

Figure 4.4-3c

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4.4.3 Results and Discussion

The majority of the LSA during the spring season is considered to provide low (53.9%) and moderate value habitat (39.9%), with very little high value habitat (3.3%) for grizzly bears (Table 4.4-2; Figure 4.4-1). The predominance of low and moderate spring ratings is largely due to a lack of caribou calving grounds in the LSA. High spring habitat is primarily composed of esker habitat and ecosystem units that support over-wintered berries or Arctic ground squirrel. Summer suitability of the LSA is largely moderate (39%) and high (29.5%) value habitat (Figure 4.4-2) due to the abundance of forage and post-calving caribou movements. Fall suitability of the LSA is similar to spring with 57.4% considered moderate value and 15.5% rated as high value (Figure 4.4-3). The reduction of fall high suitability habitat is related to reduced forage opportunities and a higher reliance on caribou and Arctic ground squirrel.

Table 4.4-2. Area and Proportion of High, Moderate, Low, and Nil-rated Habitat within the LSA for Grizzly Bear

| Suitability Rating | Amount of Habitat | |
|--------------------|-------------------|--------------------|
| | Area in LSA (ha) | Percent of LSA (%) |
| Spring | | |
| High | 1,846.4 | 3.3% |
| Moderate | 22,440.3 | 39.9% |
| Low | 30,325.8 | 53.9% |
| Nil | 1,664.5 | 3.0% |
| Summer | | |
| High | 16,577.5 | 29.5% |
| Moderate | 21,939.4 | 39.0% |
| Low | 6,772.4 | 12.0% |
| Nil | 10,987.7 | 19.5% |
| Fall | | |
| High | 8,731.5 | 15.5% |
| Moderate | 32,276.0 | 57.4% |
| Low | 5,616.9 | 10.0% |
| Nil | 9,652.6 | 17.2% |

Other important grizzly bear habitat features in the LSA included 606 hectares of buffered (100 metres) streams and rivers that are known to have large annual runs of Arctic char and/or lake trout (Rescan 2011d). The total areas ranked as high/moderate value summer/fall habitat were adjusted to include habitat with Arctic char (Table 4.4-2). Although field surveys indicate that these fish runs provide a local food source, whether or not grizzly bears actually use all habitat providing this food source is unknown.

Grizzly bear habitat suitability assessments for the RSA were presented as overall ratings (averaged to represent mean annual habitat use instead of specific seasons) for females with cubs and males (Miramar 2005). It was found that the RSA contained 18.4% high, 47.7% moderate, 0.4% low, and 33.4% nil value habitat for females with cubs, and 11.5% high, 25.9% moderate, 30.1% low, and 33.4% nil value habitat for males. As the methods used to assess the RSA and LSA differ, direct comparisons are not possible.

4.5 GREY WOLF

4.5.1 Background

The grey wolf was once abundant over much of North America and Eurasia; however, its range has reduced due to habitat fragmentation and hunting. The grey wolf (Plate 4.5-1) is still widespread throughout much of northern Canada, including the West Kitikmeot Region of Nunavut. Populations are stable or increasing within their Canadian range, except in northern Alberta and some parts of the NWT (Hayes and Gunson 1995).



Plate 4.5-1. Grey wolf observed in the LSA in esker denning habitat during the spring season, June 2010.

4.5.2 Habitat Suitability Model Development

Within their home ranges, grey wolves in the central Arctic showed a preference for eskers (McLoughlin et al. 2004). Within home range habitat, selection was not linked to ecosystem types. The annual home ranges of wolves contained proportionally more esker habitat, followed by heath tundra (McLoughlin et al. 2004). In addition to these two habitat types, wolves selected areas with heath boulder, heath bedrock, bedrock, tussock/hummock, wetland, lichen, tall shrub and birch seep. McLoughlin et al. (2004) found that boulder fields were the least preferred habitat and that exposed bedrock was the most preferred habitat type within home ranges.

The primary prey of grey wolves is barren-ground caribou, which they follow for hundreds of kilometres every year (Frame 2005). Caribou in the Canadian Arctic are the only species that occur at densities sufficient to support the wolf population (Walton et al. 2001). Tundra wolves also feed on muskox, small mammals such as hares, foxes, rodents, and small amounts of plant material.

The life requisites rated for habitat suitability for the grey wolf are living and reproducing during spring (denning) and summer (pup-rearing) (Table 4.5-1). Wolves breed once per year, typically during March

or April. After a nine-week gestation period, litters remain in dens for up to two weeks. Throughout the late spring and early summer pups remain close to dens, while adults hunt nearby. By late summer to early fall they join the pack as it follows caribou and begin to participate in hunting activities.

