

Critical Habitat Identification: Primrose–Cold Lake(Saskatchewan)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.



Figure 1: Keymap of the general location of the local population (in red).

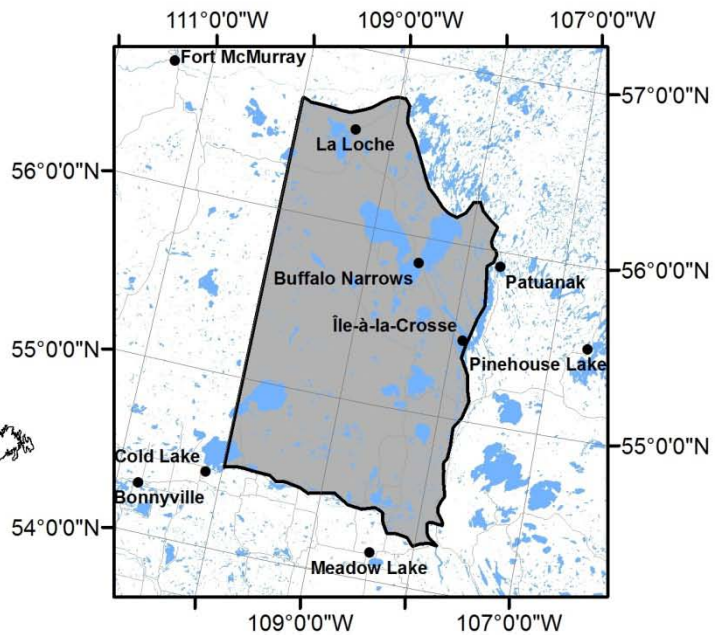


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	3,220,752 ha
	Population size	350
	Population trend	Unknown
	Total Habitat Disturbance	1,739,206 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	3,220,752 ha (100%)
	B) Total Habitat Disturbance ¹	1,739,206 ha (54%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	1,481,546 ha (46%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Primrose–Cold Lake(Saskatchewan)

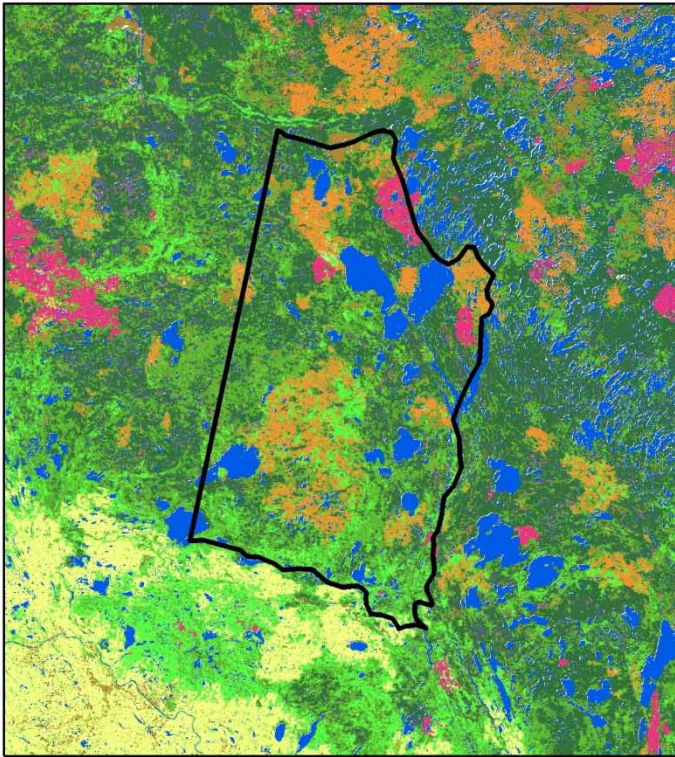
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragemented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: Primrose–Cold Lake(Saskatchewan)

D) Additional Information:

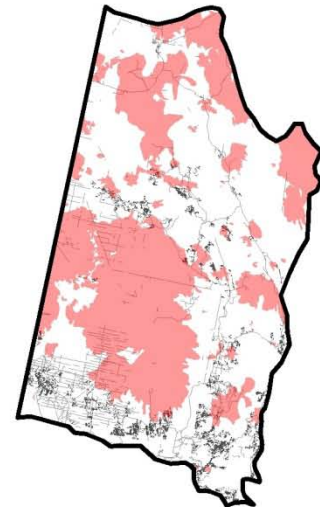


Landcover

- | | | |
|------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|
| ● Water | ● Shrub | ● Rock Outcrop |
| ● Coniferous Forest | ● Herbaceous | ● Recent Burn |
| ● Deciduous Forest | ● Wetland | ● Old Burn |
| ● Mixed Forest | ● Cropland | ● Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances

0 25 50 100 Km

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 40%
- Buffered³ Anthropogenic (no reservoirs) = 19%
- Total Habitat Disturbance = 54%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Smoothstone-Wapawekka (Saskatchewan)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.



Figure 1: Keymap of the general location of the local population (in red).

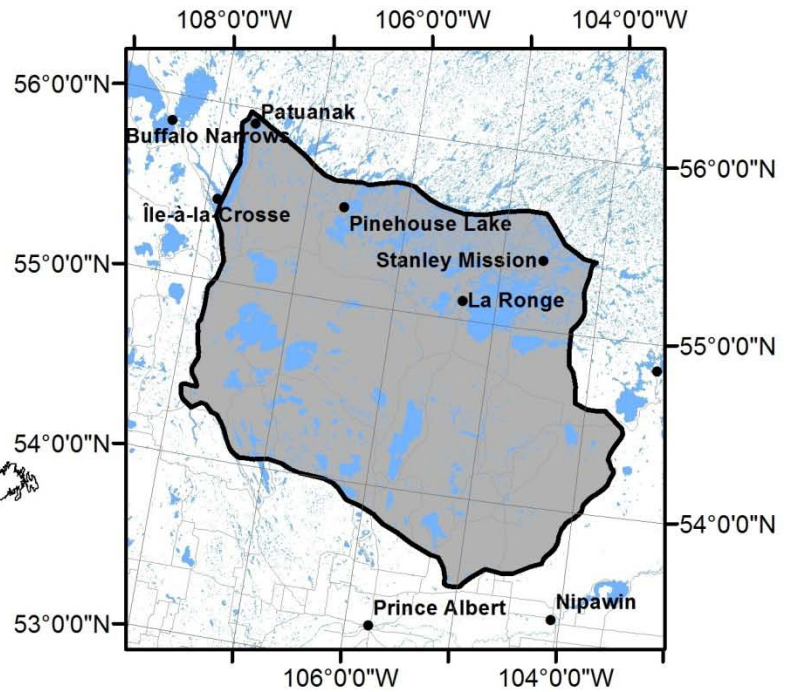


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	4,988,180 ha
	Population size	700
	Population trend	Declining
	Total Habitat Disturbance	1,646,099 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	4,988,180 ha (100%)
	B) Total Habitat Disturbance ¹	1,646,099 ha (33%)
	C) Critical Habitat ²	3,242,317 ha (65%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The available undisturbed habitat is more than 65% of the range.

Critical Habitat Identification: Smoothstone-Wapawekka (Saskatchewan)

C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield West ecozone.

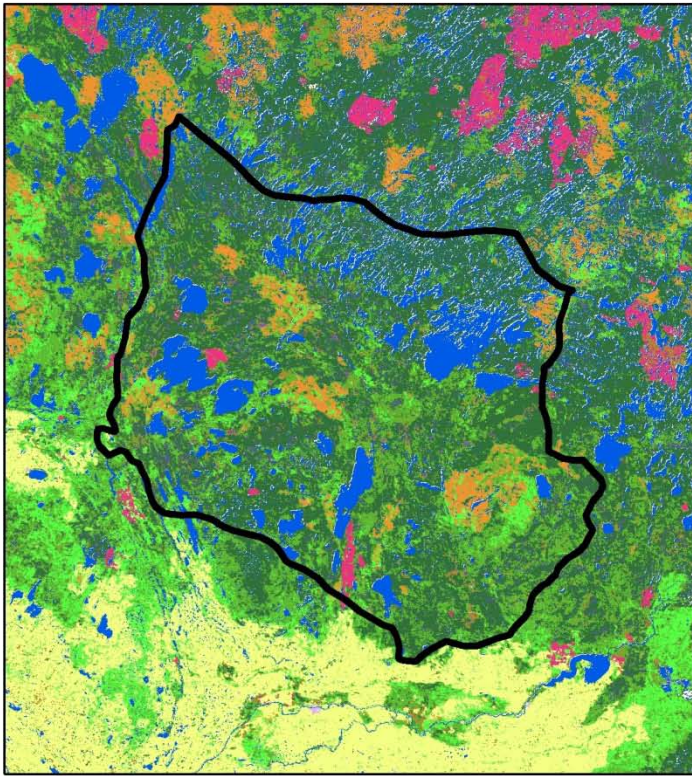
Type of selection	Description
Broad scale	Conifer/tamarack-dominated peatland complexes, muskegs or bogs, use dry islands in the middle of muskegs and upland moderate to dense mature conifer forests (jack pine, black spruce, tamarack) with abundant lichens. Hilly or higher ground, lots of smaller lakes in area.
Calving	Peatlands, stands dominated by black spruce, mature forest stands and treed muskeg all used for calving. Caribou will use islands, small lakes, lakeshores during calving.
Post-calving	Wooded lakeshores, islands, sparsely treed rock, upland conifer-spruce and treed muskeg are used in summer. Sites with a high abundance of arboreal lichen are important for foraging in some areas. Dense conifer and mixed forest are also used.
Rutting	Dense and sparse conifer and mixed forests. Open riparian habitats are also used during the rut.
Winter	Mature upland spruce, pine stands and treed muskeg. Jack pine dominated forests. Caribou select sparse and dense conifer, mixed forests and treed bogs. In some areas caribou will select habitat with greater visibility and further away from forest edges.
Travel	Some males move > 100 km during the rutting season. Traditional travel routes between summer and winter ranges occur in large peatland complexes. Caribou migrate in a north to south pattern.
Avoidance	Avoid shrub-rich habitats and hardwood-dominated stands. Avoidance of conifer stands that are not black spruce, deciduous stands, shrub-rich fens and wetlands during calving. Avoid recent burns and disturbed/fragmented areas, including roads.

