

Table 4.21 Univariate statistics of patch edge-to-area ratios in the FMA area

Time	Edge-To-Area (m/m <sup>2</sup> )			
	Mean	Min.	Max.	Standard Dev.
0	0.0167	0.0022	0.0379	0.0067
20	0.0184	0.0040	0.0772	0.0086
50	0.0165	0.0013	0.0417	0.0074
100	0.0188	0.0042	0.0576	0.0077
180	0.0198	0.0052	0.0576	0.0083

Alberta Sustainable Resource Development established a targeted minimum amount of Caribou habitat (as defined above) within the Caribou zone of ANC’s FMA area at 54,923 ha. This amount is based on the habitat needs of current Caribou populations.

The current amount of Caribou habitat is 94,405 ha. This amount drops to 82,648 ha after twenty years, increases to 104,829 after 50 years and drops again to 54,170 hectares after 100 years. It is not until year 180 that we see habitat values go below the targeted amount.

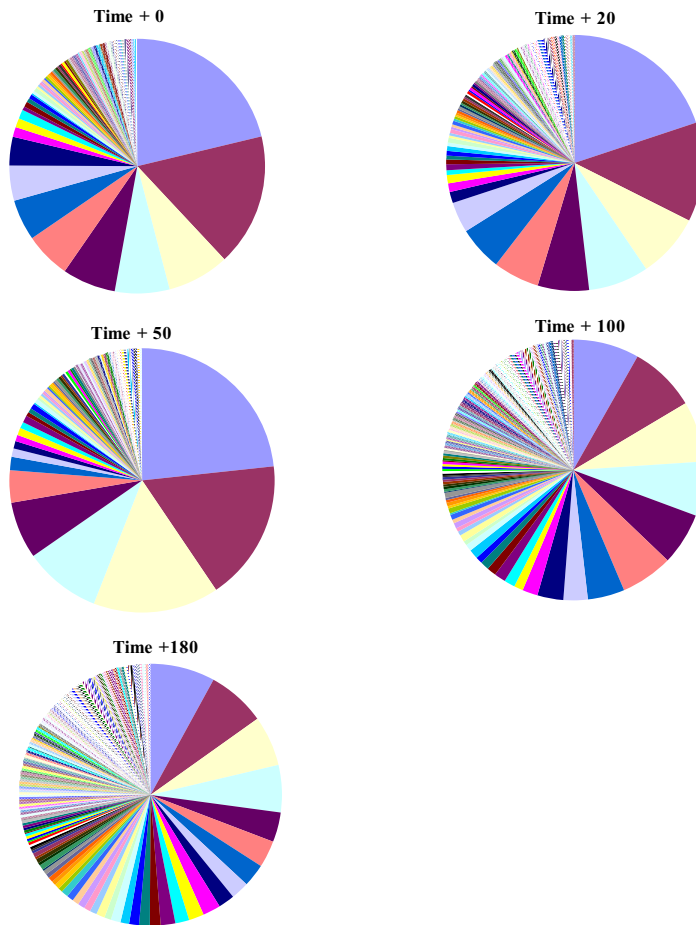


Figure 4.55b Caribou Habitat Patch Size Fragmentation Over the Planning Horizon; Each Slice Represents the Area of One Patch.

Fragmentation of caribou habitat (Figure 4.55b) will be most favorable 50 years from now as there will be fewer and larger patches comprising more area. After 50 years the larger patches will become more fragmented and, consequently, there will exist a greater number of smaller patches comprising more of the total habitat area at 100 and 180 years from now. Mean edge to area will remain stable in the future, although the general trend is predicted to increase slightly. Figures 4.56-4.59 show the change in predicted caribou habitat in the Caribou Zone at four points in time.

### 4.3.8 Habitat Type 8 — Grizzly Bear Habitat

Using models developed in discussions with Foothills Model Forest researchers, the following Grizzly Bear habitat predictions were developed.

Grizzly bear habitat is modelled for fall feeding season using the Habitat Suitability Index (HSI) model. The HSI model predicts available habitat based on habitat structure, habitat type, and spatial arrangements between habitat features, which are described in detail by independent habitat components in Section 2.3.6.8. HSI ranges between 0 and 1, where 0 indicates unsuitable habitat and 1 indicates the most suitable habitat. HSI is evaluated at both a stand level and a 9-km<sup>2</sup> grid level. For grizzly bear habitat to be effective it must also have limited road densities with a critical threshold of less than or equal to 0.3 km/km<sup>2</sup>.

