

Figure 4.6-1c

## 4.7 SHORT-EARED OWL

### 4.7.1 Background

The short-eared owl is a ground-nesting raptor that breeds in the Arctic during the summer and overwinters in southern regions (Clark 1975; Ims and Fuglei 2005) (Plate 4.7-1). This species is found throughout the eastern and western hemispheres (Wiggins, Holt, and Leasure 2006). Populations fluctuate significantly on an approximately three year cycle in response to lemming populations (Ims and Fuglei 2005). Short-eared owls utilize a variety of habitat that contains enough ground cover to hide nests, as well as areas that support small mammals (their primary food source) (Alderfer 2006).



Plate 4.7-1. Short-eared owl nest found in the LSA during the summer season, June 2010.

The short-eared owl is ranked as special concern by COSEWIC (2009) and is considered sensitive in Nunavut by the Canadian Endangered Species Conservation Council (CESCC 2006). Nationally, populations of short-eared owl are decreasing, largely due to sensitivity to anthropogenic disturbance (COSEWIC 2009). For these reasons, habitat suitability modelling was completed.

### 4.7.2 Habitat Suitability Model Development

Breeding density and success of short-eared owls are linked to lemming cycles (Ims and Fuglei 2005). During the low phase of the lemming cycle, very few owls (or none at all) appear on the breeding grounds, while the opposite happens in lemming peak years (Ims and Fuglei 2005). The birds are nomadic, and they will move over vast areas in search of regions with high peak lemming populations (Gauthier et al. 2003), or drift through as non-breeders (Pitelka 1974).

Short-eared owls are largely diurnal (Village 1987) and regularly hunt during dawn and dusk (Taylor 1984; Schmelzer 2005). They are small mammal specialists with a narrow, mainly mammalian, food niche made up almost exclusively of voles and lemmings, especially in the non-breeding season

(Clark 1975; Taylor 1984; Holt 1993). Small birds, especially shorebirds (Earhart and Johnson 1970; Holt 1993; Holt 1994), and insects and crustaceans (Holt 1993) have also been taken as prey. Males usually do all the hunting, and bring back the food to the nest where the females will incubate the eggs or feed offspring (Clark 1975).

Short-eared owls live in open habitats and nest on the ground (Snyder and Wiley 1976). Female owls make a rudimentary nest on the ground by gathering leaves, feathers, or grass (Wiggins, Holt, and Leasure 2006). Nests are hidden in dense vegetation, often close to water, under low shrubs, reeds and grasses. Females are attentive and stay with the nest until all the young have left (Clark 1975).

Courtship begins as early as April in Nunavut, and clutch sizes are larger when food is abundant (Schmelzer 2005). The hatchlings leave the nest and begin flying after 24-27 days (Schmelzer 2005), but depend on their parents for about seven weeks. The young are entirely dependent upon parents for food even after they have fledged (Clark 1975). Parental care patterns are poorly understood, but it appears that females brood and feed the young, while the males hunt and provide the majority of the food (Schmelzer 2005). The parents stay together until the young can fly and are self-sufficient and pairs likely last for a single season only (Holt and Leasure 1993).

Habitat suitability modelling was conducted for the spring (nesting) and summer (brood rearing) seasons. The life requisites assigned to spring were living and reproducing, while the only life requisite assigned to summer habitat was living (Table 4.7-1).

**Table 4.7-1. Seasonal Life Requisites of Short-eared Owl**

Season	Date	Life Requisite	Habitat Preference
Spring (Nesting)	May - June	Living and Reproducing	Dense vegetation close to water
Summer (Brood Rearing)	July - August	Living	Nest sites close to prey (hunting opportunities)

#### 4.7.2.1 *Model Assumptions*

The HSRs for the ecosystem units are described in Appendix 7 (Table 1.4-2). The following general assumptions were made to define HSRs:

##### Spring (Nesting)

- Suitable habitat ratings for the spring season were assigned to ten ecosystem units that provide suitable cover for nesting locations and hunting opportunities nearby. Suitable ecosystem units included: betula-ledum-lichen, betula-moss, dry willow, dryas-herb mat, emergent marsh, wet meadow, polygonal ground, eriophorum tussock meadow, riparian willow, and shallow open water.
- Not suitable habitat includes 13 ecosystem units that contain sparse vegetative cover and limited prey potential. These ecosystem units are: beach materials, blockfield, disturbance features, dry carex-lichen, dwarf shrub-heath, exposed soil and barren areas, lake, low bench floodplain, pond, river, rock outcrop, rubble, and salt water.

##### Summer (Brood Rearing)

- Suitable summer habitat includes all the ecosystem units considered high value for the spring season, along with several units that contain sparse or emergent vegetation not suitable for nesting, but that provide hunting opportunities. The 13 suitable ecosystem units are: betula-ledum-lichen, betula-moss, dry willow, dryas-herb mat, emergent marsh, wet meadow,

polygonal ground, eriophorum tussock meadow, riparian willow, dry carex-lichen, dwarf shrub-heath, pond, and shallow open water.

