

FIGURE SDSS 2-16



Overlap of 100% and 66% Probability of occupancy kernels (fall season) with ELC rankings for preferred fall habitat - Central and Eastern Newfoundland (2005-2011)

The 99.9% occupancy kernels ranged in size from over 2,100 km<sup>2</sup> during summer to over 3,200 km<sup>2</sup> during winter on the Northern Peninsula within the ELC (Table 1). Primary habitat ranged from 65% of the 99% kernels during summer (Figure SDSS2-5 and SDSS2-13) to 29% during spring (Figure SDSS2-3 and SDSS2-11). The area of greater caribou concentration defined by the 66% kernel makes up about one quarter of the 99.9% kernel for each season in the ELC, and ranges from 72% primary habitat during summer to 29% primary habitat in spring. Only subtle differences were identified between the two telemetry data sets (Table 1).

**Table 1. Primary, secondary and tertiary habitat within the Ecological Land Classification and the 66% and 100 % seasonal caribou kernels for the Northern Peninsula based on 1979-2011 (and 2005-2011) telemetry.**

99.9% kernel								
Habitat Rank	Winter		Spring		Summer		Fall	
	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent
Primary	1,618.2 (1,594.3)	49.3 (49.3)	910.6 (928.5)	28.6 (28.8)	1,417.3 (1,405.8)	64.9 (65.0)	1,072.9 (1,053.8)	37.6 (37.7)
Secondary	897.0 (895.9)	27.3 (27.7)	18.9 (18.8)	0.6 (0.6)	0.0 (0.0)	0.0 (0.0)	55.6 (55.6)	1.9 (2.0)
Tertiary	716.8 (696.0)	21.8 (21.5)	2,222.5 (2,237.5)	69.7 (69.4)	729.7 (721.9)	33.4 (33.4)	1,683.0 (1,643.6)	58.9 (58.7)
N/A <sup>(a)</sup>	49.3 (49.3)	1.5 (1.5)	37.2 (38.4)	1.2 (1.2)	35.2 (36.4)	1.6 (1.7)	44.5 (44.9)	1.6 (1.6)
Approximate Total Area	3,281.3 (3,235.5)	100.00	3,189.2 (3,223.2)	100.00	2,182.2 (2,164.1)	100.00	2,856.0 (2,798.0)	100.00

66% kernel								
Habitat Rank	Winter		Spring		Summer		Fall	
	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent
Primary	398.4 (397.0)	49.3 (49.2)	212.5 (215.6)	29.0 (29.6)	446.0 (451.8)	71.9 (71.5)	336.5 (299.1)	38.6 (37.7)
Secondary	216.3 (215.8)	26.8 (26.8)	7.3 (5.7)	1.0 (0.8)	0.0 (0.0)	0.0 (0.0)	44.4 (42.8)	5.1 (5.4)
Tertiary	177.1 (177.6)	21.9 (22.0)	502.4 (497.4)	68.6 (68.2)	171.7 (177.5)	27.7 (28.1)	472.4 (432.4)	54.2 (54.5)
N/A <sup>(a)</sup>	16.0 (16.2)	2.0 (2.0)	10.6 (10.7)	1.4 (1.5)	2.4 (2.7)	0.4 (0.4)	19.1 (19.0)	2.2 (2.4)
Approximate Total Area	807.8 (806.6)	100.00	732.8 (729.3)	100.00	620.1 (632.1)	100.00	872.4 (793.2)	100.00

Note: Values in () represent 2005-2011 data only. Habitat rank (i.e., primary, secondary, tertiary) is defined based on use versus availability analysis completed by SDSS.

<sup>(a)</sup> the class N/A refers to landcover that does not have an ELC class (i.e., waterbodies).

In Central and Eastern Newfoundland, the total size of the seasonal 99.9% kernel in the ELC ranges from over 1,600 km<sup>2</sup> during fall to over 2,000 km<sup>2</sup> during the other seasons (Table 2). Primary habitat in the ELC ranges from 21% of the 99.9% kernel in the fall (Figure SDSS2-8 and SDSS2-16) to 44% of the kernel in winter (Figure SDSS2-2 and SDSS2-10). The 66% kernel represented approximately 10-20% of the 99.9% kernel for each season in the ELC, and ranges from 49% primary habitat during winter to 28% in spring.