Tables 4.22-4.27 and Figure 4.60-4.62 summarize the results for this habitat type.

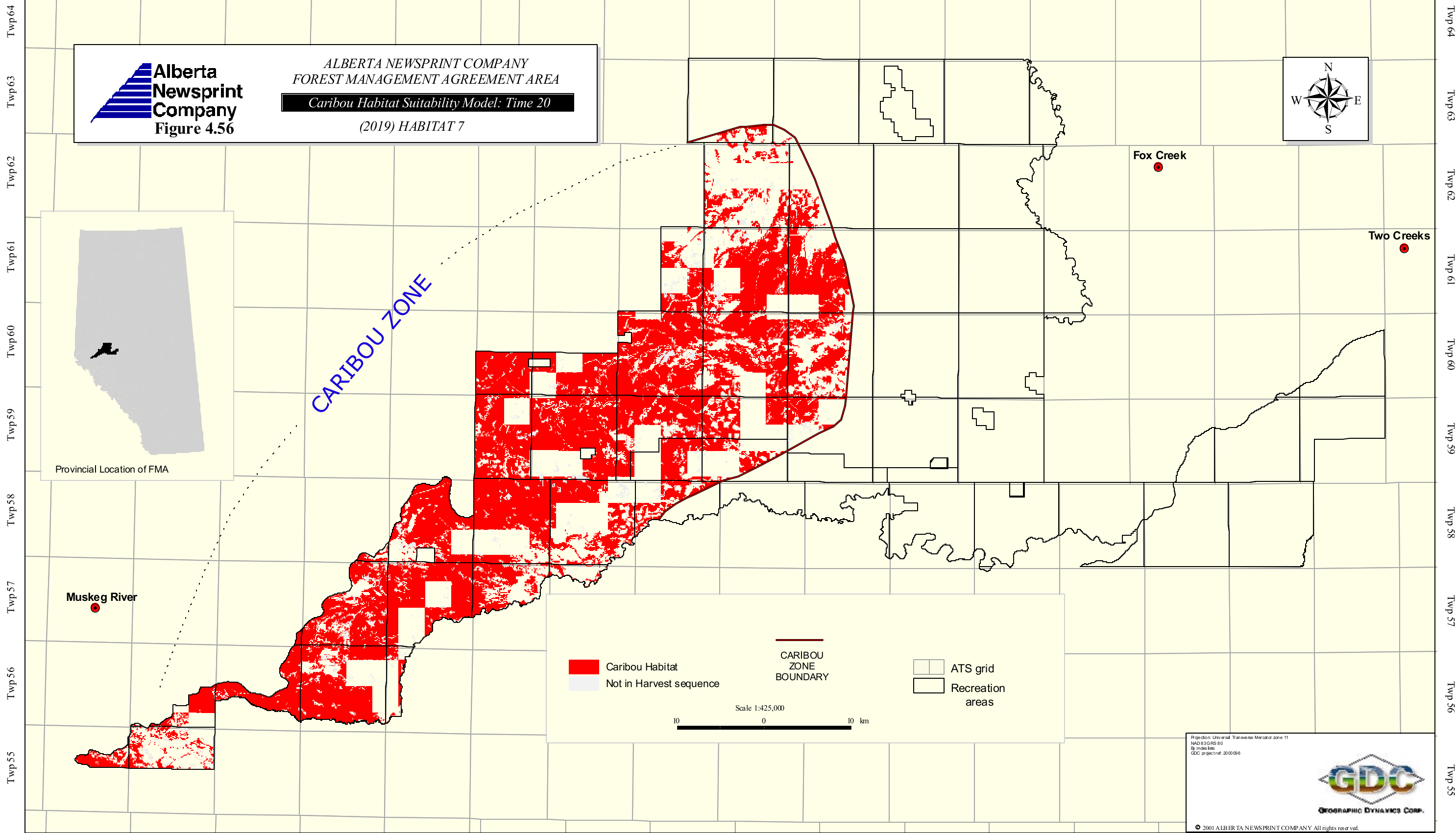
Table 4.22 Area summary in hectares aggregated, by grizzly bear HSI

HSI	1999	2019	2049	2099	2179
0	101,092	86,686	68,743	67,753	57,300
0-0.4	147,752	137,036	136,799	136,164	138,024
0.4-0.7	109,310	105,737	105,969	115,765	115,251
0.7-1	20,571	49,266	67,214	59,043	68,150
Total (ha)	378,725				