- o Non suitable summer habitat includes ten ecosystem units with little or no vegetation: beach materials, blockfield, disturbance features, exposed soil and barren areas, lake, low bench floodplain, river, rock outcrop, rubble, and salt water.

#### 4.7.3 Results and Discussion

The majority of the LSA was considered to be suitable habitat for both seasons (Table 4.7-2; Figures 4.7-1, 4.7-2), with 75.3% and 78.5% considered suitable in spring and summer, respectively. These results are largely based on the abundance of suitable nesting habitat and relative rarity of ecosystem units that contain little vegetation.

**Table 4.7-2. Area and Proportion of Suitable and Not Suitable Habitat within the LSA for Short-eared Owl**

Suitability Rating	Amount of Habitat	
	Area in LSA (ha)	Percent of LSA (%)
<b><i>Spring (Nesting)</i></b>		
Suitable	42,404.4	75.3%
Not Suitable	13,872.6	24.7%
<b><i>Summer (Brood Rearing)</i></b>		
Suitable	44,171.6	78.5%
Not Suitable	12,105.4	21.5%

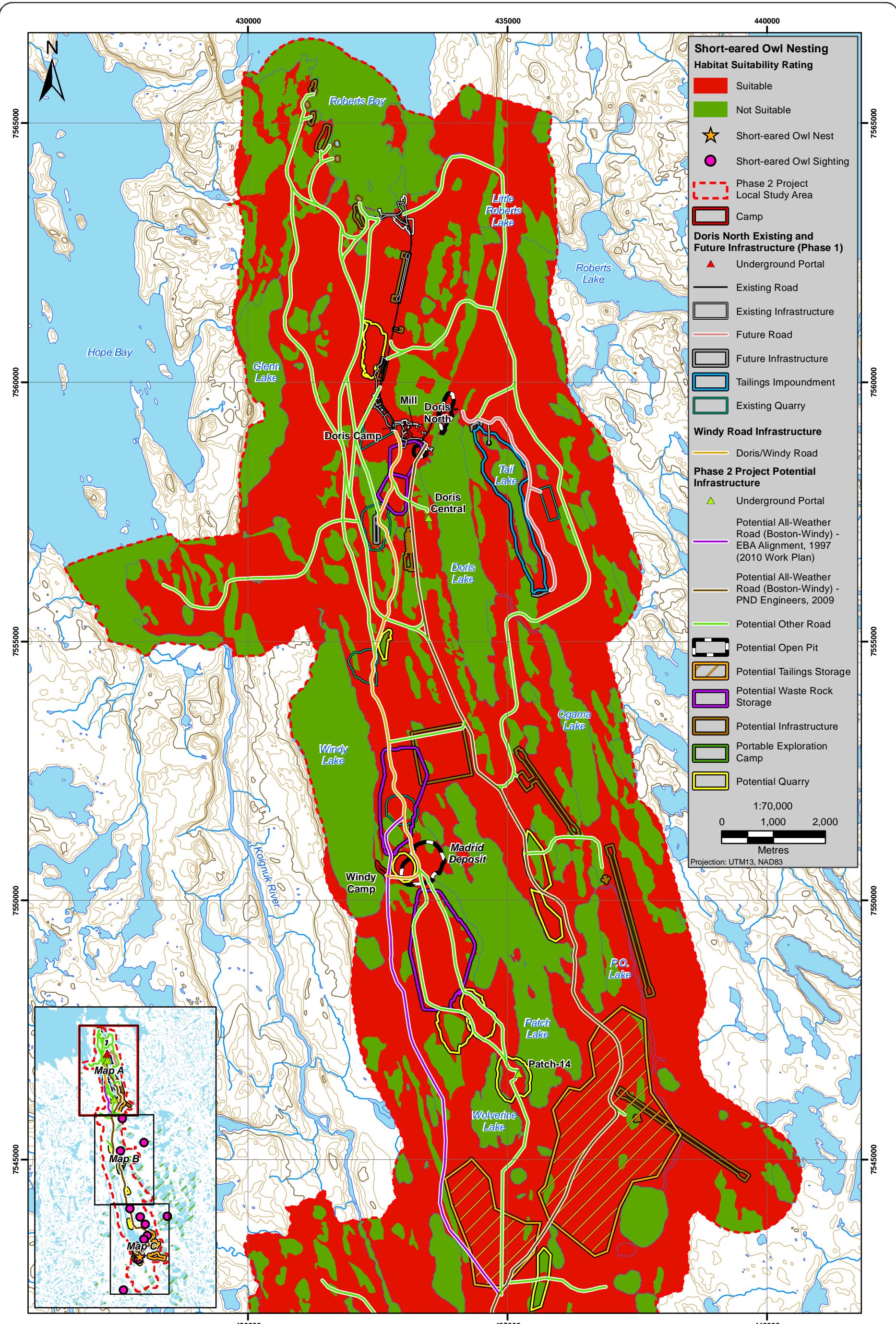


Figure 4.7-1a