Comments on the Sahtu Land Use Plan – Draft 1
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1 Protecting Important Waterbird Breeding Habitat

1.1 Ramparts Watershed Conservation Zone

Results from Ducks Unlimited Canada's (DUC) aerial surveys (1997-98) in the Ramparts River Wetlands Complex indicate this area provides habitat for thousands of nesting and staging waterfowl including greater than 1% of the Canadian population of scoters (known as "black ducks" in the Sahtu), scaup and pacific loon (Yamoga Land Corporation 2006). Because of this, the Ramparts River and Wetlands Complex is considered a Key Migratory Bird Terrestrial Habitat Site by the Canadian Wildlife Service (Latour et al. in press).

DUC strongly supports the inclusion of the entire Ramparts River Watershed in the proposed conservation zone. The health and viability of the Ramparts River Wetlands Complex in the northern portion of the conservation zones relies on the overall health of the entire watershed, the headwaters of which originate in the very southern part of the proposed conservation zone. Very little is known about northern boreal forest hydrology. As such, it is likely impossible at this time to develop conditions under which any development may occur in one part of the Ramparts Watershed and not be certain it will not have detrimental impacts on the critical wetlands in the northern portion of the proposed conservation zone and their associated waterbird populations.

A more detailed rationale for the protection of the Ramparts Watershed is documented in the Yamoga Land Corporation's proposal for interim land withdrawal for the Ramparts River and Wetlands Candidate Protected Areas (Yamoga Land Corporation 2006).

1.2 Willow Lake Conservation Zone

Willow Lake has been designated a Key Migratory Bird Terrestrial Habitat Site by the Canadian Wildlife Service because it supports greater than 1% of the Canadian populations of scaup and scoters (Latour et al. in press). It is also identified as an Important Bird Area supporting continentally significant congregations of bird species and nationally significant congregations of waterfowl (Bird Studies Canada 2007).

Willow Lake is one of three long-term waterfowl banding stations in the Northwest Territories. As of 2004, over 14,000 ducks had been banded at Willow Lake (1959, 1965, 1995-2004). Band recovery data (United States Fish and Wildlife Service unpublished data) indicate that ducks from Willow Lake winter throughout most of the continental United States and as far south as Mexico (Figure 1). This highlights the importance of the breeding and molting habitat around Willow Lake and in the Mackenzie Valley to the entire continental waterfowl population.

DUC strongly supports the proposed conservation zone designation for Willow Lake. Due to the sensitivity of the area and the importance of the area to shorebirds, swans, ducks, and geese, DUC suggests expanding the conservation zone around Willow Lake to

match the Key Migratory Bird Terrestrial Habitat Site boundary. This would link Willow Lake and Kelly Lake via the conservation zone, which would provide additional protection for this very important waterbird habitat area.