Table 2: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: Smoothstone-Wapawekka (Saskatchewan)

D) Additional Information:

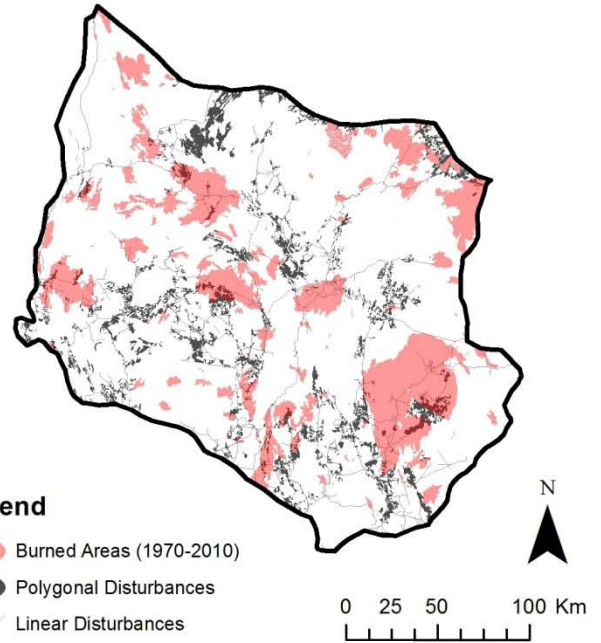


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 17%
- Buffered⁴ Anthropogenic (no reservoirs) = 20%
- Total Habitat Disturbance = 33%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.
⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Pasquia-Bog (Saskatchewan)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

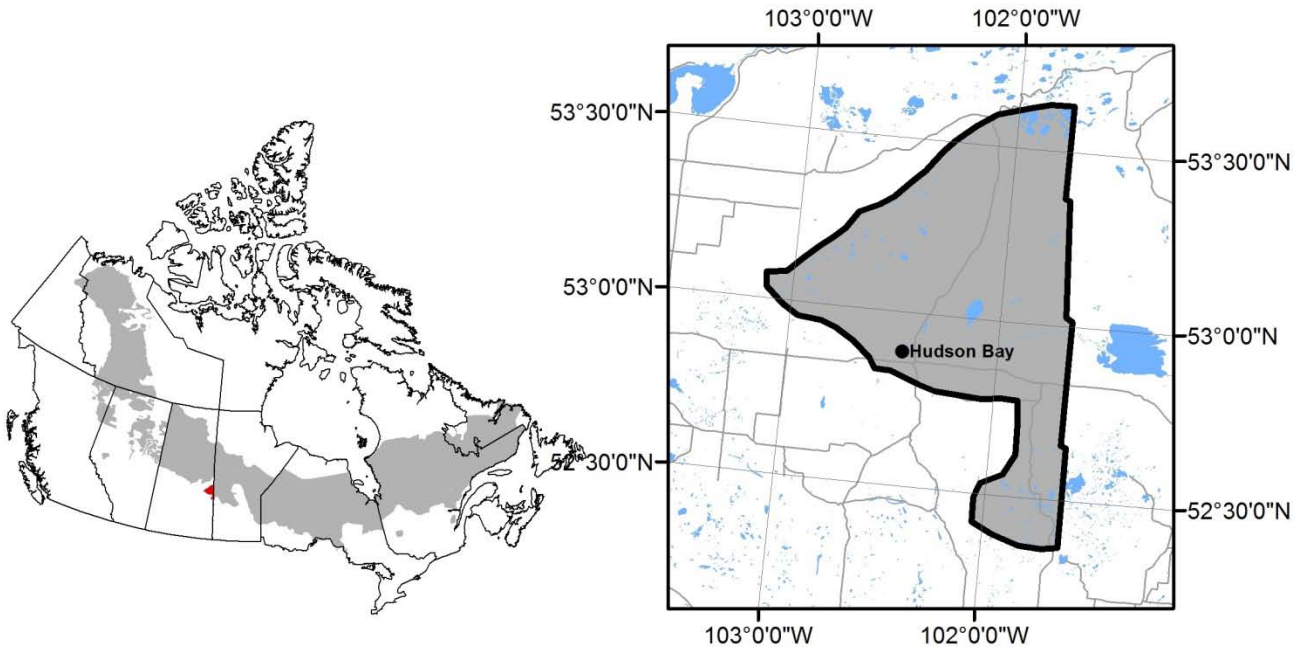


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	682,435 ha
	Population size	30
	Population trend	Declining
	Total Habitat Disturbance	300,271 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	682,435 ha (100%)
	B) Total Habitat Disturbance ¹	300,271 ha (44%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	382,164 ha (56%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Pasquia-Bog (Saskatchewan)

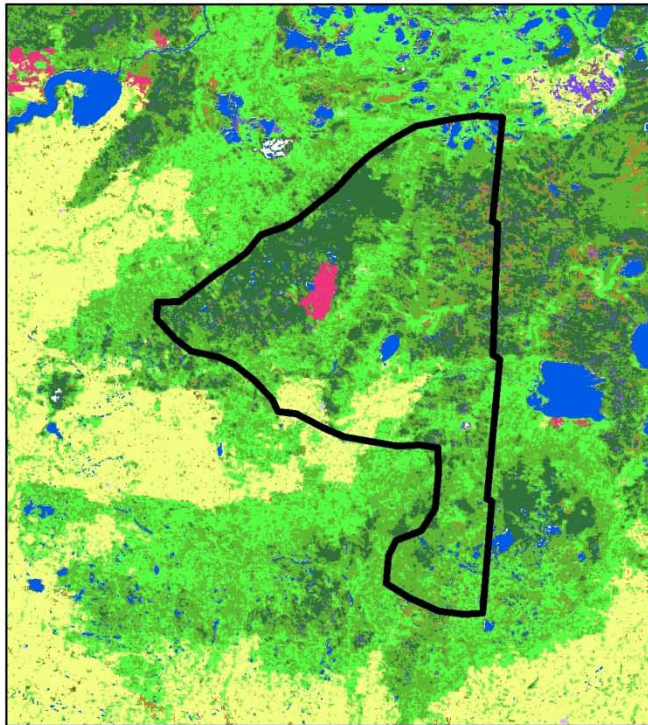
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: Pasquia-Bog (Saskatchewan)

D) Additional Information:

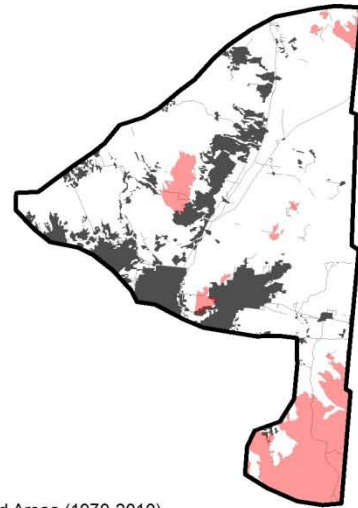


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 12%
- Buffered³ Anthropogenic (no reservoirs) = 33%
- Total Habitat Disturbance = 44%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: The Bog (Manitoba)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

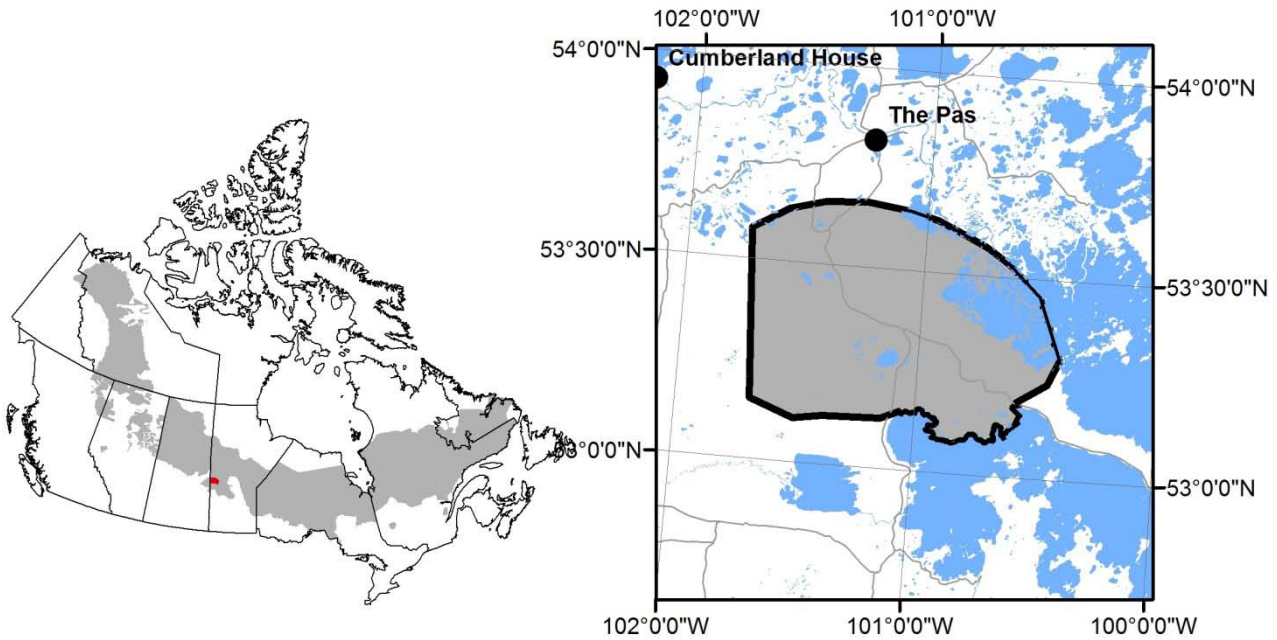


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	446,383 ha
	Population size	50-75
	Population trend	Stable
	Total Habitat Disturbance	71,421 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining / Self-Sustaining
Determination of Amount of Habitat	A) Range Size	446,383 ha (100%)
	B) Total Habitat Disturbance ¹	71,421 ha (16%)
	C) Critical Habitat ²	290,149 ha (65%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The available undisturbed habitat is more than 65% of the range.

Critical Habitat Identification: The Bog (Manitoba)

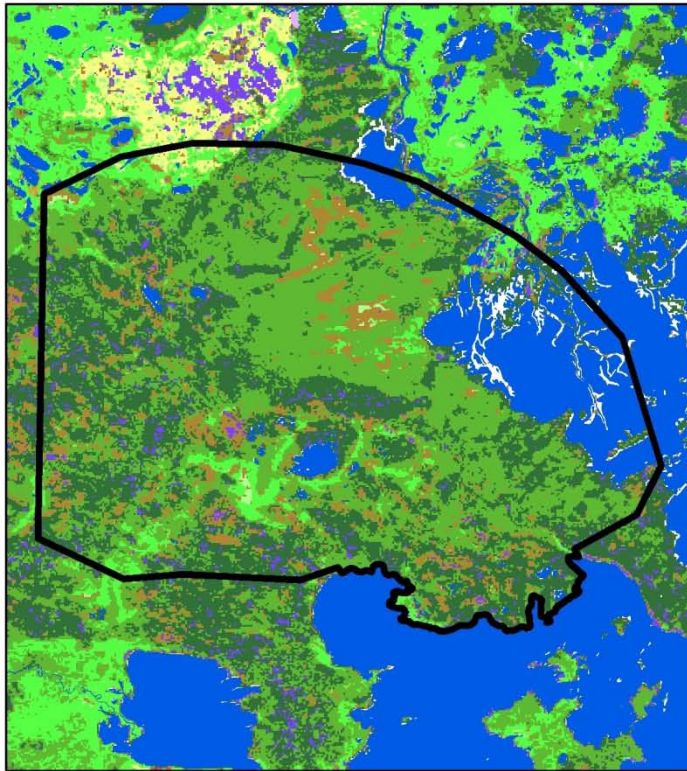
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: The Bog (Manitoba)

D) Additional Information:

