Table 5-11: Mean Density of Upland Bird Species, combined 2008 and 2009

Species	Mean Density (Range[a]) [Individuals per Hectare]
Lapland Longspur	0.3 (0.0 – 3.8)
Horned Lark	0.3 (0.0 – 6.4)
American Pipit	0.1 (0.0 – 3.8)
Savannah Sparrow	0.3 (0.0 – 5.1)
Redpoll species	<0.1 (0.0 – 1.3)
White-crowned Sparrow	<0.1 (0.0 – 1.3)
Snow Bunting	<0.1 (0.0 – 3.8)
Least Sandpiper	<0.1 (0.0 – 2.5)
Semipalmated Plover	<0.1 (0.0 – 1.3)
Unidentified	<0.1 (0.0 – 1.3)

Note: < indicates less than
[a] minimum to maximum values

5.6 Shorebirds

In 2008, 4 shorebird species were recorded in the Project area, including Least Sandpiper, Semipalmated Sandpiper, American Golden Plover (*Pluvialis dominica*), and Semipalmated Plover. However, only Semipalmated Plovers were recorded during PRISM surveys. In 2009, Least Sandpiper, Semipalmated Sandpiper, and Semipalmated Plovers were again observed along with one additional species observed, Dunlin (*Calidris alpina*). All 4 species were recorded during PRISM surveys in 2009. Seven PRISM plots were surveyed in June 2008 and 9 plots were surveyed in June 2009 (Appendix B5; Table 5-12; Figure 5-3). The highest number of individuals counted in one plot was 3 in 2009.

Table 5-12: PRISM Survey Observations, 2008 and 2009

Habitat Type	Habitat Quality	Shorebird Species Observed	Number	Sex
Tussock/hummock	Fair	Semipalmated Plover	2	Pair
Heath tundra	Fair	Semipalmated Plover	1	Unknown
Sedge wetland	Good	Least Sandpipers	2	Pair
Sedge wetland	Good	Dunlin	1	Unknown
Heath tundra	Fair	Semipalmated Sandpiper	1	Unknown

Density of shorebirds/ha ranged from 0 to 0.05 (Table 5-13). The mean Simpson's inverse index for diversity was similar between years (Table 5-13). This index is a measure of species richness, but is more sensitive to evenness (i.e., the abundance of individuals from each species). The value of this index ranges from 1 to 5, with the higher values indicating greater diversity. This result, with a maximum value of 1.6 in 2009, indicates that shorebird diversity in the study area is low.

Table 5-13: Species Richness, Total Abundance, Density, and Diversity within PRISM plots, 2008 and 2009

Year	Species Richness		Total Abundance			Density (per ha)		Diversity[a]	
	Total	Range	Total	Mean ± SE	Range	Mean ± SE	Range	Mean ± SE	Range
2008	1	0-1	2	0.3 ± 0.3	0-2	0.02 ± 0.02	0.0-0.2	1.0 ± 0.0	1
2009	4	0-2	5	0.6 ± 0.3	0-3	0.05 ± 0.03	0.0-0.3	1.2 ± 0.2	1-1.6
Overall	4	0-2	7	0.4 ± 0.2	0-3	0.04 ± 0.02	0.0-0.3	1.1 ± 0.1	1-1.6