Table 4.23 Percent area summary aggregated, by grizzly bear HSI

HSI	1999	2019	2049	2099	2179
0	26.7%	22.9%	18.2%	17.9%	15.1%
0-0.4	39.0%	36.2%	36.1%	36.0%	36.4%
0.4-0.7	28.9%	27.9%	28.0%	30.6%	30.4%
0.7-1	5.4%	13.0%	17.7%	15.6%	18.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

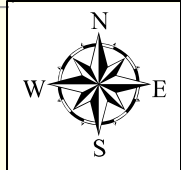
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**Figure 4.56**

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 FOREST MANAGEMENT AGREEMENT AREA

*Caribou Habitat Suitability Model: Time 20*  
 (2019) HABITAT 7



CARIBOU ZONE

- Caribou Habitat
- Not in Harvest sequence
- CARIBOU ZONE BOUNDARY
- ATS grid
- Recreation areas

Scale 1:425,000  
 10 0 10 km

Projection: Universal Transverse Mercator zone 11  
 NAD83 GRS 80  
 6° north lat  
 GDC project ref: 2010/016

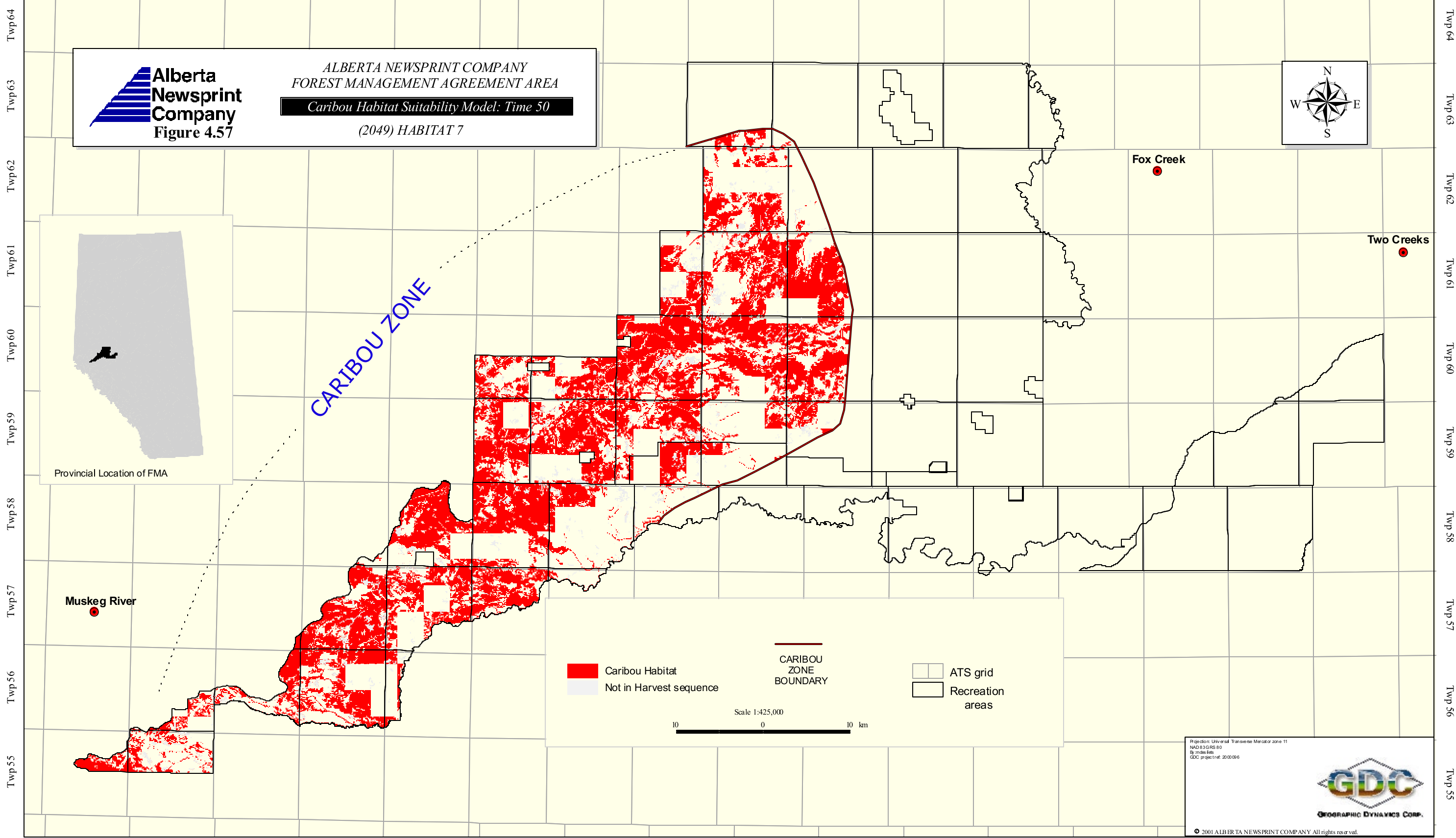
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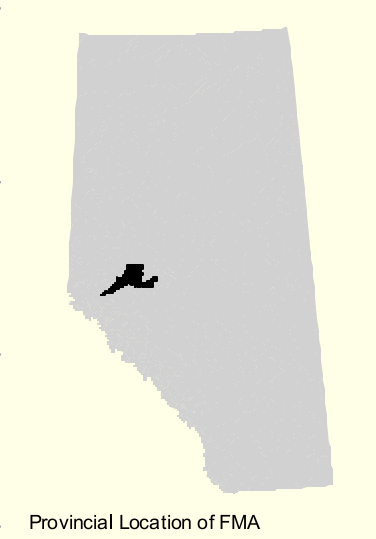
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**Figure 4.57**