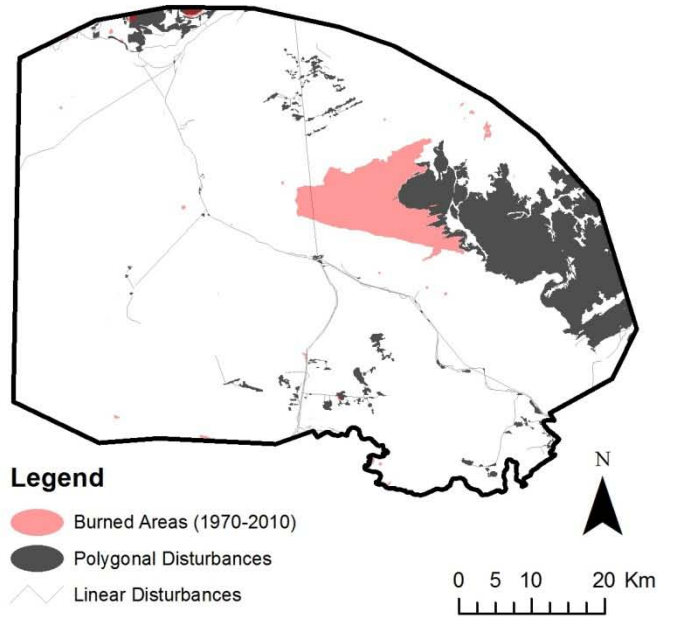


Landcover

- | | | |
|------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------|
| ● Water | ● Shrub | ● Rock Outcrop |
| ● Coniferous Forest | ● Herbaceous | ● Recent Burn |
| ● Deciduous Forest | ● Wetland | ● Old Burn |
| ● Mixed Forest | ● Cropland | ● Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

Burned Areas = 4%

Buffered⁵ Anthropogenic (no reservoirs) = 12%

Total Habitat Disturbance = 16%⁶

⁵ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁶ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Kississing (Manitoba)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

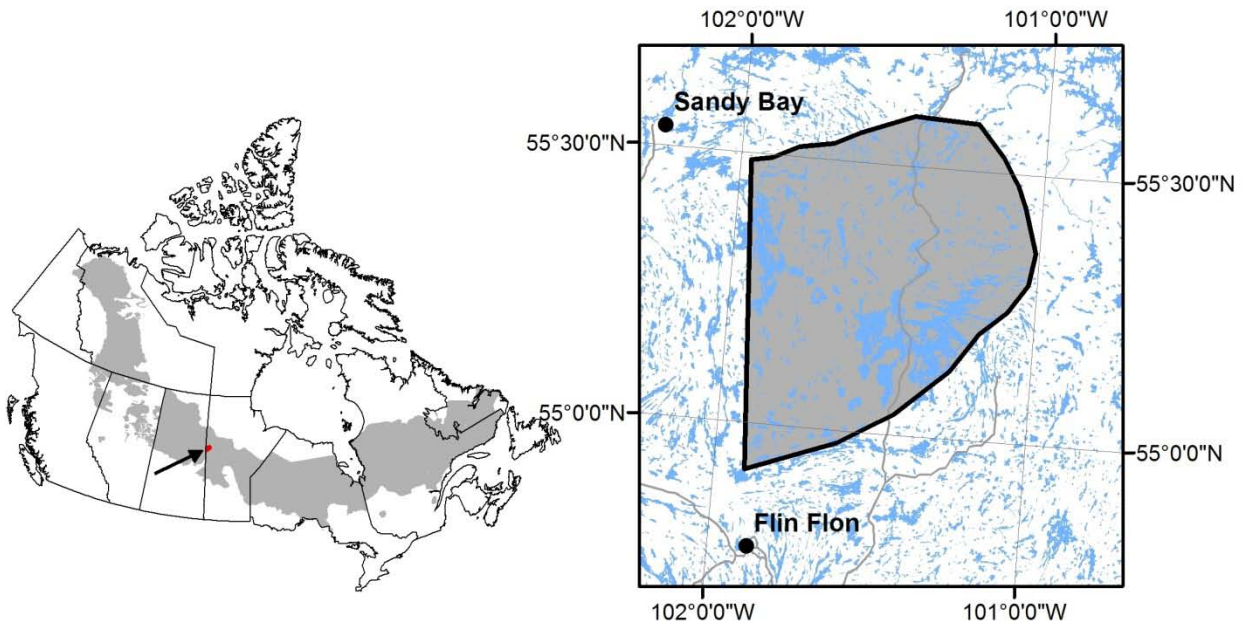


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	317,029 ha
	Population size	50-75
	Population trend	Stable
	Total Habitat Disturbance	164,855 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	317,029 ha (100%)
	B) Total Habitat Disturbance ¹	164,855 ha (52%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	152,174 ha (48%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Kississing (Manitoba)

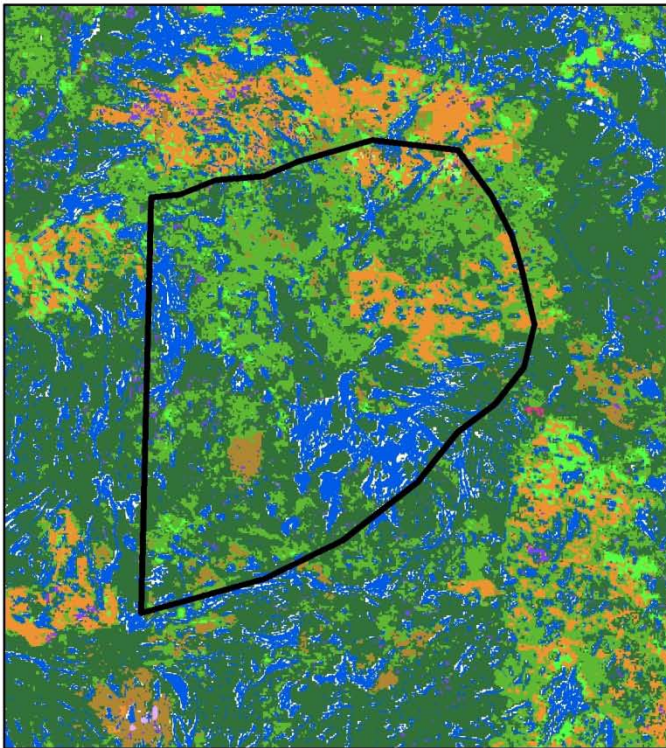
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: Kississing (Manitoba)

D) Additional Information:

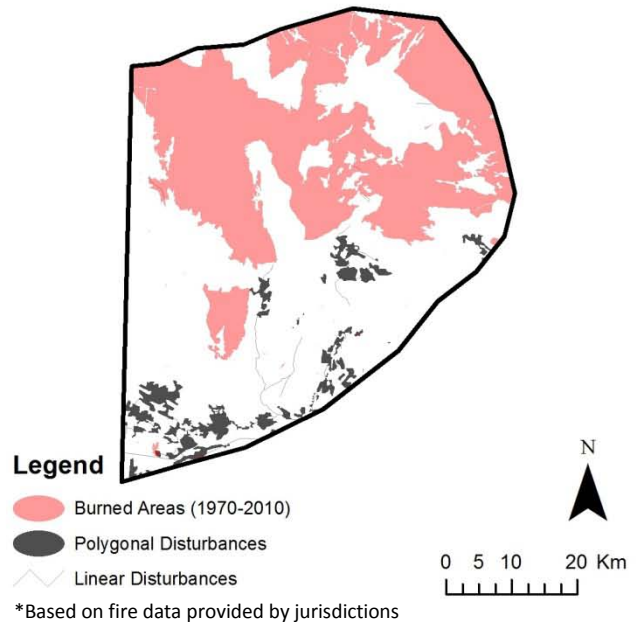


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 39%
- Buffered³ Anthropogenic (no reservoirs) = 13%
- Total Habitat Disturbance = 52%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Naosap (Manitoba)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

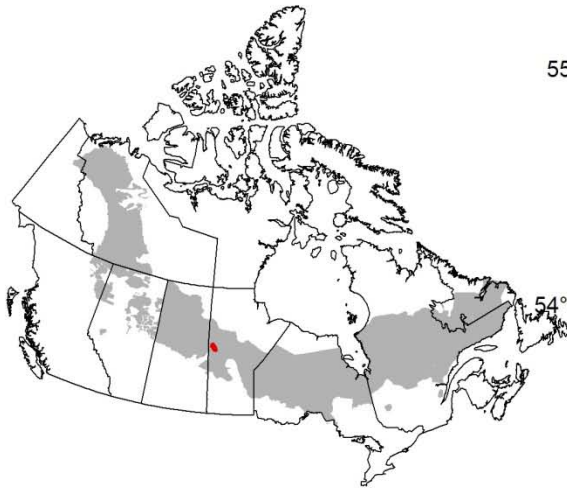


Figure 1: Keymap of the general location of the local population (in red).

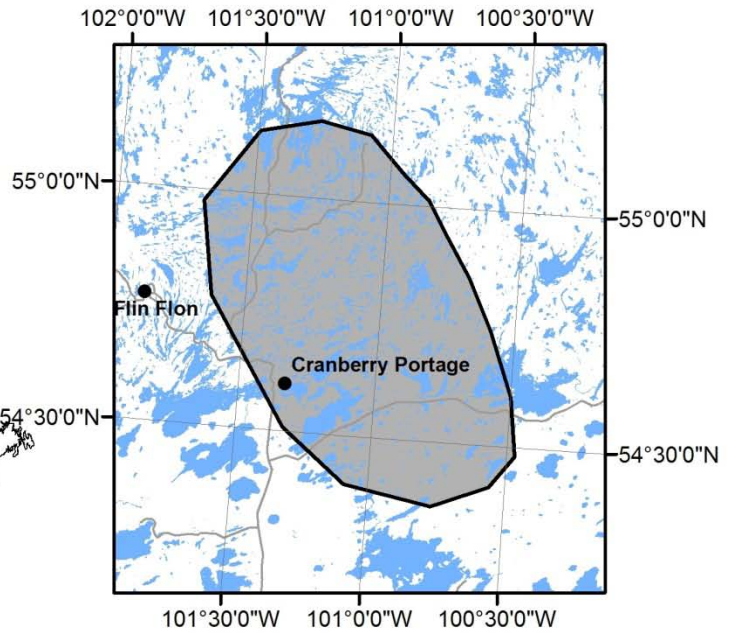


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	456,977 ha
	Population size	100-200
	Population trend	Stable
	Total Habitat Disturbance	228,489 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	456,977 ha (100%)
	B) Total Habitat Disturbance ¹	228,489 ha (50%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	228,488 ha (50%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Naosap (Manitoba)

C) Type: Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield West ecozone.