Table 4.5-1. Seasonal Life Requisites of Grey Wolf

| Season | Date | Life Requisite | Habitat Preference |
|-------------|------------------|------------------------|--------------------------|
| Denning | May - July | Living and Reproducing | Eskers, near prey |
| Pup Rearing | August - October | Living | See locations of caribou |

4.5.2.1 Model Assumptions

The assumptions for grey wolf were based on literature reviews, suitability mapping completed for similar projects in Nunavut and the NWT, and field assessments. The HSRs for the ecosystem units are described in Appendix 5 (Table 5-2).

Spring (Denning)

Habitat preference in the denning season is focused on locations with suitable denning substrates (i.e., eskers and other surficial material such as gravel where the permafrost layer is deep and soils are relatively loose). Nearby high quality habitat that contains suitable prey is also important. The following general assumptions were made to define denning HSRs:

- High value habitat was restricted to eskers in the LSA. Eskers modelled from terrain mapping contain the only known potential denning locations for grey wolves in the LSA.
- Moderate ratings were given to three ecosystem units that are most likely to contain prey: dry carex-lichen, dwarf shrub-heath, and eriphorum tussock meadow.
- Low ratings were given to 15 ecosystem units that have the potential to contain prey: betula-ledum-lichen, betula-moss, dry willow, dryas-herb mat, emergent marsh, wet meadow, polygonal ground, exposed soil and barren areas, lakes, low bench floodplain, ponds, riparian willow, river, rock outcrop, and shallow open water.
- Nil habitat ratings were assigned to five ecosystem units that do not provide hunting opportunities during the denning season including: beach materials, disturbance features, exposed soil and barren areas, rubble, and salt water.

Model Adjustments

As the high value esker habitat is the focus of denning season suitability, HSRs assigned to ecosystem units were modified. These values were downgraded (a value of 1 added to each polygon) to increase the weighted HSR value for each polygon to reflect that all habitat in the LSA that is not suitable for denning is considered to provide a food source of varying quality.

Summer (Pup Rearing)

Habitat suitability early in the pup rearing season is largely dependent on the availability of prey near active dens. During this period, pups and adults remain in the vicinity of denning or other rendezvous locations. Adults leave for periods of time to hunt, with pups gradually joining the excursions as they grow. Pups are almost fully grown and travelling with the pack by late summer/early fall. The following general assumptions were made to define pup rearing HSRs:

- High ratings were given to eskers in the LSA which are most likely to contain den locations, as well as two willow-dominated ecosystem units: dry willow and riparian willow.

- Moderate ratings were given to the majority of the vegetated ecosystem units, as these areas are most likely to contain prey. As well, beaches and intertidal zones were also considered to have moderate values based on numerous wolf observations made during field surveys. Sixteen ecosystem units were determined to provide moderate value habitat: beach materials, betula-ledum-lichen, betula-moss, dry carex-lichen, dryas-herb mat, dwarf shrub-heath, emergent marsh, wet meadow, polygonal ground, eriophorum tussock meadow, lake, low bench floodplain, pond, river, rock outcrop, and shallow open water.
- Low ratings were given to two ecosystem units that are unlikely to contain prey (exposed soil and barren) or where travel would be difficult (boulder dominated blockfields).
- Nil habitat ratings were assigned to three ecosystem units that do not provide hunting opportunities during the pup rearing season including: disturbance features, rubble, and salt water.

4.5.3 Results and Discussion

The results of the suitability mapping indicate that high value denning habitat is rare in the LSA (0.7%), while low and moderate value hunting habitat during the denning season is common (Table 4.5-2; Figure 4.5-1). The limited amount of high value denning habitat in the LSA is consistent with studies in the Canadian Arctic, which indicate that esker habitat comprises approximately 1-2% of the landscape (McLoughlin et al. 2004). The rarity of suitable denning habitat is likely a limiting factor for the expansion of northern populations of wolves (McLoughlin et al. 2004). High value pup rearing habitat includes eskers and willow-dominated areas which comprise 11.9% of the LSA. The majority of the LSA (76.6%) is considered to have moderate pup rearing values (Table 4.5-2; Figure 4.5-2).

Table 4.5-2. Area and Proportion of High, Moderate, Low, and Nil-rated Habitat within the LSA for Grey Wolf

| Suitability Rating | Amount of Habitat | |
|-----------------------------|-------------------|--------------------|
| | Area in LSA (ha) | Percent of LSA (%) |
| Spring (Denning) | | |
| High | 395.3 | 0.7% |
| Moderate | 19,112.0 | 34.0% |
| Low | 33,329.1 | 59.2% |
| Nil | 3,440.6 | 6.1% |
| Summer (Pup Rearing) | | |
| High | 6,719.8 | 11.9% |
| Moderate | 43,080.6 | 76.6% |
| Low | 5,730.1 | 10.2% |
| Nil | 746.5 | 1.3% |

Grey wolves were not assessed in the RSA habitat suitability models (Miramar 2005).