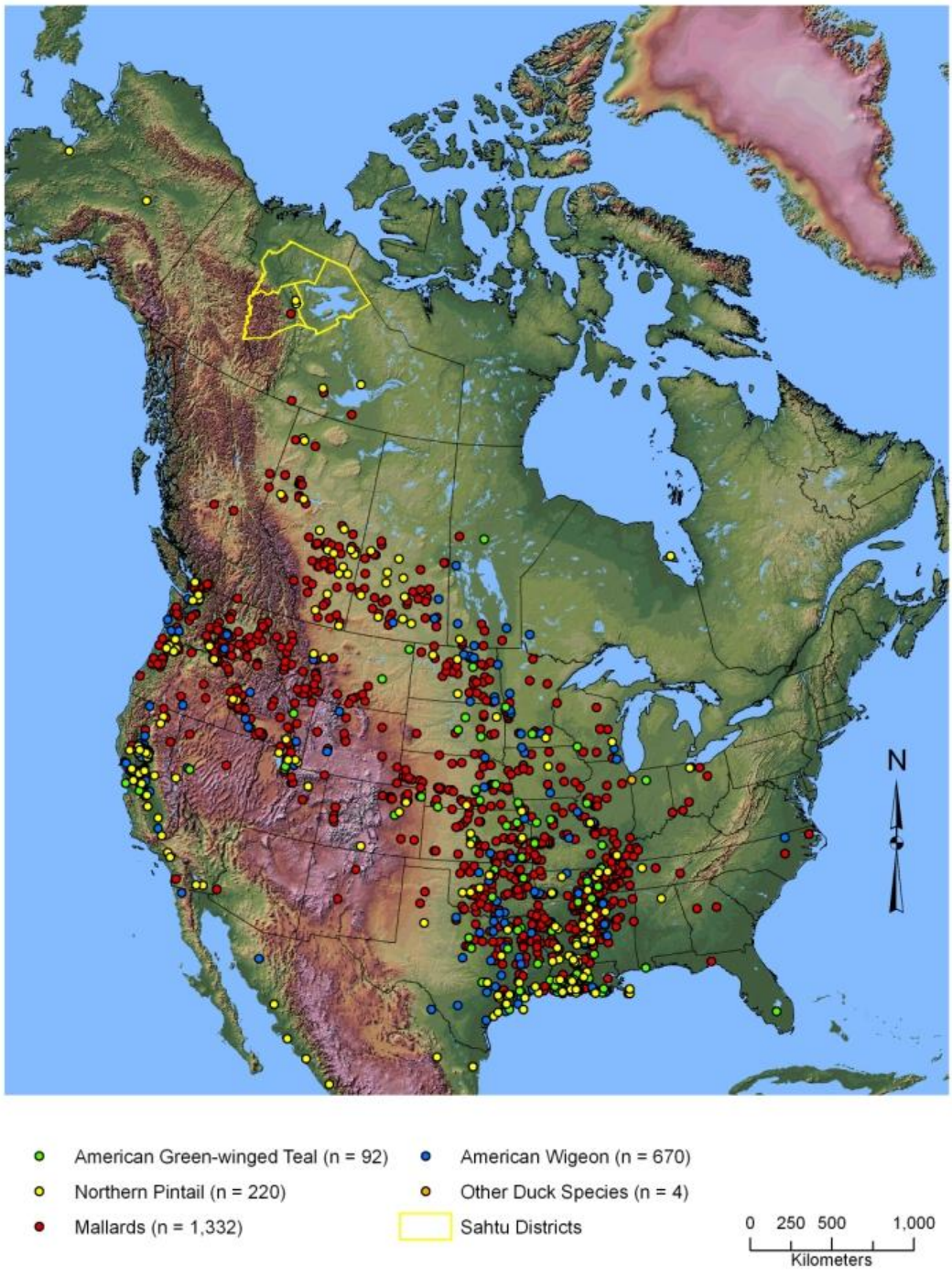

Figure 1. Band recoveries by flyway from the Willow Lake banding station, NT

1.3 Grizzly Bear Mountain and Scented Grass Hills Conservation Zones

Data from aerial surveys of Sahoyue (surveyed in 2001) and Ehdacho (surveyed in 2002) indicate that the small streams and wetland clusters around the base of the two peninsulas supported large numbers of waterbirds (Ducks Unlimited Canada 2002a, Ducks Unlimited Canada 2002b). The Ehdacho wetland complex between and including Deerpass Bay and Tatui Lake appears to be of particular importance as it supported the greatest number and diversity of waterbirds observed within the two proposed conservation zones (Ducks Unlimited Canada 2002a).