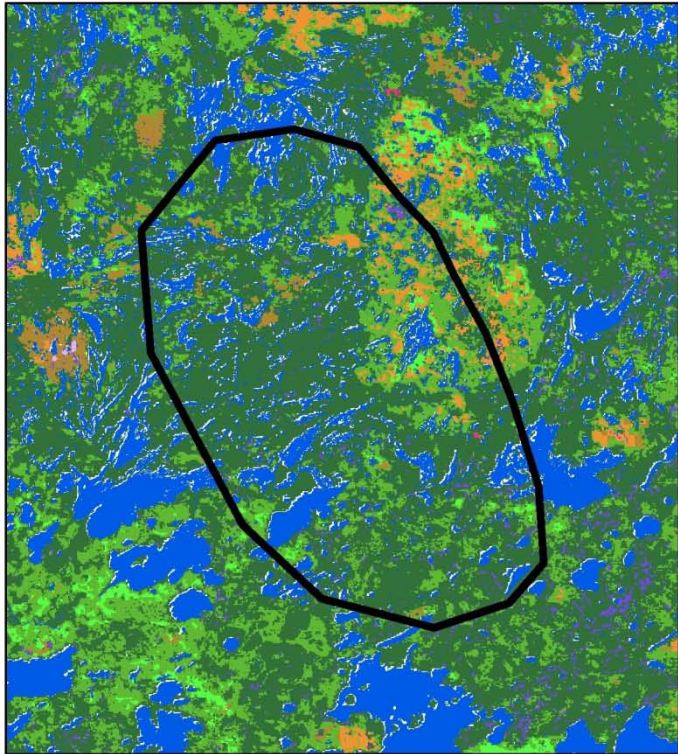
Type of selection	Description
Broad scale	Conifer/tamarack-dominated peatland complexes, muskegs or bogs, use dry islands in the middle of muskegs and upland moderate to dense mature conifer forests (jack pine, black spruce, tamarack) with abundant lichens. Hilly or higher ground, lots of smaller lakes in area.
Calving	Peatlands, stands dominated by black spruce, mature forest stands and treed muskeg all used for calving. Caribou will use islands, small lakes, lakeshores during calving.
Post-calving	Wooded lakeshores, islands, sparsely treed rock, upland conifer-spruce and treed muskeg are used in summer. Sites with a high abundance of arboreal lichen are important for foraging in some areas. Dense conifer and mixed forest are also used.
Rutting	Dense and sparse conifer and mixed forests. Open riparian habitats are also used during the rut.
Winter	Mature upland spruce, pine stands and treed muskeg. Jack pine dominated forests. Caribou select sparse and dense conifer, mixed forests and treed bogs. In some areas caribou will select habitat with greater visibility and further away from forest edges.
Travel	Some males move > 100 km during the rutting season. Traditional travel routes between summer and winter ranges occur in large peatland complexes. Caribou migrate in a north to south pattern.
Avoidance	Avoid shrub-rich habitats and hardwood-dominated stands. Avoidance of conifer stands that are not black spruce, deciduous stands, shrub-rich fens and wetlands during calving. Avoid recent burns and disturbed/fragmented areas, including roads.

Table 2: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: Naosap (Manitoba)

D) Additional Information:

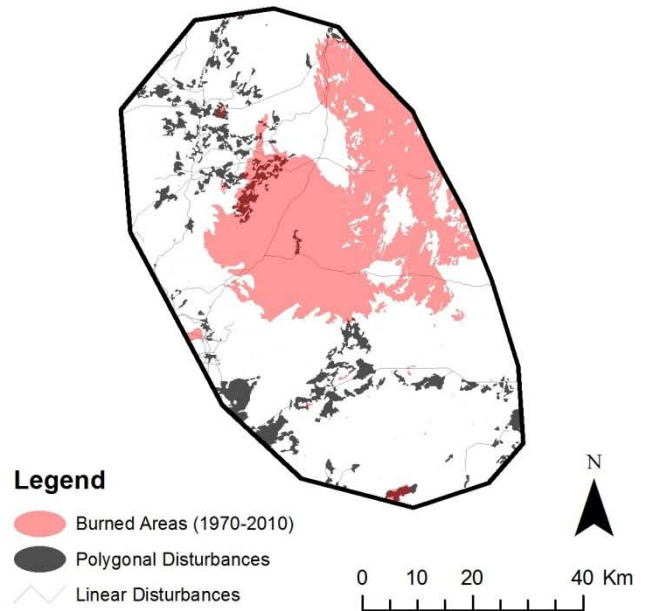


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 28%
- Buffered³ Anthropogenic (no reservoirs) = 26%
- Total Habitat Disturbance = 50%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.
⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: North Interlake (Manitoba)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

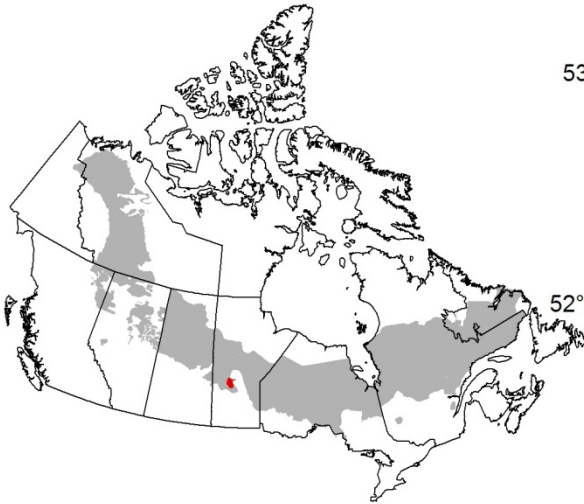


Figure 1: Keymap of the general location of the local population (in red).

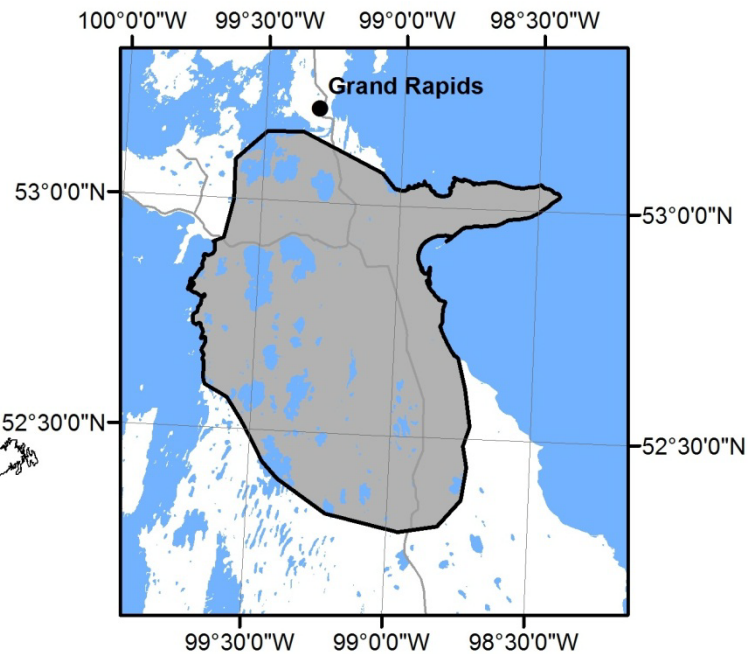


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	489,680 ha
	Population size	50-75
	Population trend	Stable
	Total Habitat Disturbance	83,246 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining / Self-Sustaining
Determination of Amount of Habitat	A) Range Size	489,680 ha (100%)
	B) Total Habitat Disturbance ¹	83,246 ha (17%)
	C) Critical Habitat ²	318,292 ha (65%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The available undisturbed habitat is more than 65% of the range.

Critical Habitat Identification: North Interlake (Manitoba)

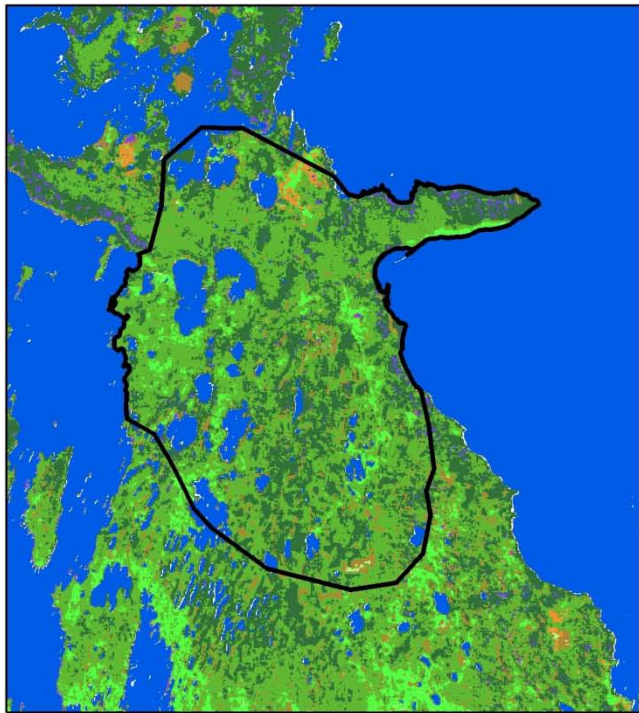
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: North Interlake (Manitoba)

D) Additional Information:

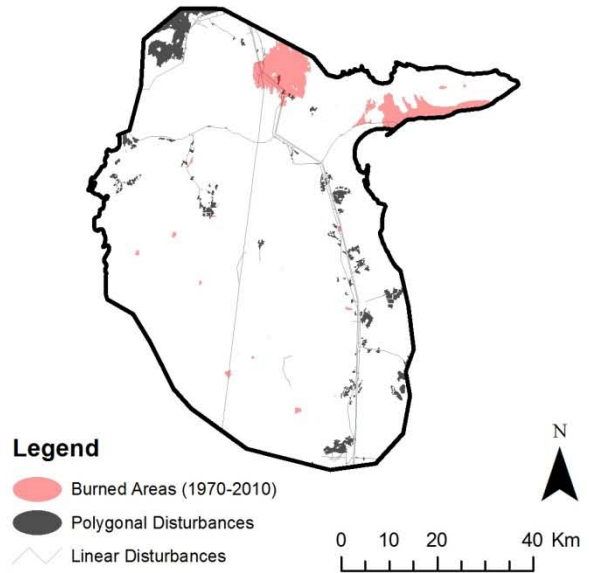


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 4%
- Buffered⁵ Anthropogenic (no reservoirs) = 14%
- Total Habitat Disturbance = 17%⁶

⁵ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁶ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: William Lake (Manitoba)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

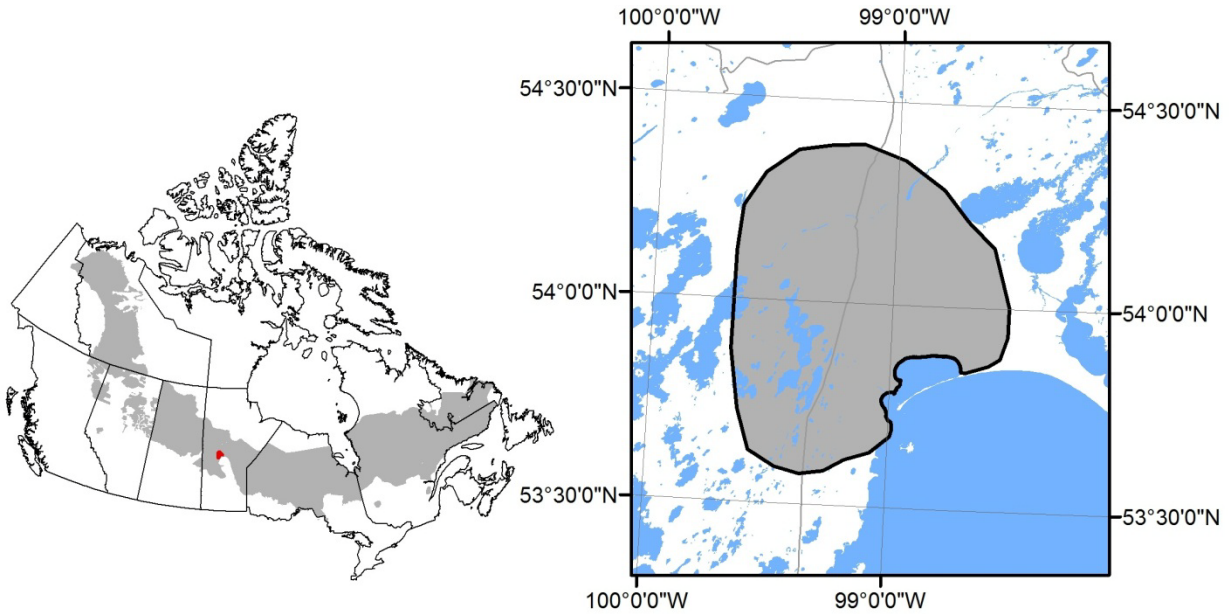


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	488,219 ha
	Population size	25-40
	Population trend	Stable
	Total Habitat Disturbance	151,348 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	488,219 ha (100%)
	B) Total Habitat Disturbance ¹	151,348 ha (31%)
	C) Critical Habitat ²	317,342 ha (65%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The available undisturbed habitat is more than 65% of the range.