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 FOREST MANAGEMENT AGREEMENT AREA

*Caribou Habitat Suitability Model: Time 50*  
 (2049) HABITAT 7



CARIBOU ZONE

- Caribou Habitat
- Not in Harvest sequence
- CARIBOU ZONE BOUNDARY
- ATS grid
- Recreation areas

Scale 1:425,000

10 0 10 km

Projection: Universal Transverse Mercator zone 11  
 NAD 83 GRS 80  
 30 metres file  
 GDC project ref: 200008



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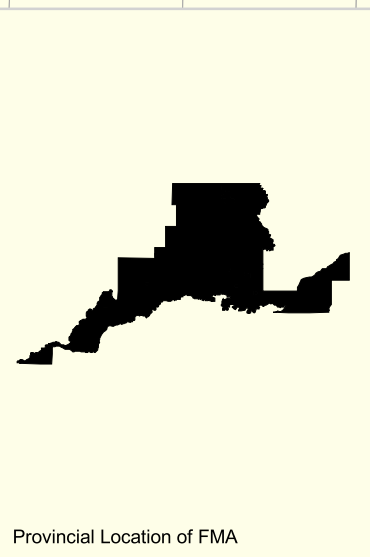
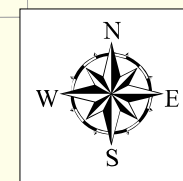
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FOREST MANAGEMENT AGREEMENT AREA  
Caribou Habitat Suitability Model: Time 100  
(2099) HABITAT 7



Provincial Location of FMA

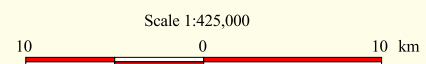
CARIBOU ZONE

Fox Creek

Two Creeks

Muskeg River

- Caribou Habitat
- Not in Harvest sequence
- CARIBOU ZONE BOUNDARY
- ATS grid
- Recreation areas