1.4 Support for Other Conservation Zones

DUC has produced a preliminary map of predicted breeding waterfowl densities for the Taiga Plains Ecozone (Figure 2). Waterfowl data were collected by the United States Fish and Wildlife Service (USFWS 2006), and were modeled relative to land cover classes and abundance of water across the ecozone. The Sahtu Land Use Planning Board (SLUPB) can contact DUC for more information on the data and methods used. This map can be thought of similarly to the mineral or hydrocarbon potential maps. It shows general patterns of information on a large scale. The preliminary analysis shows that few areas throughout the Taiga Plains of the Sahtu are predicted to have high densities of breeding waterfowl (Slattery, unpublished data). Such areas supporting higher densities of breeding waterfowl likely represent important habitat and DUC believes that they should be protected to ensure they are not adversely affected by industrial development. For this reason we are pleased that in addition to the Ramparts Watershed and Willow Lake, the following higher density waterfowl areas have been proposed as conservation zones:

- Colville Lake
- Maunoir Dome and Anderson River
- Lac de Bois
- Oscar Lake
- 3-Day Lake
- Stewart Lake

1.5 Recommendations to Protect Important Waterbird Breeding Habitat

- Maintain the entire Ramparts River Watershed in the proposed Ramparts Watershed conservation zone to ensure the critical Ramparts River and Wetlands Complex and its headwaters are protected and to maintain consistency with the NWT Protected Areas Strategy proposed boundary.
- Expanding the conservation zone around Willow Lake to match Key Migratory Bird Terrestrial Habitat Site boundary. This would link Willow Lake and Kelly Lake via the conservation zone which would provide additional protection for this very important waterbird habitat area.

- Maintain the Colville Lake, Maunoir Dome and Anderson River, Lac de Bois, Oscar Lake, 3-Day Lake, and Stewart Lake proposed conservation zones to protect areas supporting higher densities of breeding waterbirds.