Critical Habitat Identification: William Lake (Manitoba)

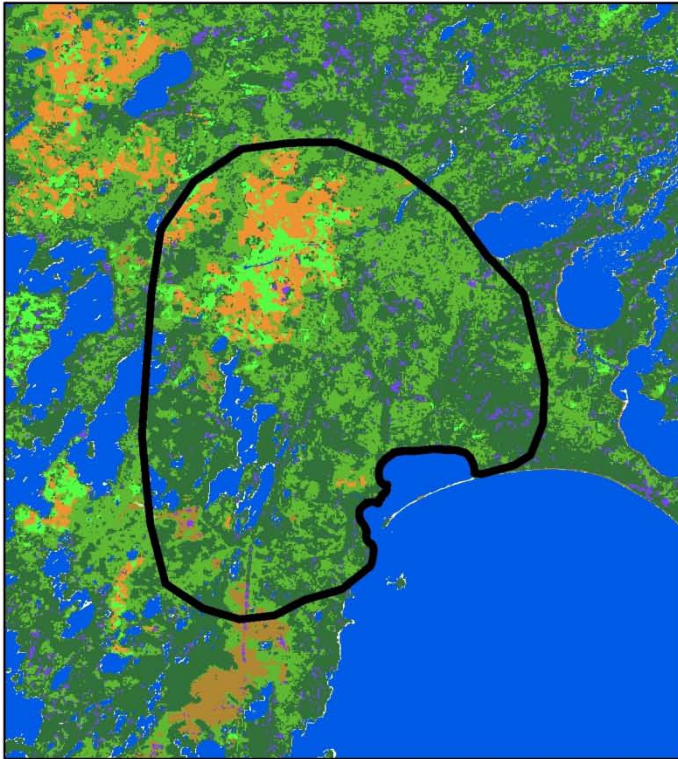
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Plains ecozone.

Type of selection	Description
Broad scale	Late seral-stage (> 50 yrs old) conifer forest (jack pine, black spruce, tamarack), treed peatlands, muskegs or bogs, use dry islands in the middle of muskegs, with abundant lichens. Hilly or higher ground and small lakes. Restricted primarily to peatland complexes. Elevations of 1135 m. Selected old (>40 yrs) burns.
Calving	Bogs and mature forests selected for calving as well as islands and small lakes. Peatlands and stands dominated by black spruce and lowland black spruce stands within muskeg are used for calving.
Post-calving	Forest stands older than 50 yrs. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg are also selected during summer. Use lichen and low muskeg vegetation. In some areas, sites with abundant arboreal lichen are selected during summer.
Rutting	Mature forests. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands and muskeg during summer.
Winter	Treed peatlands, treed bog and treed fen and open fen complexes with > 50% peatland coverage with high abundance of lichens. Use of small lakes, rock outcrops on lakes for lichen access. Mature forest > 50 yrs old. Upland black spruce/jack pine forests, lowland black spruce, young jack pine and open and treed peatlands.
Avoidance	Avoid upland and fen habitats, aspen dominated stands, immature stands and large rivers all year round. Avoid matrix-type habitat, including areas with abundant shrubs, disturbed/fragmented habitats, hardwood/deciduous dominated forest stands, and edge habitat. Avoid recent burns, main roads, seismic lines, well sites and areas with a high density of cut blocks. Avoidance of water.

Critical Habitat Identification: William Lake (Manitoba)

D) Additional Information:

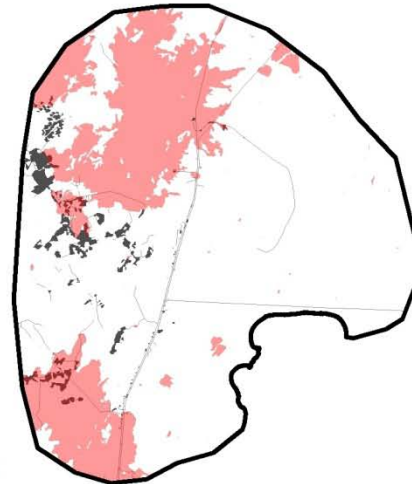


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
 - Polygonal Disturbances
 - Linear Disturbances
- 0 10 20 40 Km

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

Burned Areas = 24%
 Buffered⁴ Anthropogenic (no reservoirs) = 10%
 Total Habitat Disturbance = 31%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.
⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Owl-Flinstone (Manitoba)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

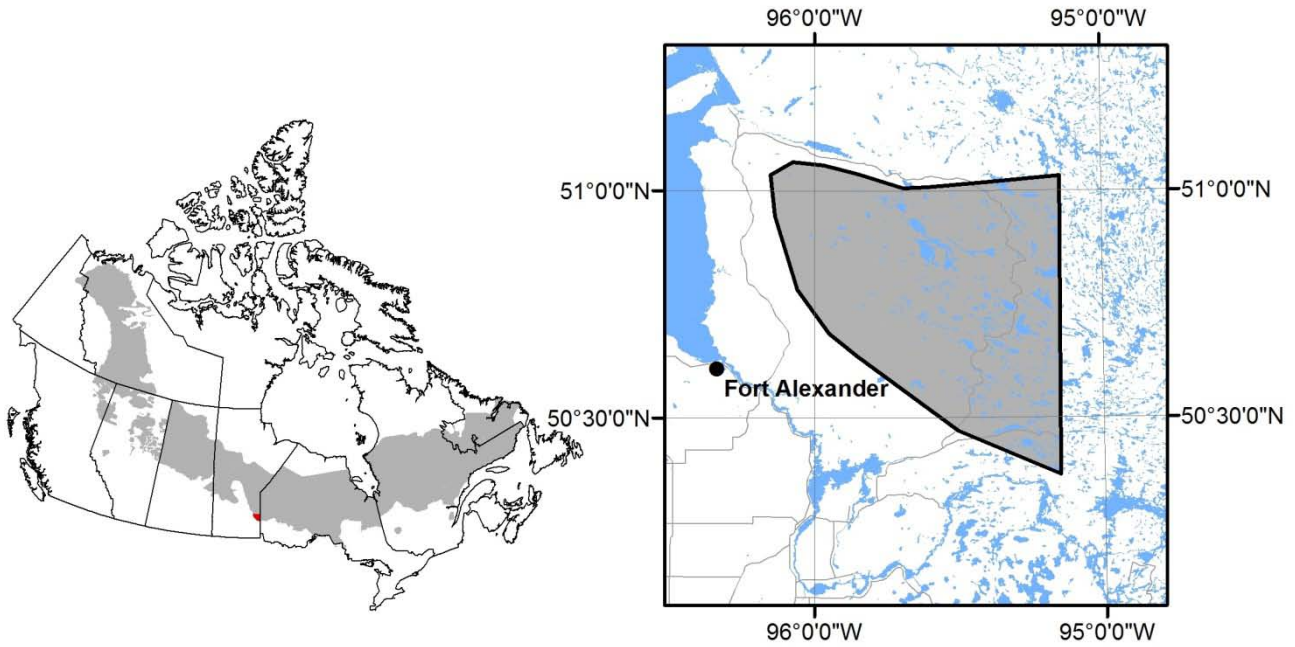


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	363,570 ha
	Population size	78
	Population trend	Stable
	Total Habitat Disturbance	141,792 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining / Self-Sustaining
Determination of Amount of Habitat	A) Range Size	363,570 ha (100%)
	B) Total Habitat Disturbance ¹	141,792 ha (39%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	221,778 ha (61%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Owl-Flinstone (Manitoba)

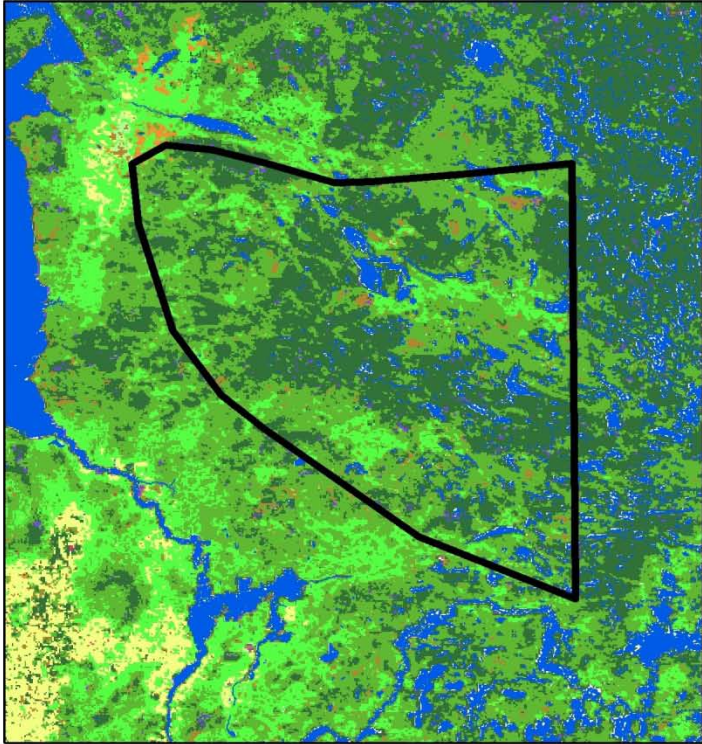
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield West Central ecozone.