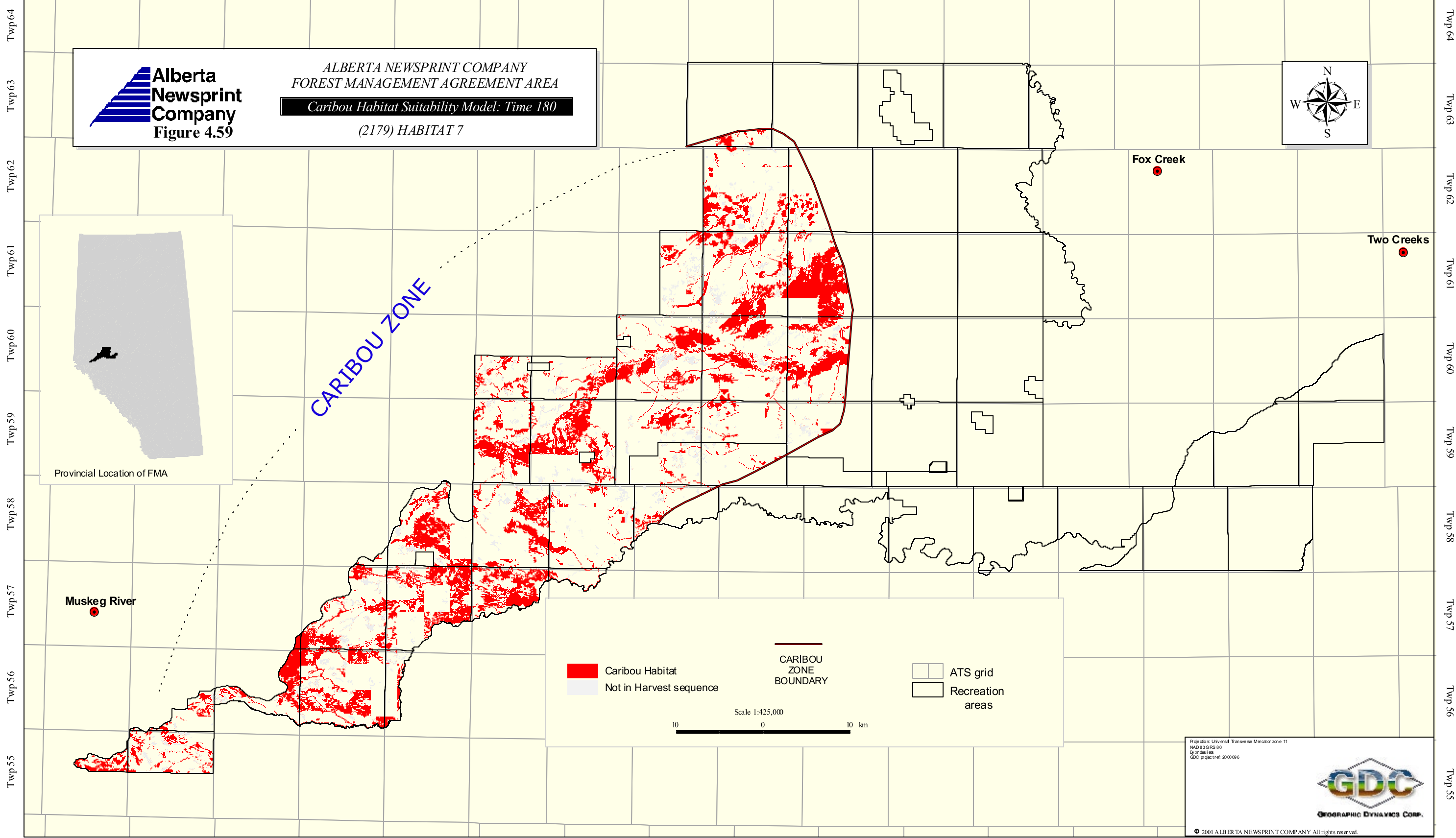
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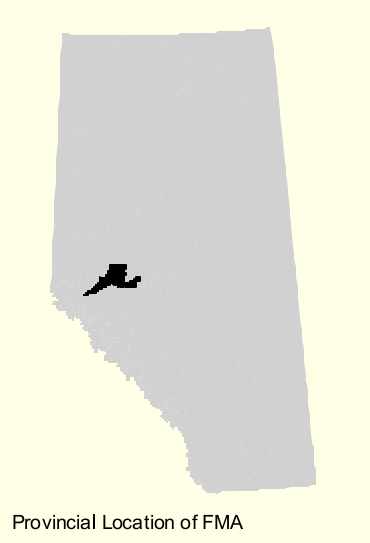
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 FOREST MANAGEMENT AGREEMENT AREA  
**Caribou Habitat Suitability Model: Time 180**  
 (2179) HABITAT 7



Provincial Location of FMA

CARIBOU ZONE

■ Caribou Habitat  
■ Not in Harvest sequence  
 CARIBOU ZONE BOUNDARY  
 ATS grid  
 Recreation areas

Scale 1:425,000  
 10 0 10 km

Projection: Universal Transverse Mercator zone 11  
 NAD 83 GRS 80  
 30 m x 30 m cells  
 GDC project ref: 200008