**Table 2. Primary, secondary and tertiary habitat within the Ecological Land Classification and the 66% and 100 % seasonal caribou kernels for Central and Eastern Newfoundland based on 1979-2011 (and 2005-2011) telemetry.**

99.9% Kernel								
Habitat Rank	Winter		Spring		Summer		Fall	
	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent
Primary	893.1 (903.4)	44.1 (44.2)	607.9 (717.6)	29.5 (29.6)	631.7 (689.1)	31.4 (28.7)	355.0 (386.8)	21.9 (21.1)
Secondary	437.6 (443.5)	21.6 (21.7)	1,229.0 (1,431.1)	59.7 (59.0)	827.2 (1,026.0)	41.1 (42.7)	405.8 (458.1)	25.0 (24.9)
Tertiary	694.1 (698.8)	34.3 (34.2)	222.4 (275.8)	10.8 (11.4)	555.0 (687.0)	27.6 (28.6)	862.8 (990.8)	53.1 (54.0)
N/A <sup>(a)</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Area	2,024.8 (2,045.7)	100.00	2,059.4 (2,424.5)	100.00	2,014.0 (2,402.2)	100.00	1,623.6 (1,835.8)	100.00

66% kernel								
Habitat Rank	Winter		Spring		Summer		Fall	
	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent
Primary	103.5 (104.7)	49.1 (48.9)	106.9 (104.7)	28.0 (27.9)	159.2 (154.6)	34.3 (34.5)	85.6 (94.2)	35.4 (34.1)
Secondary	56.5 (57.4)	26.8 (26.8)	235.9 (232.9)	61.8 (62.0)	185.1 (178.4)	39.9 (39.8)	50.9 (59.6)	21.1 (21.6)
Tertiary	50.6 (51.9)	24.0 (24.3)	39.0 (38.0)	10.2 (10.1)	119.6 (114.9)	25.8 (25.7)	105.2 (122.6)	43.5 (44.3)
N/A <sup>(a)</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Area	210.6 (214.0)	100.00	381.8 (375.7)	100.00	463.8 (448.0)	100.00	241.6 (276.4)	100.00

Note: Values in ( ) represent 2005-2011 data only. Habitat rank (i.e., primary, secondary, tertiary) is defined based on use versus availability analysis completed by SDSS.

<sup>(a)</sup> the class N/A refers to landcover that does not have an ELC class (i.e., waterbodies).

Caribou areas used in the Caribou Component Study and the EA for Newfoundland caribou were provided by NLDEC Wildlife Division and were classified according to 50% (Primary Core area), 80% (Secondary Core area), and 100% probability of occupancy kernels (Occupancy area) (Blake 2011a, pers. comm.). In contrast, new occupancy areas provided by SDSS are classified according to 66% and 100%

kernels. This discrepancy makes direct comparison difficult between quantitative analyses conducted in the EA and analyses conducted for this IR response.

In addition to characterizing the seasonal habitat composition of the 66% and 99.9% kernels in the ELC following the use versus availability analysis, Nalcor also examined the composition of primary, secondary and tertiary habitat within different areas of assessment. Direct effects resulting from the 60 m wide right-of-way and indirect effects which included a 500 m buffer either side of the right-of-way on habitat quality were calculated along the entire alignment (both within and outside the kernels) (Tables 3 and 4) (Figures SDSS2-17 to SDSS2-24).

**Table 3. Primary, secondary and tertiary seasonal habitat within the Right-of-Way, Assessment Area, and Sensitivity analyses for Northern Peninsula.**