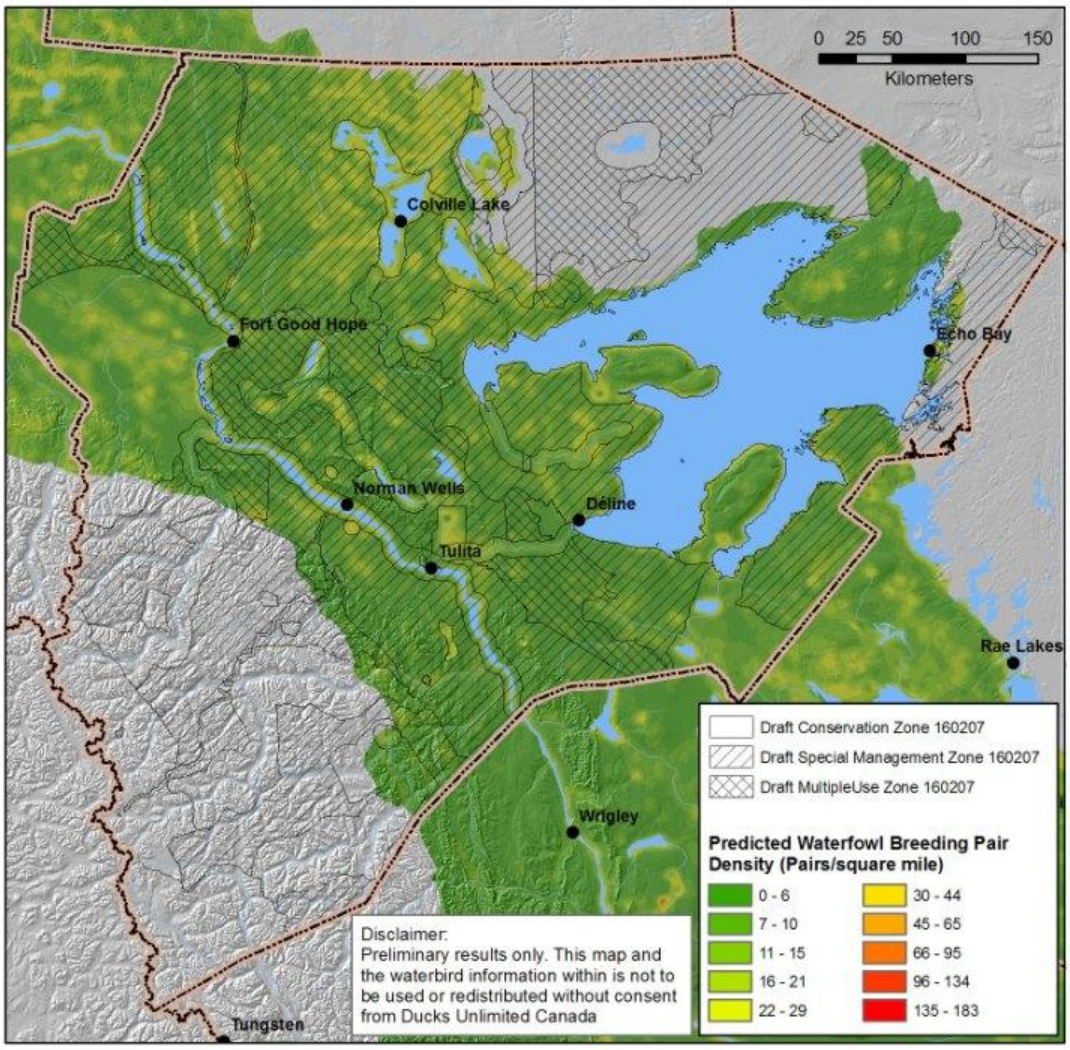

Figure 2. Predicted waterfowl breeding pair densities for the Taiga Plains Ecozone within the Sahtu Settlement Area.

2 Protecting Important Waterbird Staging Habitat

2.1 Lower Mackenzie River Islands and Middle Mackenzie River Islands

The Lower Mackenzie River Islands, between Fort Good Hope and Little Chicago, are identified as Conservation Zones and Special Management Zones on the Sahtu Land Use Plan (Plan) map provided, but they are not mentioned in the text of the Plan. Both the Lower and Middle Mackenzie River Islands are listed as "globally significant" for congregative species and waterfowl concentrations (Bird Studies Canada 2007). They are also listed as Key Migratory Bird Terrestrial Habitat Sites because of their importance as staging areas for migrating snow geese and waterfowl (Latour et al. in press). Staging (occurring in the spring and fall) waterfowl are sensitive to ground-based disturbances, pollution, and habitat degradation (Latour et al. in press). Geese staging on these islands are also an important subsistence food source for many people in the Sahtu. For these reasons, DUC believes that both the Lower Mackenzie River Islands and the Middle Mackenzie River Islands warrant protection as conservation zones.

2.2 Recommendations to Protect Important Waterbird Staging Habitat

- Re-designate the Lower Mackenzie River Islands as conservation zones to ensure the "globally significant" waterbird staging habitat on all of the Mackenzie River Islands is protected from development.

3 Special Management Zone Conditions and Best Practices

3.1 The Need to Manage Habitat outside of Conservation Zones

Many studies looking at effects of land use practices in the boreal forest indicate there is a need to establish and enforce meaningful conditions and/or thresholds where development does occur to ensure animal populations are not adversely affected.

- Approximately 70-80% of boreal forest vertebrate diversity is represented by birds, which occupy a broad range of habitat types including both aquatic and terrestrial habitats (Hobson et al. 2000). Many studies have used birds as indicators of ecological condition (i.e., Croonquist and Brooks 1991, O'Connell et al. 2000, Hausner et al. 2003) because they are sensitive to changes in habitat at local and landscape scales and are relatively straightforward to monitor (Sabo and Holmes 1983, Croonquist and Brooks 1991, Lichstein et al. 2002).

- Riparian projects results indicate some wetland associated species (i.e. common loon) may be sensitive to increases in linear disturbance such as roads and seismic lines (Hobson et al. unpublished data). In Alberta, densities of linear disturbance of 3.5 km/km^2 (roads and seismic lines together based on 5x5 km scale) had an effect on wetland and riparian associated bird communities. However, in Manitoba, as little as 0.35 km/km^2 (roads only based on 5x5 km scale), appeared to result in changes in the bird communities.

- Work on amphibians in Ontario suggests that changes can take a long time to become apparent. There was a lag between road construction and local species extinctions. Therefore monitoring in areas where development does occur is necessary over the long term to determine effects of land use practices (Findlay and Houlahan 1997, Findlay and Bourdages 2000).