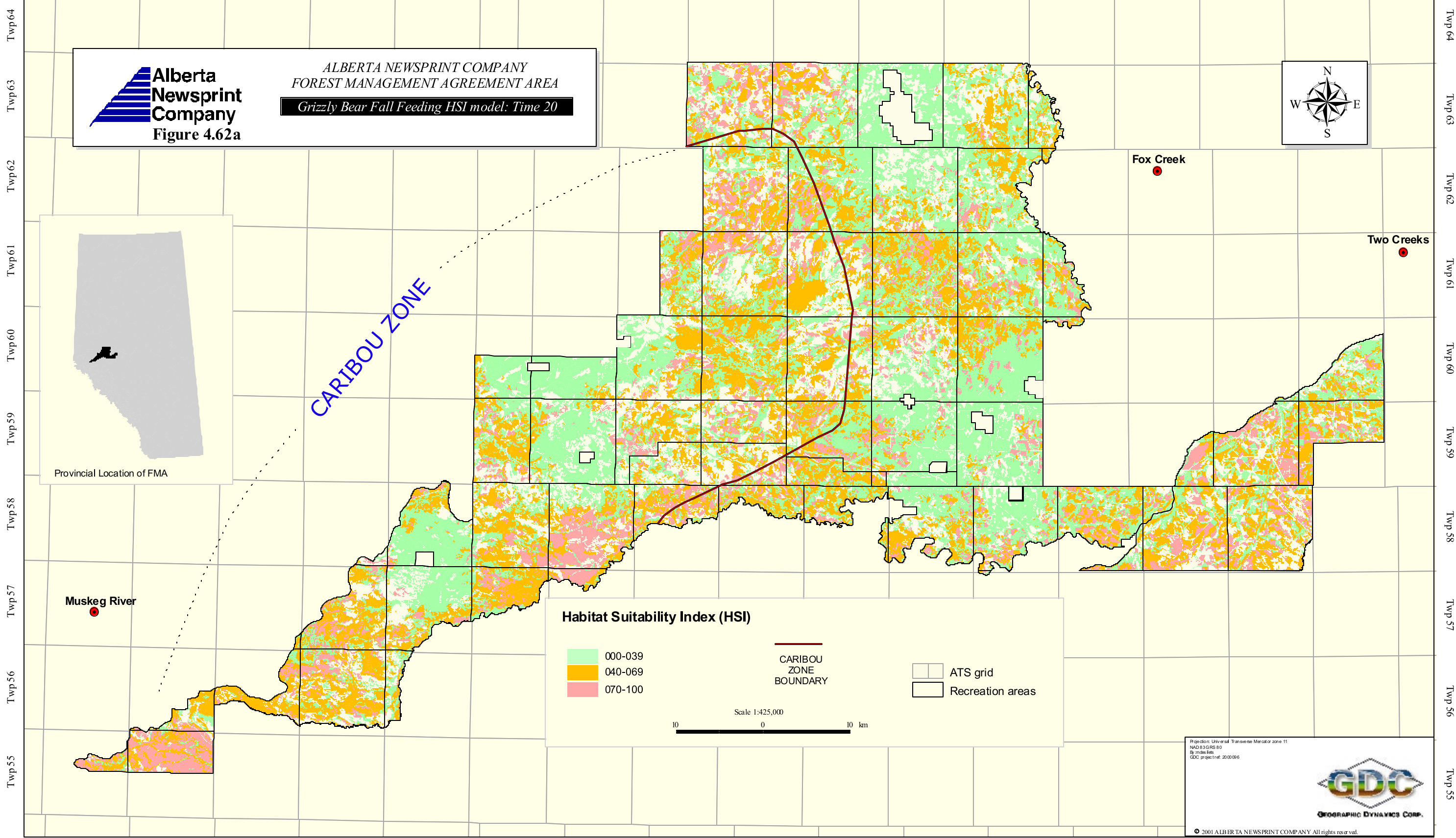


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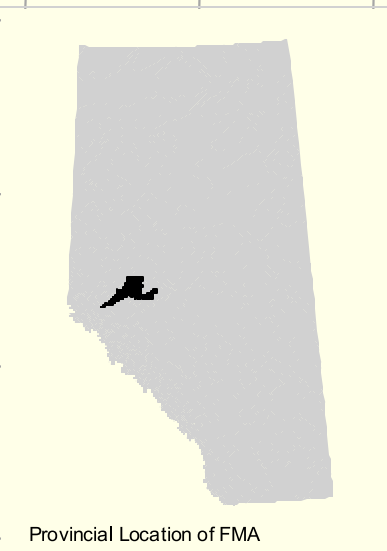
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**Figure 4.62a**

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 FOREST MANAGEMENT AGREEMENT AREA  
 Grizzly Bear Fall Feeding HSI model: Time 20



Provincial Location of FMA

CARIBOU ZONE

**Habitat Suitability Index (HSI)**

	000-039		CARIBOU ZONE BOUNDARY		ATS grid
	040-069		Recreation areas		
	070-100				

Scale 1:425,000  
 10 0 10 km

Projection: Universal Transverse Mercator zone 11  
 NAD 83 GRS 80  
 30 m x 30 m cells  
 GDC project ref: 2000096



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