Type of selection	Description
Broad scale	<p>Mature conifer uplands and conifer/tamarack dominated lowlands. Conifer/tamarack-dominated peatlands, muskegs with abundant arboreal lichens, upland mature conifer forests stands with abundant terrestrial lichen and rocky areas with sparse trees. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.</p>
Calving	<p>Forested wetlands/treed bog, old burns, sparse conifer and dense spruce. Need lichen availability. Peatlands, raised hillrocks with large muskeg areas, forested islands and shorelines of large lakes selected during calving. Jack pine or jack pine/black spruce forests also used for calving.</p>
Post-calving	<p>Peatland with forested islands, islands, and shorelines selected during summer. Mature, dense forest stands.</p>
Rutting	<p>Semi-open and open bogs and mature conifer uplands selected during rutting. Terrestrial lichens and arboreal lichens, sedges and bog ericoids (<i>Andromeda glaucophylla</i>, <i>Chamaedaphne calyculata</i>, <i>Kalmia polifolia</i>, <i>Ledum groenlandicum</i>) are important sources of forage.</p>
Winter	<p>Mature coniferous stands. Areas with a high proportion of lakes (> 5-100 ha) with convoluted shorelines. Caribou forage in areas with high lichen abundance and fewer shrubs in jack pine and black spruce stands with low tree densities, low basal areas and short heights. Caribou select open bogs, intermediate to mature jack pine rock ridges, jack pine habitats with lichens and lakes, but move to jack pine ridges in mature conifer stands with lichen when winter conditions prevent foraging in bogs. Glacial erratics, arboreal lichens, terrestrial lichens, sedges and ericaceous species are an important source of forage.</p>
Travel	<p>Travel mainly in conifer forests, avoiding open habitats (e.g. lakes, disturbed areas, etc.) when migrating from summer to winter habitat. Use frozen lakes for travel during winter/spring, in some instances to reach islands for calving. Spring migration is not restricted to specific travel routes. Some move at a range of 100 km during the rutting season. Caribou moved 8-60 km away after logging operations were begun.</p>
Avoidance	<p>Shrub-rich fens are avoided during calving. Tamarack fens avoided during post-calving. Early successional stands, mixed softwood stands and areas with windfallen trees avoided in winter. Vesicular ice, areas with snow depths greater than 65 cm and snow crusted areas with a hardness greater than 400g/cm² were also avoided during winter. Caribou used areas immediately post fire, but then gradually avoided these areas as more time elapsed. Areas where active logging is taking place are avoided. Avoid roads.</p>

Critical Habitat Identification: Owl-Flinstone (Manitoba)

D) Additional Information:

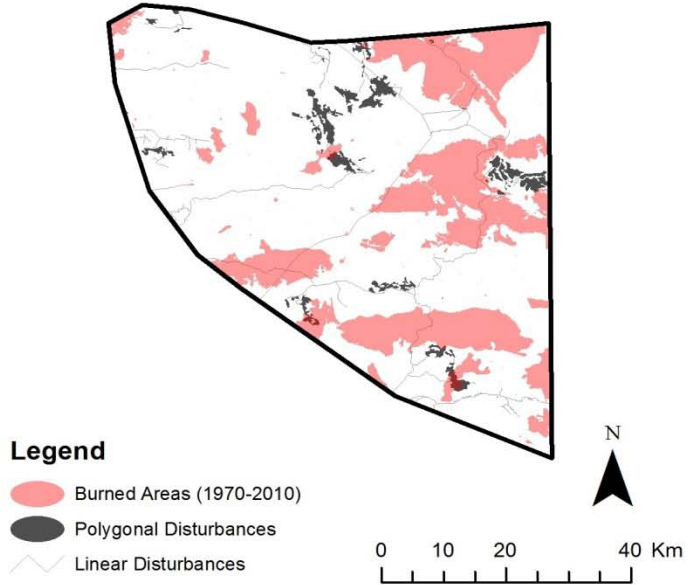


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 25%
- Buffered⁴ Anthropogenic (no reservoirs) = 18%
- Total Habitat Disturbance = 39%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Sydney (Ontario)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

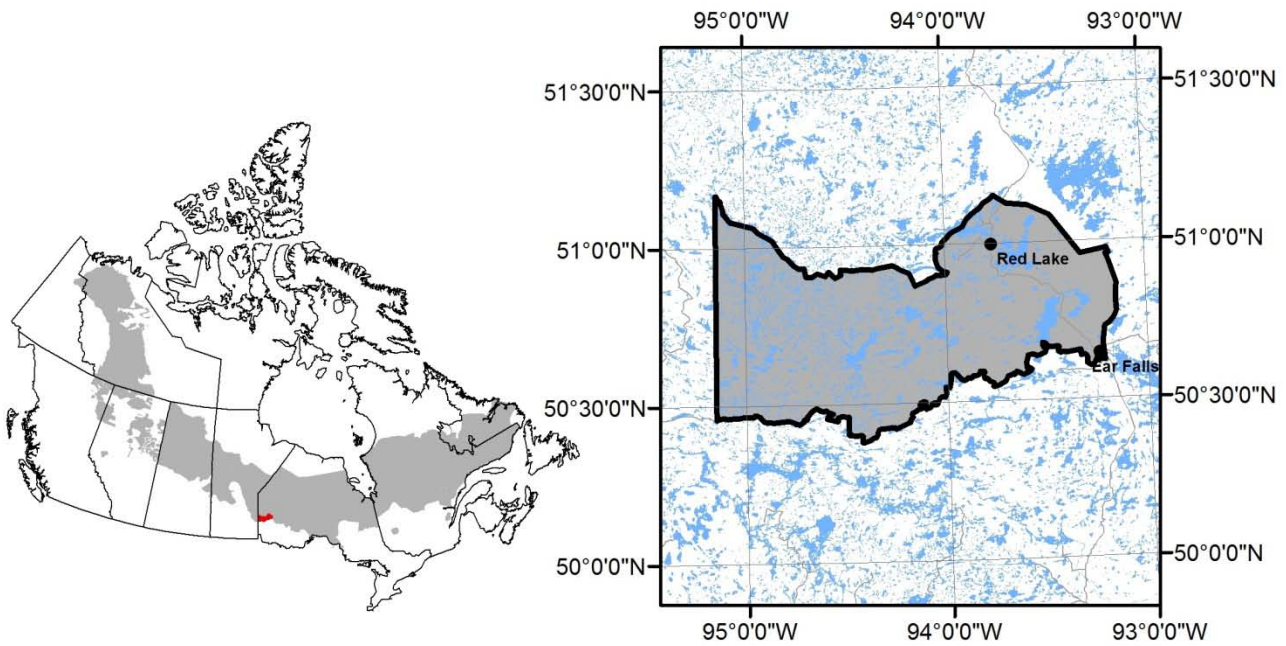


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	753,001 ha
	Population size	Unknown
	Population trend	Stable
	Total Habitat Disturbance	436,741 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	753,001 ha (100%)
	B) Total Habitat Disturbance ¹	436,741 ha (58%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	316,260 ha (42%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Sydney (Ontario)

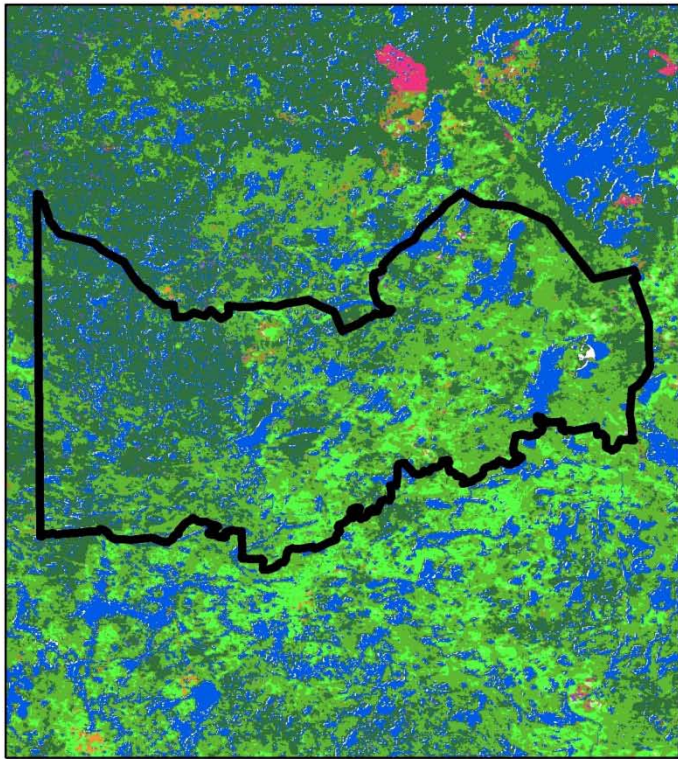
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield West Central ecozone.

Type of selection	Description
Broad scale	Mature conifer uplands and conifer/tamarack dominated lowlands. Conifer/tamarack-dominated peatlands, muskegs with abundant arboreal lichens, upland mature conifer forests stands with abundant terrestrial lichen and rocky areas with sparse trees. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.
Calving	Forested wetlands/treed bog, old burns, sparse conifer and dense spruce. Need lichen availability. Peatlands, raised hillrocks with large muskeg areas, forested islands and shorelines of large lakes selected during calving. Jack pine or jack pine/black spruce forests also used for calving.
Post-calving	Peatland with forested islands, islands, and shorelines selected during summer. Mature, dense forest stands.
Rutting	Semi-open and open bogs and mature conifer uplands selected during rutting. Terrestrial lichens and arboreal lichens, sedges and bog ericoids (<i>Andromeda glaucophylla</i> , <i>Chamaedaphne calyculata</i> , <i>Kalmia polifolia</i> , <i>Ledum groenlandicum</i>) are important sources of forage.
Winter	Mature coniferous stands. Areas with a high proportion of lakes (> 5-100 ha) with convoluted shorelines. Caribou forage in areas with high lichen abundance and fewer shrubs in jack pine and black spruce stands with low tree densities, low basal areas and short heights. Caribou select open bogs, intermediate to mature jack pine rock ridges, jack pine habitats with lichens and lakes, but move to jack pine ridges in mature conifer stands with lichen when winter conditions prevent foraging in bogs. Glacial erratics, arboreal lichens, terrestrial lichens, sedges and ericaceous species are an important source of forage.
Travel	Travel mainly in conifer forests, avoiding open habitats (e.g. lakes, disturbed areas, etc.) when migrating from summer to winter habitat. Use frozen lakes for travel during winter/spring, in some instances to reach islands for calving. Spring migration is not restricted to specific travel routes. Some move at a range of 100 km during the rutting season. Caribou moved 8-60 km away after logging operations were begun.
Avoidance	Shrub-rich fens are avoided during calving. Tamarack fens avoided during post-calving. Early successional stands, mixed softwood stands and areas with windfallen trees avoided in winter. Vesicular ice, areas with snow depths greater than 65 cm and snow crusted areas with a hardness greater than 400g/cm ² were also avoided during winter. Caribou used areas immediately post fire, but then gradually avoided these areas as more time elapsed. Areas where active logging is taking place are avoided. Avoid roads.

Critical Habitat Identification: Sydney (Ontario)

D) Additional Information:

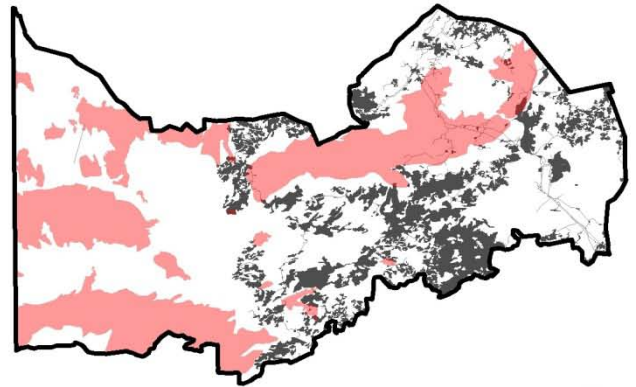


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

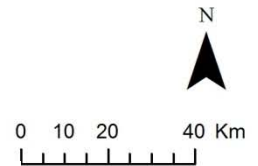
MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 28%
- Buffered³ Anthropogenic (no reservoirs) = 33%
- Total Habitat Disturbance = 58%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Berens (Ontario)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

