and eastern arctic.

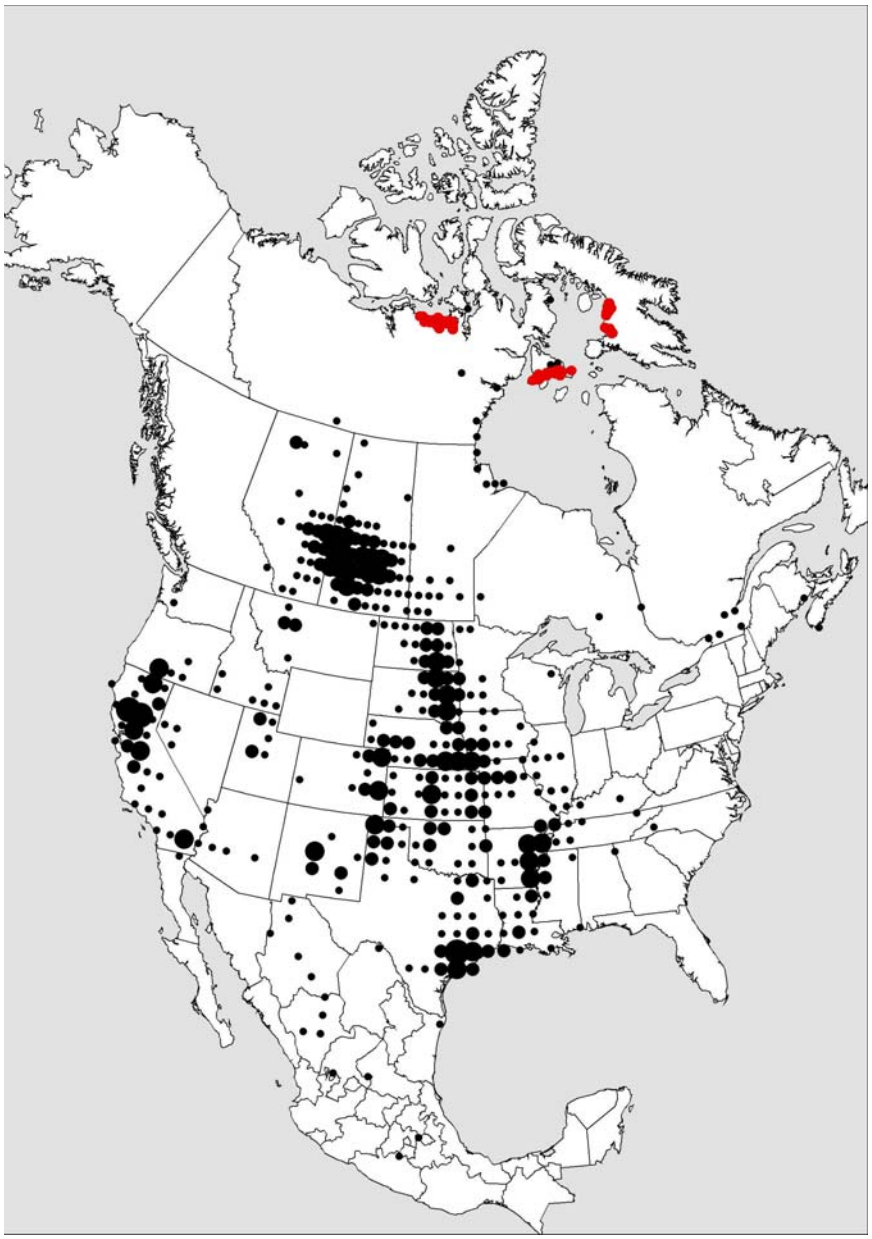

Figure 3. Distribution of band recoveries from hunter-shot Ross's geese (black symbols) banded in the central and eastern arctic of Canada, 2001-2009 (red symbols).

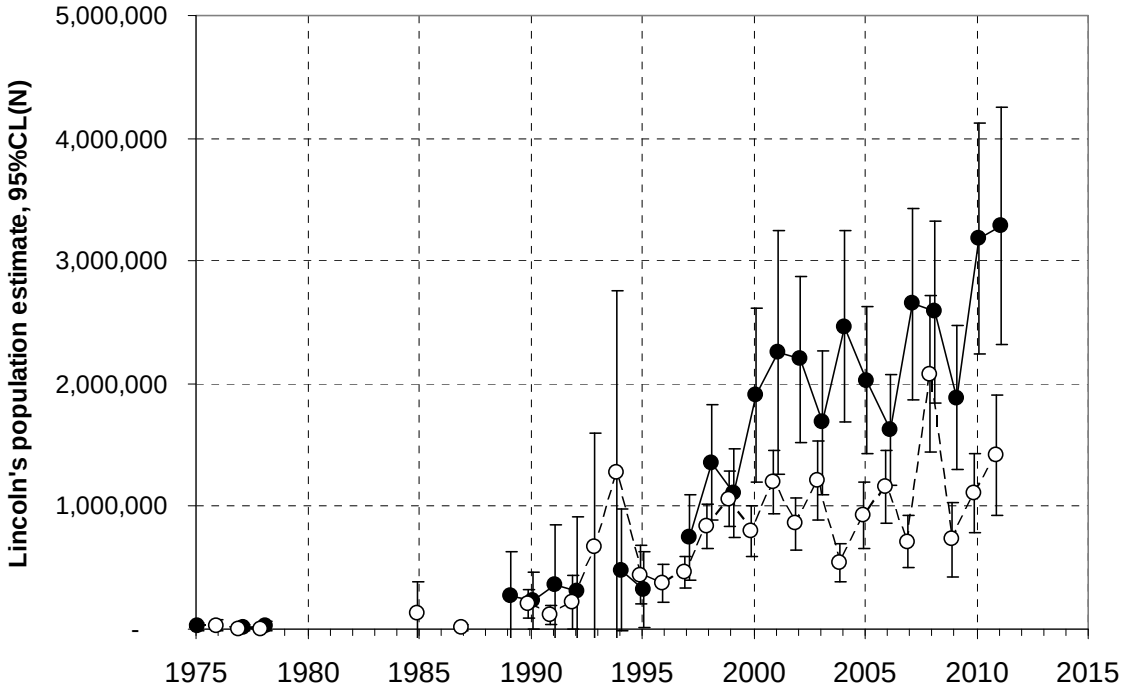

Figure 4. North American population estimates of Ross's geese (closed symbols = adults, open symbols = young) marked in Canada's central and eastern arctic and subarctic regions, east of 110°W and north of 53° N, between 1975 and 2011. Estimates refer to abundance in August, following Alisauskas et al. (2009, 2011).