4.6 TUNDRA PEREGRINE FALCON

4.6.1 Background

There are three subspecies of peregrine falcon in Canada, each with distinct distributions. The tundra peregrine falcon is a cliff-nesting raptor that is highly migratory and breeds in the Canadian Arctic, Alaska, and Greenland (Plate 4.6-1). Peregrine falcons travel as far south as Argentina and Chile for the winter.

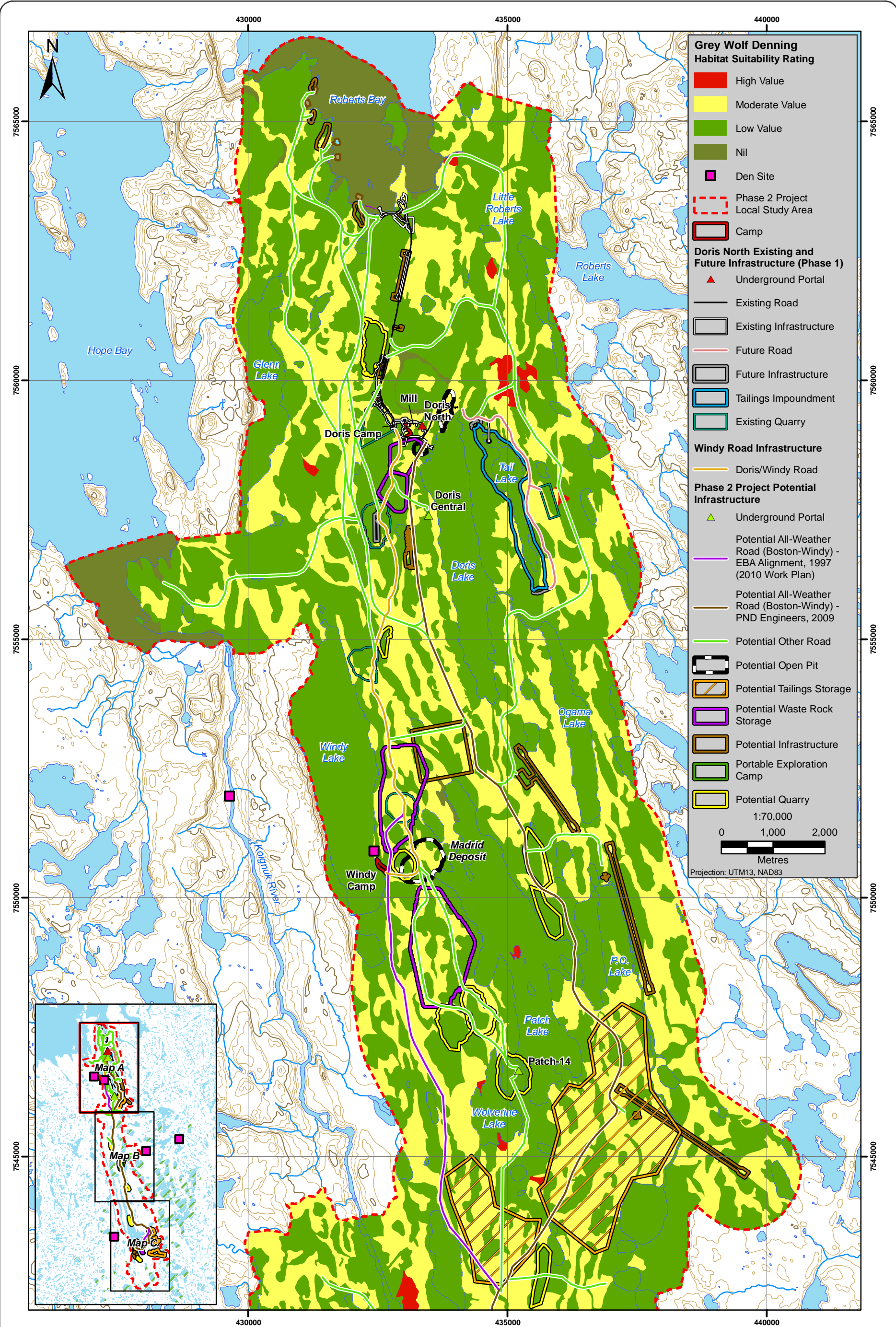


Figure 4.5-1a

Figure 4.5-1a