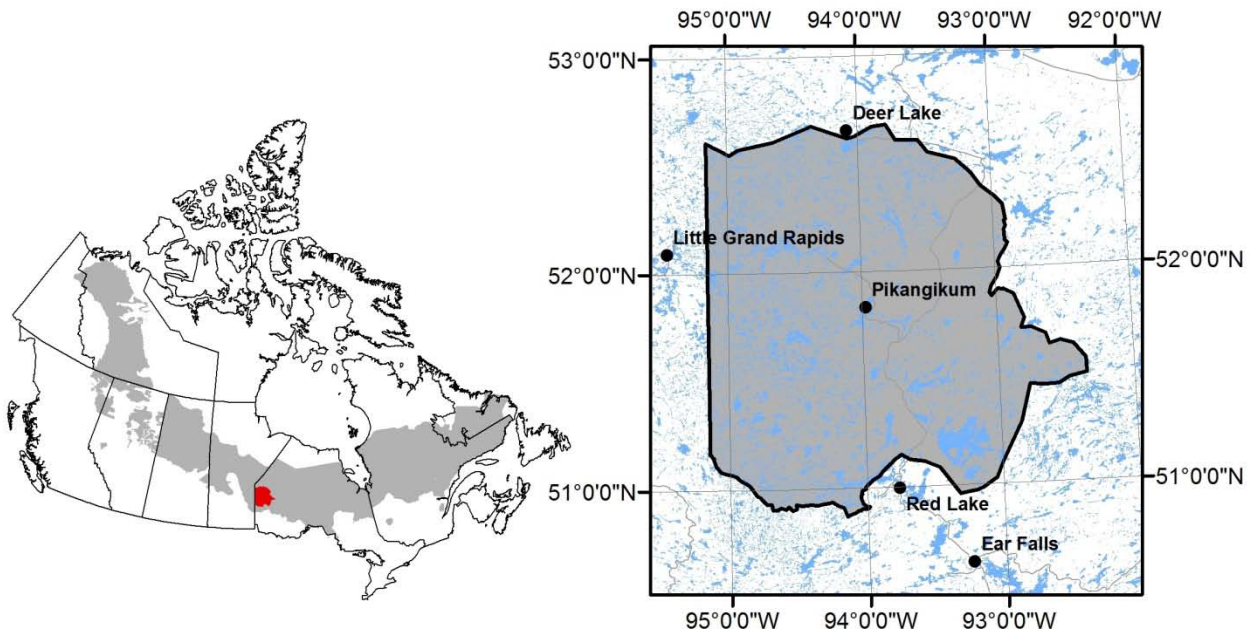


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	2,794,835 ha
	Population size	Unknown
	Population trend	Unknown
	Total Habitat Disturbance	1,117,934 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining / Self-Sustaining
Determination of Amount of Habitat	A) Range Size	2,794,835 ha (100%)
	B) Total Habitat Disturbance ¹	1,117,934 ha (40%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	1,676,901 ha (60%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Berens (Ontario)

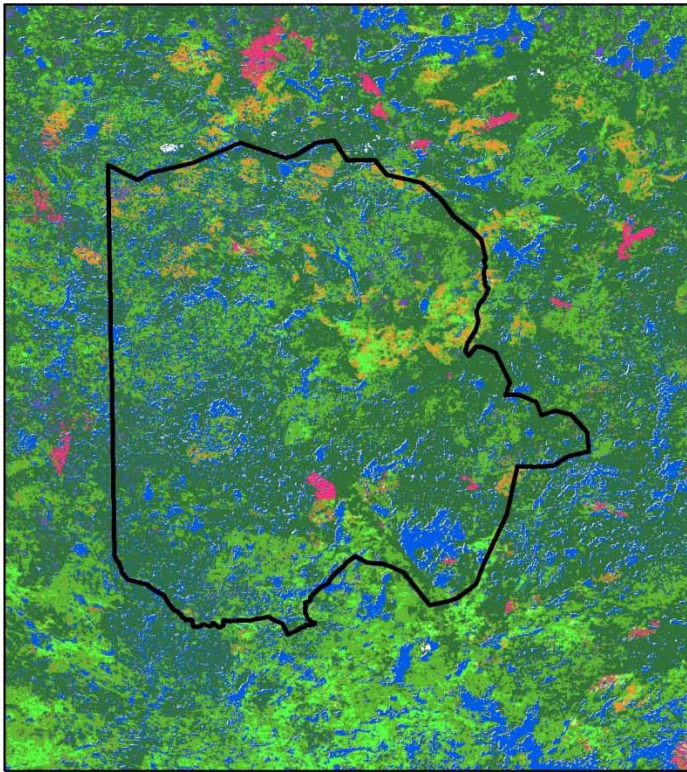
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield West Central ecozone.

Type of selection	Description
Broad scale	<p>Mature conifer uplands and conifer/tamarack dominated lowlands. Conifer/tamarack-dominated peatlands, muskegs with abundant arboreal lichens, upland mature conifer forests stands with abundant terrestrial lichen and rocky areas with sparse trees. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.</p>
Calving	<p>Forested wetlands/treed bog, old burns, sparse conifer and dense spruce. Need lichen availability. Peatlands, raised hillrocks with large muskeg areas, forested islands and shorelines of large lakes selected during calving. Jack pine or jack pine/black spruce forests also used for calving.</p>
Post-calving	<p>Peatland with forested islands, islands, and shorelines selected during summer. Mature, dense forest stands.</p>
Rutting	<p>Semi-open and open bogs and mature conifer uplands selected during rutting. Terrestrial lichens and arboreal lichens, sedges and bog ericoids (<i>Andromeda glaucophylla</i>, <i>Chamaedaphne calyculata</i>, <i>Kalmia polifolia</i>, <i>Ledum groenlandicum</i>) are important sources of forage.</p>
Winter	<p>Mature coniferous stands. Areas with a high proportion of lakes (> 5-100 ha) with convoluted shorelines. Caribou forage in areas with high lichen abundance and fewer shrubs in jack pine and black spruce stands with low tree densities, low basal areas and short heights. Caribou select open bogs, intermediate to mature jack pine rock ridges, jack pine habitats with lichens and lakes, but move to jack pine ridges in mature conifer stands with lichen when winter conditions prevent foraging in bogs. Glacial erratics, arboreal lichens, terrestrial lichens, sedges and ericaceous species are an important source of forage.</p>
Travel	<p>Travel mainly in conifer forests, avoiding open habitats (e.g. lakes, disturbed areas, etc.) when migrating from summer to winter habitat. Use frozen lakes for travel during winter/spring, in some instances to reach islands for calving. Spring migration is not restricted to specific travel routes. Some move at a range of 100 km during the rutting season. Caribou moved 8-60 km away after logging operations were begun.</p>
Avoidance	<p>Shrub-rich fens are avoided during calving. Tamarack fens avoided during post-calving. Early successional stands, mixed softwood stands and areas with windfallen trees avoided in winter. Vesicular ice, areas with snow depths greater than 65 cm and snow crusted areas with a hardness greater than 400g/cm² were also avoided during winter. Caribou used areas immediately post fire, but then gradually avoided these areas as more time elapsed. Areas where active logging is taking place are avoided. Avoid roads.</p>

Critical Habitat Identification: Berens (Ontario)

D) Additional Information:

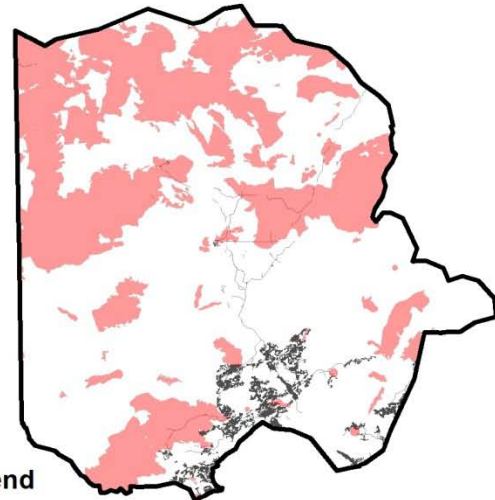


Landcover

- | | | |
|------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|
| ● Water | ● Shrub | ● Rock Outcrop |
| ● Coniferous Forest | ● Herbaceous | ● Recent Burn |
| ● Deciduous Forest | ● Wetland | ● Old Burn |
| ● Mixed Forest | ● Cropland | ● Built-Up |

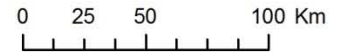
MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 34%
- Buffered⁴ Anthropogenic (no reservoirs) = 7%
- Total Habitat Disturbance = 40%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Brightsand (Ontario)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

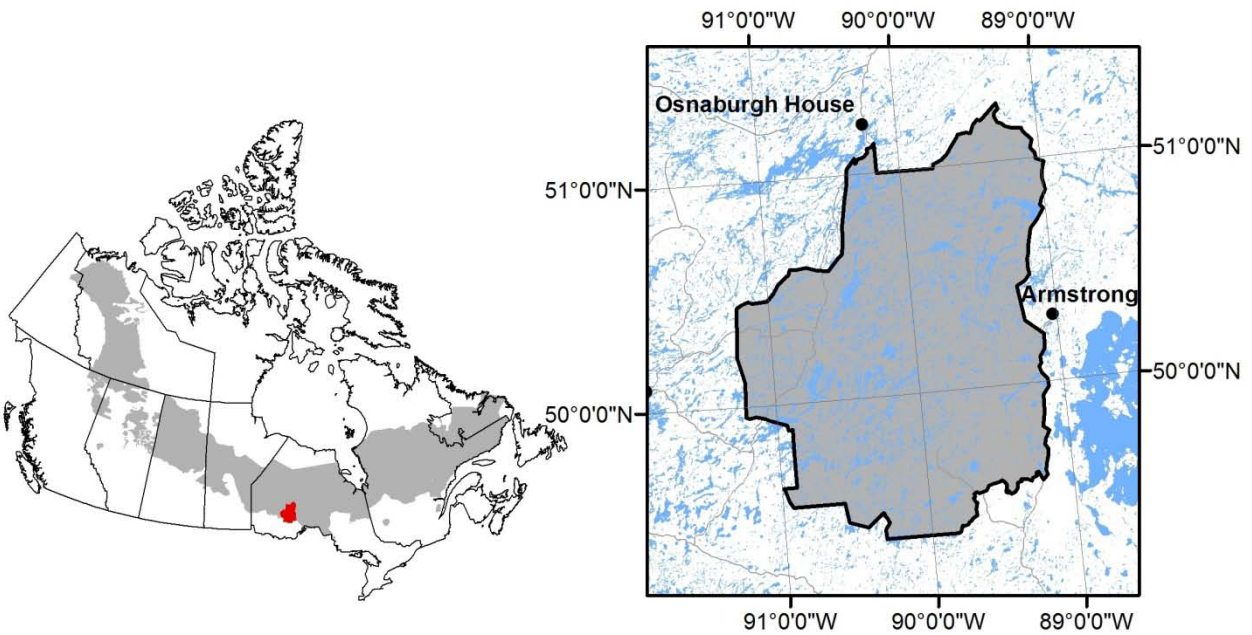


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	2,220,921 ha
	Population size	Unknown
	Population trend	Unknown
	Total Habitat Disturbance	932,787 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining / Self-Sustaining
Determination of Amount of Habitat	A) Range Size	2,220,921 ha (100%)
	B) Total Habitat Disturbance ¹	932,787 ha (42%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	1,288,134 ha (58%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Brightsand (Ontario)

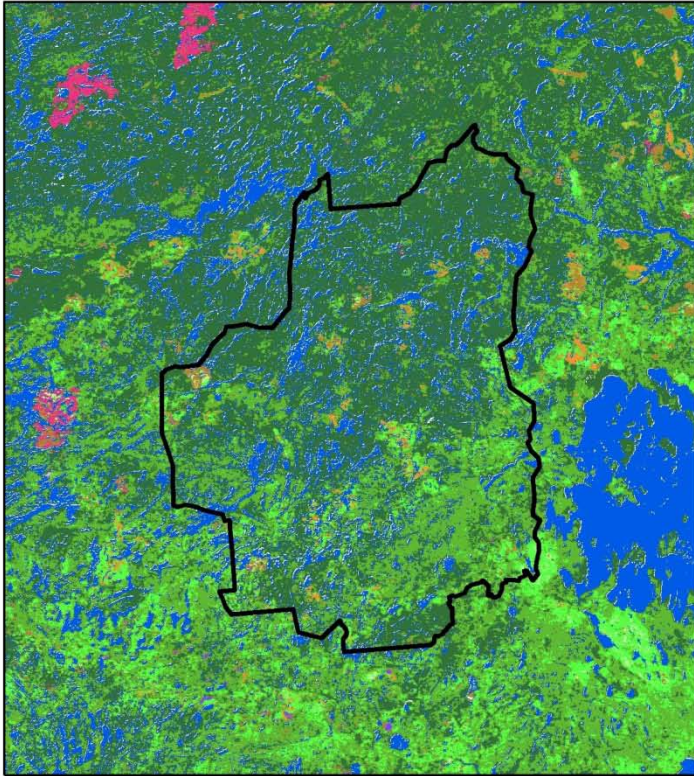
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield West Central ecozone.