Habitat Rank	Winter		Spring		Summer		Fall	
	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent
<b>60 m Right-of-Way</b>								
Primary	8.1	55.9	5.8	39.8	9.2	62.8	4.9	33.4
Secondary	4.4	30.0	0.1	0.5	0.0	0.0	0.0	0.0
Tertiary	1.9	12.7	8.5	58.4	5.2	35.9	9.5	65.3
N/A <sup>(a)</sup>	0.2	1.3	0.2	1.3	0.2	1.3	0.2	1.3
Approximate Total Area	14.6	100.0	14.6	100.0	14.6	100.0	14.6	100.0
<b>RoW + 500 m buffer = 1,060 m</b>								
Primary	137.0	53.1	95.2	36.9	156.6	60.7	84.9	32.9
Secondary	74.4	28.9	1.2	0.4	0.0	0.0	0.5	0.2
Tertiary	43.0	16.7	158.1	61.3	97.8	37.9	169.1	65.6
N/A <sup>(a)</sup>	3.4	1.3	3.4	1.3	3.4	1.3	3.4	1.3
Approximate Total Area	257.8	100.0	257.8	100.0	257.8	100.0	257.8	100.0
<b>RoW + 1,000 m buffer = 2,060 m</b>								
Primary	258.8	51.7	176.7	35.3	295.3	59.0	162.0	32.4
Secondary	144.1	28.8	1.8	0.4	0.0	0.0	0.8	0.2
Tertiary	90.4	18.1	314.8	62.9	198.0	39.6	330.4	66.0
N/A <sup>(a)</sup>	7.21	1.4	7.2	1.4	7.2	1.4	7.2	1.4
Approximate Total Area	500.5	100.0	500.5	100.0	500.5	100.0	500.5	100.0
<b>RoW + 2,000 m = 4,060 m</b>								
Primary	738.1	51.1	481.8	33.4	848.3	58.8	471.6	32.7
Secondary	380.2	26.3	8.3	0.6	0.0	0.0	7.9	0.5
Tertiary	304.3	21.1	932.6	64.6	574.4	39.8	943.2	65.3
N/A <sup>(a)</sup>	20.6	1.4	20.6	1.4	20.6	1.4	20.6	1.4
Approximate Total Area	1,443.2	100.0	1,443.2	100.0	1,443.2	100.0	1,443.2	100.0

Note: Habitat rank (i.e., primary, secondary, tertiary) is defined based on use versus availability analysis completed by SDSS.

<sup>(a)</sup> the class N/A refers to landcover that does not have an ELC class (i.e., waterbodies).



**Table 4. Primary, secondary and tertiary seasonal habitat within the Right-of-Way, Assessment Area, and Sensitivity analyses for Central and Eastern Newfoundland.**

Habitat Rank	Winter		Spring		Summer		Fall	
	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent	Area (km <sup>2</sup> )	Percent
<b>60 m Right-of-Way</b>								
Primary	6.9	35.1	5.1	26.1	5.1	26.1	2.6	13.0
Secondary	5.8	29.4	12.8	65.1	9.5	48.7	5.6	28.7
Tertiary	7.0	35.5	1.7	8.8	4.9	25.2	11.4	58.3
N/A <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approximate Total Area	19.6	100.0	19.6	100.0	19.6	100.0	19.6	100.0
<b>RoW + 500 m buffer = 1,060 m</b>								
Primary	125.6	36.1	92.6	26.6	92.8	26.7	47.6	13.7
Secondary	97.6	28.1	220.6	63.4	164.4	47.3	95.8	27.6
Tertiary	124.4	35.8	34.4	9.9	90.4	26.0	204.2	58.7
N/A <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approximate Total Area	347.6	100.0	347.6	100.0	347.6	100.0	347.6	100.0
<b>RoW + 1,000 m buffer = 2,060 m</b>								
Primary	245.6	36.4	182.1	27.0	183.0	27.1	94.8	14.0
Secondary	187.9	27.8	421.2	62.4	313.5	46.4	183.7	27.2
Tertiary	241.8	35.8	72.0	10.7	178.8	26.5	396.8	58.8
N/A <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approximate Total Area	675.3	100.0	675.3	100.0	675.3	100.0	675.3	100.0
<b>RoW + 2,000 m = 4,060 m</b>								
Primary	718.6	36.7	525.2	26.8	526.9	26.9	295.1	15.1
Secondary	517.4	26.4	1,186.0	60.5	881.2	44.9	507.5	25.9
Tertiary	723.4	36.9	248.3	12.7	551.2	28.1	1,156.8	59.0
N/A <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approximate Total Area	1,959.4	100.0	1,959.4	100.0	1,959.4	100.0	1,959.4	100.0

Note: Habitat rank (i.e., primary, secondary, tertiary) is defined based on use versus availability analysis completed by SDSS.