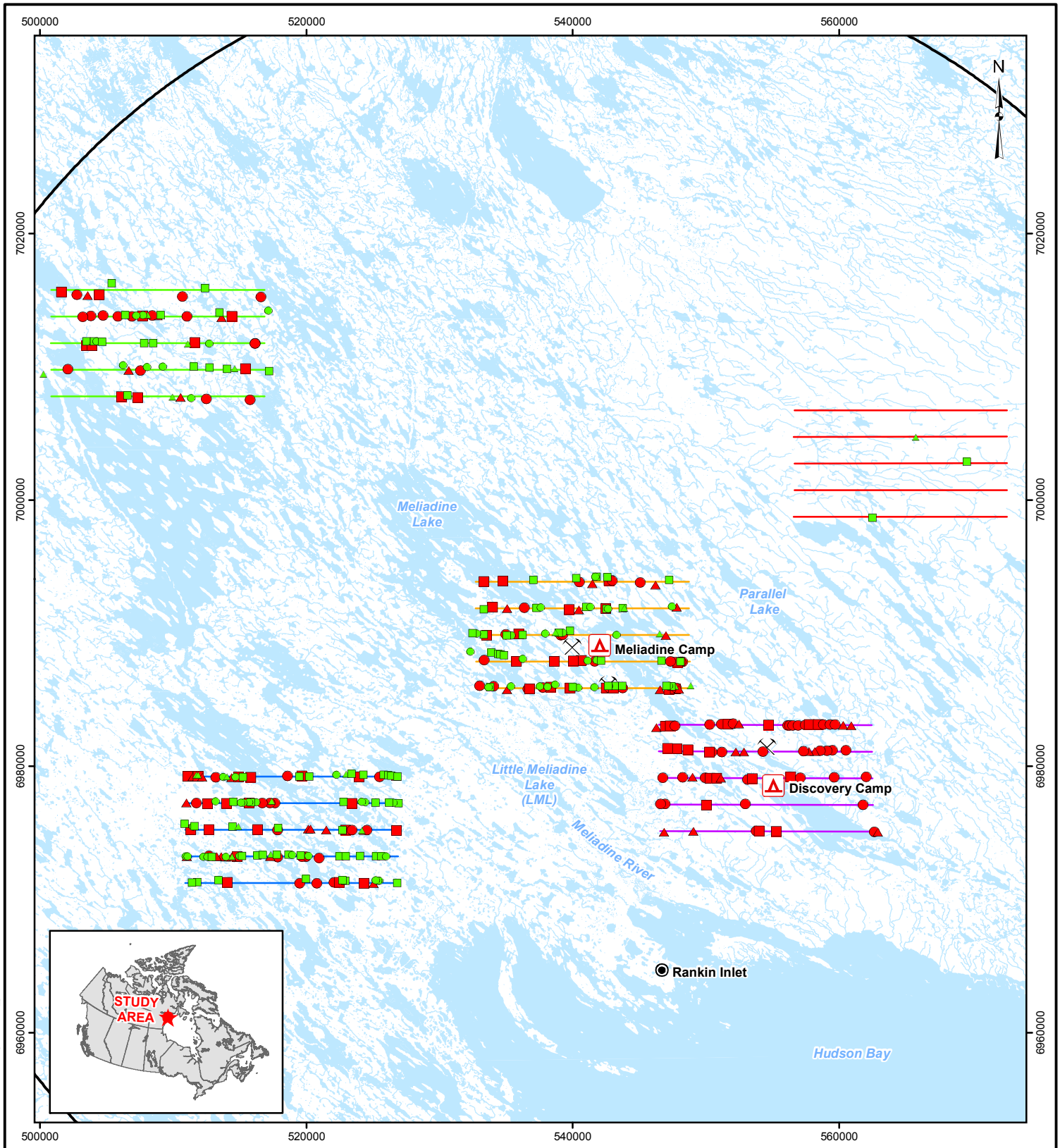
Note: ha= hectare; PRISM=Program for Regional and International Shorebird Monitoring; ± = plus or minus
[a] Simpson's Inverse Index

No shorebird species were confirmed as breeding because shorebird nests were not observed during PRISM surveys or during other surveys. The small number of observations and lack of breeding confirmation of any shorebird species may be related to the relative lack of good shorebird nesting habitat in the area as well as the small number of plots surveyed.

5.7 Waterfowl

The Project area is made up of numerous lakes, ponds, and wetlands. These water bodies provide habitat for migratory waterfowl, and breeding habitat for geese, ducks, Tundra Swans, loons and Herring Gulls. Aerial surveys can be used to index the abundance of waterfowl in extensive, inaccessible arctic breeding areas (McLaren and Alliston 1985; Conant et al. 2006; Conant et al. 2007). Monitoring for disturbance to breeding waterfowl is important, as disturbance can result in a decline in the number of breeding pairs, increased desertion of nests, reduced hatching success, and decreased duckling survival (Korschgen and Dalhgren 1992). Sandhill Cranes were also counted during these surveys due their common presence across the tundra in the area.

Waterfowl aerial surveys in June and July of 2008 and 2009 recorded 3 to 12 species within the 5 different strata (Appendix B6; Tables 5-14 and 5-15). The population indices were higher for June than July, and higher in 2009 than in 2008. In both years, many lakes and wetlands still had ice cover in June, whereas in July, all water was ice-free. In June 2008 and 2009, and July 2008, the South stratum had highest density of birds. In July 2009, the Mine stratum had the highest density. Densities were similar within strata between years. Overall, waterfowl density was greater in June 2009 than in June 2008 and, conversely, greater in July 2008 than July 2009 (Figures 5-15 and 5-16).



LEGEND

- Camp
- Proposed Mine Site

Waterfowl Observation (June 2008)
- Group
- Pair
- Single

Waterfowl Observation (June 2009)
- Group
- Pair
- Single

- Watercourse

Waterfowl Transect
- East Stratum (2008)
- Mine Stratum (2008 and 2009)
- North Stratum (2008 and 2009)
- South Stratum (2008 and 2009)
- Discovery Stratum (2009)
- Terrestrial Regional Study Area
- Waterbody

REFERENCE

Base data obtained from NTDB. Wildlife data obtained from field survey.
Projection: UTM Zone 15 Datum: NAD 83

DRAFT

10 0 10
SCALE 1:400,000 KILOMETRES

PROJECT
COMAPLEX MINERALS CORP

COMAPLEX MINERALS CORPORATION
MELIADINE GOLD PROJECT
NUNAVUT

TITLE

JUNE WATERFOWL OBSERVATIONS

Golder Associates
Edmonton, Alberta

PROJECT NO. 09-1373-0010			PHASE No. 1000	
DESIGN	PS	23 Oct. 2009	SCALE AS SHOWN	REV. 0
GIS	JW	6 Nov. 2009		
CHECK	PS	13 Nov. 2009		
REVIEW	MJ	13 Nov. 2009		

FIGURE 5-15

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