- Additionally, DUC's preliminary map of predicted breeding waterfowl densities for the Taiga Plains Ecozone indicates that waterfowl are widely dispersed across the Taiga Plains (Slattery, unpublished data). Because the vast majority of the waterfowl present in the Taiga Plains are outside of the proposed conservation zones (Figure 2), DUC advises that Special Management Zone conditions and best practices be carefully established around wetlands where development activities occur.

For more information and examples of developing and implementing guidelines specific to wetlands, we refer you to the Federal Policy on Wetland Conservation (Government of Canada 1991) and accompanying Implementation Guide (Government of Canada 1996). DUC would be willing, to the best of our ability, to work with the SLUPB to strengthen Special Management Zone Conditions related to wetlands.

3.2 The Need for Research to Inform the Development of Appropriate Special Management Zone Conditions and Best Practices

DUC believes that the Plan should recommend research to inform the development of appropriate Special Management Zone conditions and best practices where development does occur. While studies based in other regions can be useful for predicting the response of species to different management strategies, locally based research provides the highest degree of certainty. Research could include, but not be limited to:

- Ecological research
    - Baseline information regarding wildlife populations in the north.
    - Before and after control impact studies to test the effects of different management approaches on wildlife.
    - Developing ecological indicators of sustainability

- Restoration research because to our knowledge, successful restoration/mitigation in northern areas has not been well researched.

- Simulation models to act as virtual experiments based on real data and provide insight into management approaches before they are implemented.

3.3 The Need for Adaptive Management

DUC believes that the Plan should be flexible enough to add more detailed and appropriate conditions where development does occur in the future, so that as more information becomes available, it can be applied immediately. The science community

does not have a thorough understanding of the effects of habitat disturbance at different spatial scales (local, landscape, and regional) or on the interactions of these effects. Even the baseline ecological information available about bird-habitat relationships in the boreal forest, particularly with respect to wetlands and wetland boundaries, is very limited (Whitaker and Montevecchi 1997, Schieck and Song 2006, but see Kirk et al. 1996), especially in the Northwest Territories.

All management plans face changes in technology, knowledge, social perception, economic opportunity, and ecological conditions (Lovell et al. 2002). According to University of Alberta's Natural Sciences Engineering and Research Council (NSERC) Chair of Integrated Landscape Management, the success of any management plan requires an adaptive management framework to address these uncertainties over time. Three main components are essential to any adaptive management framework: flexibility to make changes over time, monitoring, and research to acquire new knowledge (Gaines et al. 1999). Traditional ecological knowledge (Berkes et al. 2000) combined with western science can also contribute to monitoring strategies and thus to an adaptive management approach for the Plan.

3.4 Recommendations for Special Management Zone Conditions and Best Practices

- Establish and enforce meaningful conditions and/or thresholds where development does occur, especially around wetlands, to ensure bird and other wildlife populations are not negatively affected.
- Include a recommendation that research be planned and implemented to inform the development of appropriate Special Management Zone conditions and best practices where development does occur.
- Include a provision in the Plan for an adaptive management framework that includes the flexibility to make changes over time, monitoring, and research to acquire new knowledge.

4 Ecological Representation

4.1 Incorporating Ecological Representation

DUC commends the SLUPB for recognizing the importance of ecological representation in the Plan. The work that DUC contributed to via the NWT Protected Areas Strategy partnership, to identify ecologically representative areas, was considered by the SLUPB when developing this first draft. Since then, an updated analysis has been provided. DUC recommends that this most recent information be considered in the next draft of the Plan. Some areas that have been identified as potentially having high ecological value need to be investigated further to substantiate and fully understand their importance. DUC would support and work with the SLUPB to evaluate these areas further.

4.2 Recommendation for Incorporating Ecological Representation

- The most recent information about ecologically representative areas, provided by the NWT Protected Areas Strategy partnership, should be incorporated into the Plan. DUC staff will work with the SLUPB to fulfill this recommendation.

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