<sup>(a)</sup> the class N/A refers to landcover that does not have an ELC class (i.e., waterbodies).

The information provided in Nalcor's response to SDSS-2 does not further inform the assessment (i.e., no new information was received that would meaningfully change the habitat classification and effects quantification used in the EIS), nor does it affect the findings, mitigation or conclusions of the EIS with respect to Newfoundland caribou. The data presented in the Component Study, the EIS approach and the EA study areas (i.e., the RSA included the occupancy area of caribou for entire Island of Newfoundland) were appropriate and conservative.

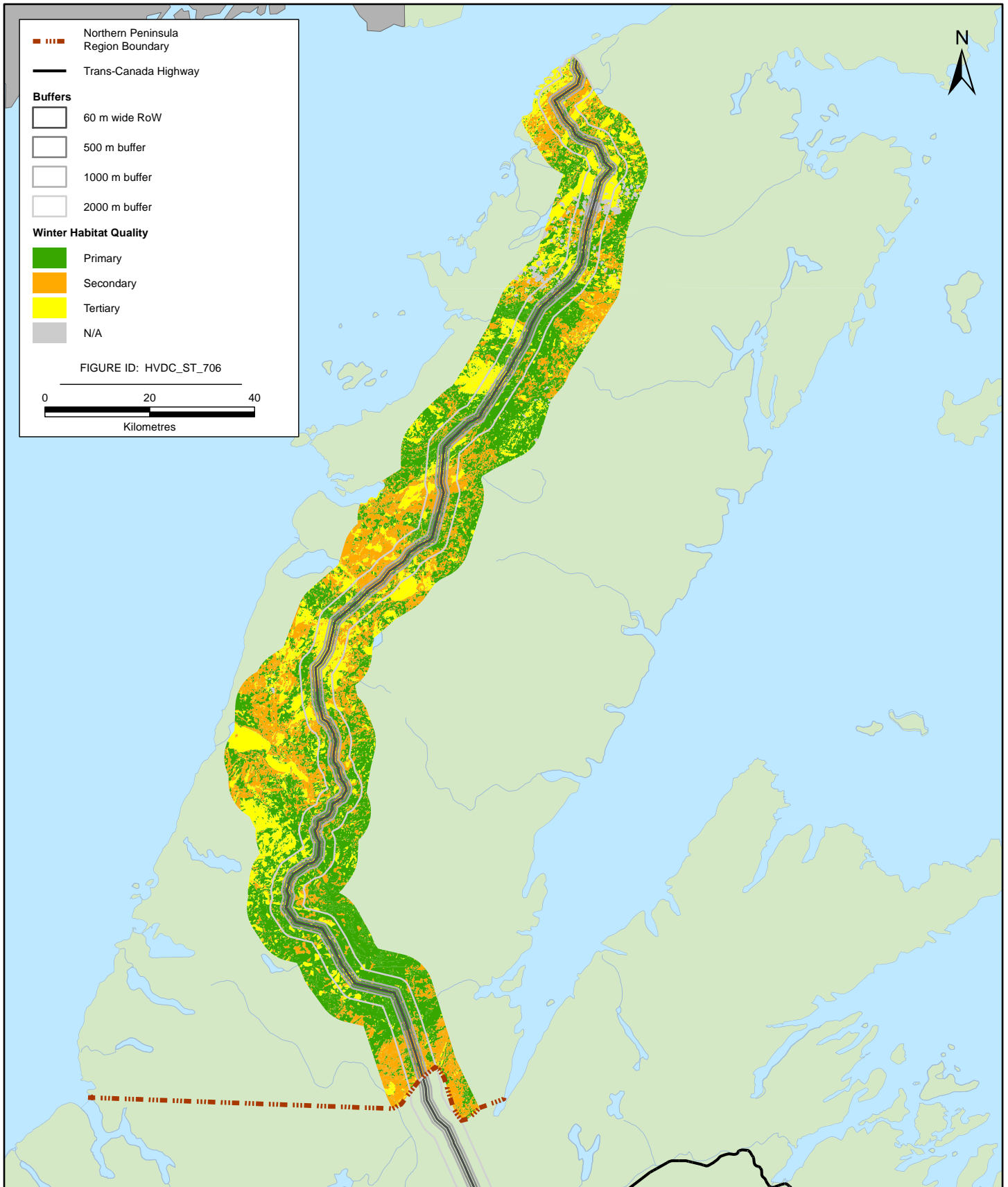


Figure SDSS2-17



**Overlap of assessment area buffers with ELC rankings for preferred winter habitat - Northern Peninsula**

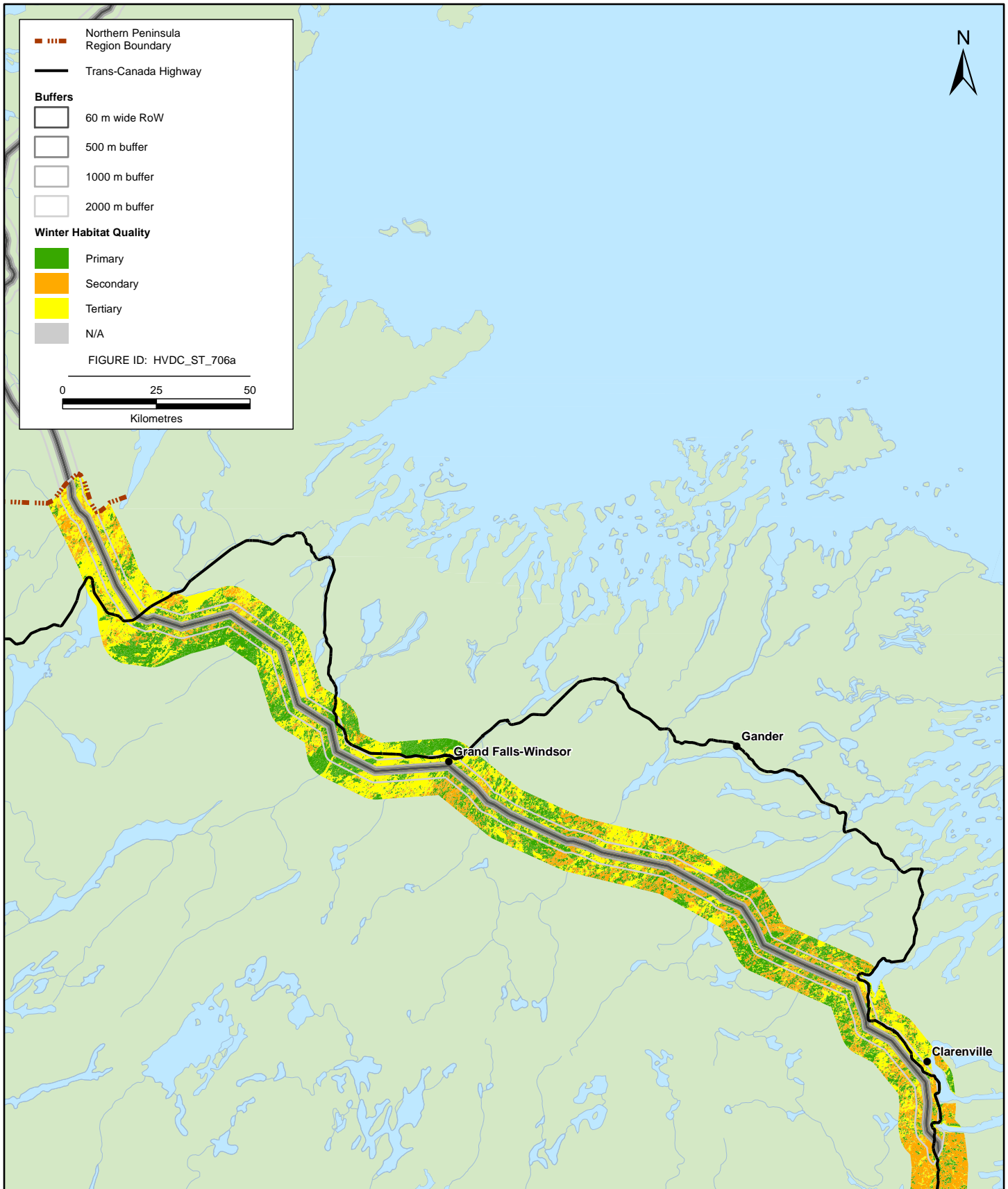


Figure SDSS2-18



**Overlap of assessment area buffers with ELC rankings for preferred winter habitat - Central and Eastern Newfoundland**

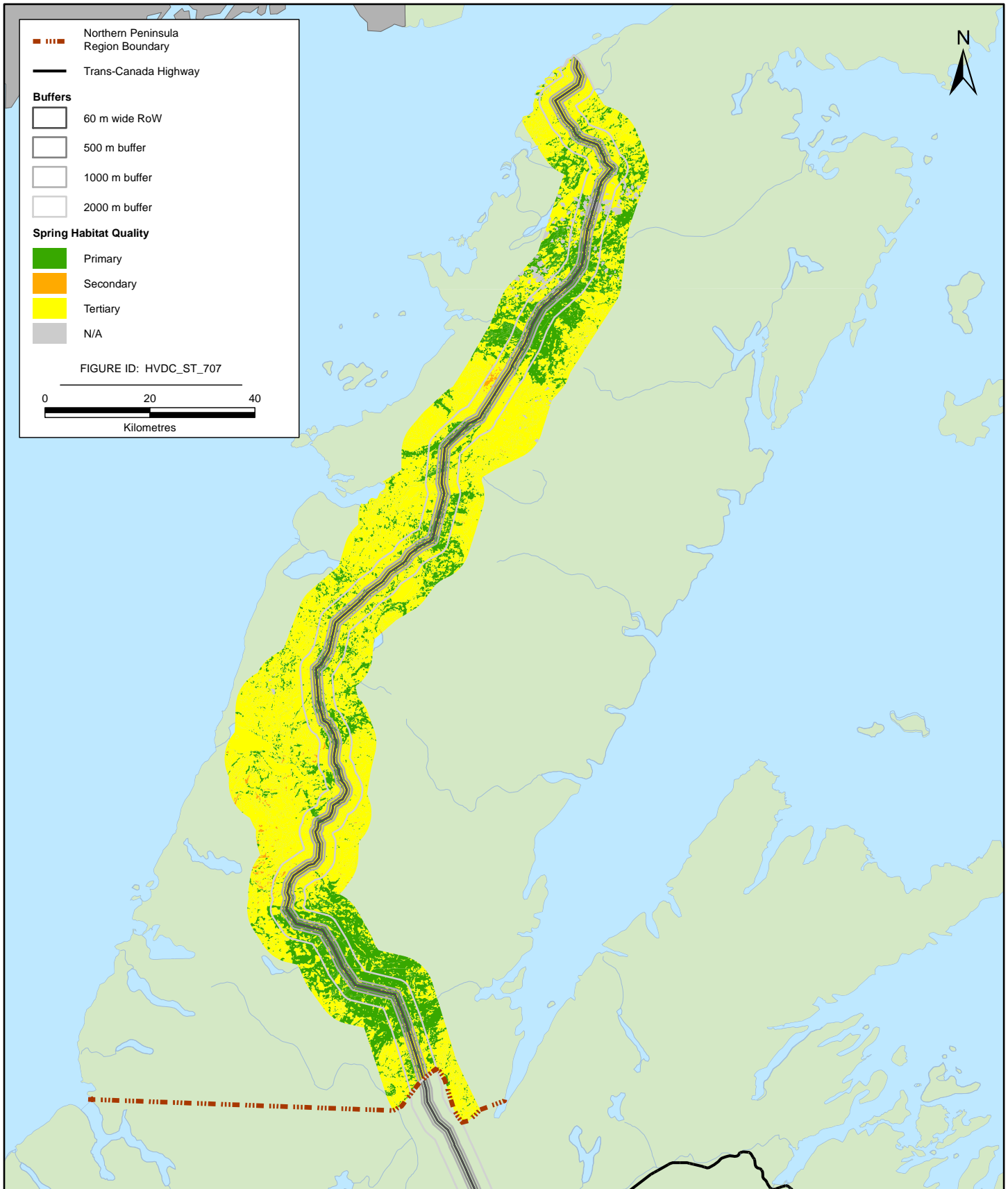


Figure SDSS2-19



**Overlap of assessment area buffers with ELC rankings for preferred spring habitat - Northern Peninsula**