Type of selection	Description
Broad scale	<p>Mature conifer uplands and conifer/tamarack dominated lowlands. Conifer/tamarack-dominated peatlands, muskegs with abundant arboreal lichens, upland mature conifer forests stands with abundant terrestrial lichen and rocky areas with sparse trees. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.</p>
Calving	<p>Forested wetlands/treed bog, old burns, sparse conifer and dense spruce. Need lichen availability. Peatlands, raised hillrocks with large muskeg areas, forested islands and shorelines of large lakes selected during calving. Jack pine or jack pine/black spruce forests also used for calving.</p>
Post-calving	<p>Peatland with forested islands, islands, and shorelines selected during summer. Mature, dense forest stands.</p>
Rutting	<p>Semi-open and open bogs and mature conifer uplands selected during rutting. Terrestrial lichens and arboreal lichens, sedges and bog ericoids (<i>Andromeda glaucophylla</i>, <i>Chamaedaphne calyculata</i>, <i>Kalmia polifolia</i>, <i>Ledum groenlandicum</i>) are important sources of forage.</p>
Winter	<p>Mature coniferous stands. Areas with a high proportion of lakes (> 5-100 ha) with convoluted shorelines. Caribou forage in areas with high lichen abundance and fewer shrubs in jack pine and black spruce stands with low tree densities, low basal areas and short heights. Caribou select open bogs, intermediate to mature jack pine rock ridges, jack pine habitats with lichens and lakes, but move to jack pine ridges in mature conifer stands with lichen when winter conditions prevent foraging in bogs. Glacial erratics, arboreal lichens, terrestrial lichens, sedges and ericaceous species are an important source of forage.</p>
Travel	<p>Travel mainly in conifer forests, avoiding open habitats (e.g. lakes, disturbed areas, etc.) when migrating from summer to winter habitat. Use frozen lakes for travel during winter/spring, in some instances to reach islands for calving. Spring migration is not restricted to specific travel routes. Some move at a range of 100 km during the rutting season. Caribou moved 8-60 km away after logging operations were begun.</p>
Avoidance	<p>Shrub-rich fens are avoided during calving. Tamarack fens avoided during post-calving. Early successional stands, mixed softwood stands and areas with windfallen trees avoided in winter. Vesicular ice, areas with snow depths greater than 65 cm and snow crusted areas with a hardness greater than 400g/cm² were also avoided during winter. Caribou used areas immediately post fire, but then gradually avoided these areas as more time elapsed. Areas where active logging is taking place are avoided. Avoid roads.</p>

Critical Habitat Identification: Brightsand (Ontario)

D) Additional Information:

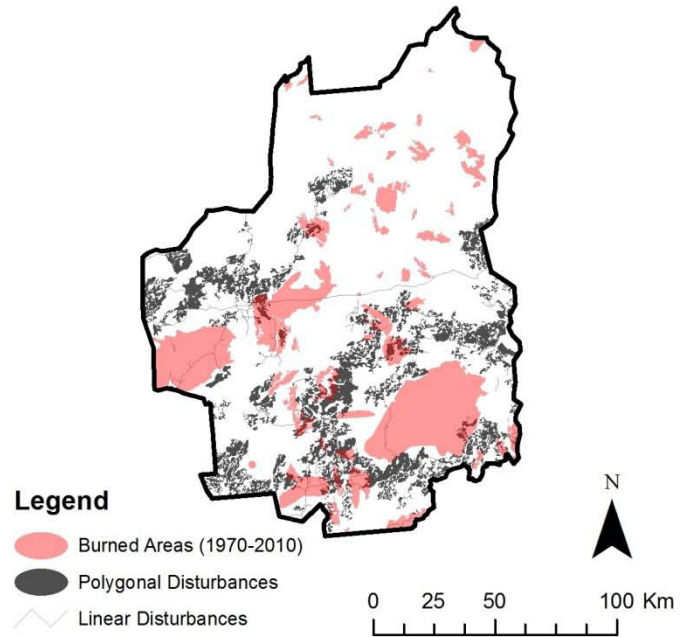


Landcover

- | | | |
|------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|
| ● Water | ● Shrub | ● Rock Outcrop |
| ● Coniferous Forest | ● Herbaceous | ● Recent Burn |
| ● Deciduous Forest | ● Wetland | ● Old Burn |
| ● Mixed Forest | ● Cropland | ● Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

Burned Areas = 18%

Buffered⁴ Anthropogenic (no reservoirs) = 28%

Total Habitat Disturbance = 42%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Val d'Or (Quebec)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.



Figure 1: Keymap of the general location of the local population (in red).

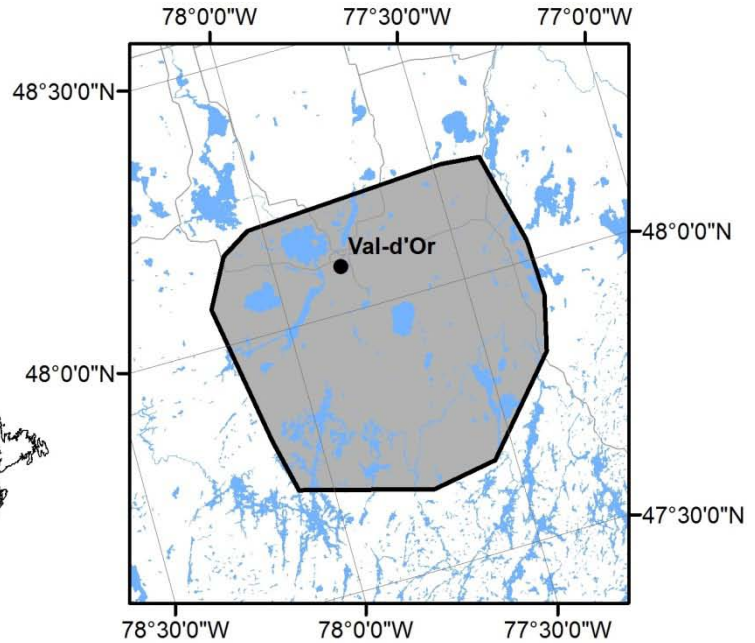


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	346,861 ha
	Population size	30
	Population trend	Declining
	Total Habitat Disturbance	208,117 ha
Range Assessment	Assessment of the likelihood of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	346,861 ha (100%)
	B) Total Habitat Disturbance ¹	208,117 ha (60%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	138,744 ha (40%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

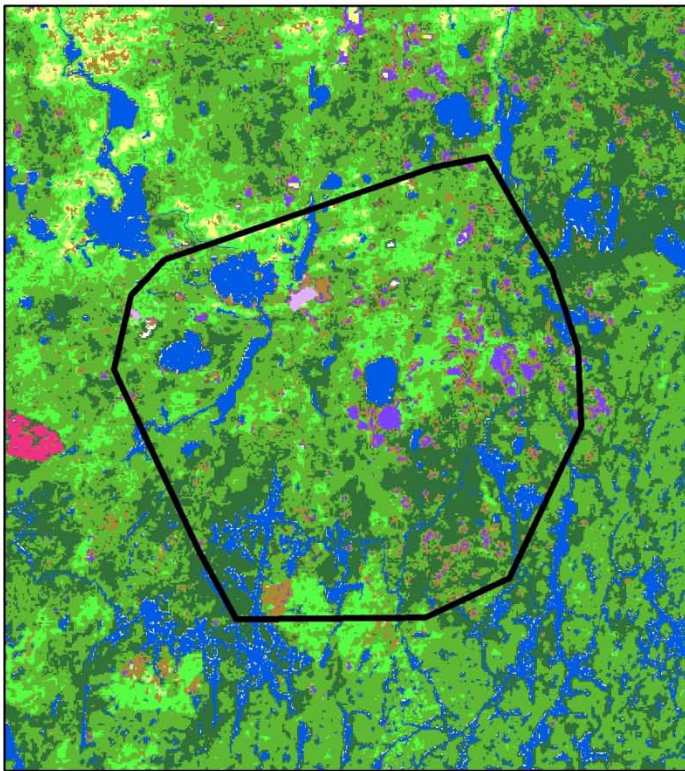
Critical Habitat Identification: Val d'Or (Quebec)

C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield Southeast ecozone.

Type of selection	Description
Broad scale	Late seral-stage black spruce-dominated lowlands and jack pine-dominated uplands, Balsam fir stands, marshlands and abundant lichen.
Calving	Open, medium-closed conifer forests. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.
Rutting	Dense and open mature conifer forests of spruce, tamarack, jack pine and young conifer forests between 30 – 50 yrs old.
Winter	Open stands of balsam fir, balsam fir-black spruce, black spruce, black-spruce-tamarack and jack pine stands older than 70 yrs. Dry bare lands, 30-50 yrs old stands of balsam fir or fir-black spruce, as well as 50 yr old jack pine stands, and arboreal and terrestrial lichens.
Avoidance	Avoidance of roads and burns <50 yrs old.

D) **Additional Information:**

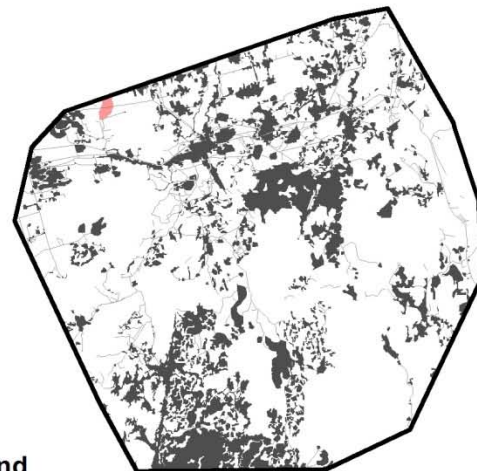


Landcover

- Water
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Shrub
- Herbaceous
- Wetland
- Cropland
- Rock Outcrop
- Recent Burn
- Old Burn
- Built-Up

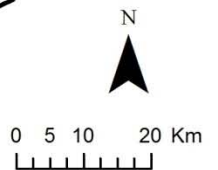
MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
Legend reclassified by EC
With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

Burned Areas = 0.1%
Buffered³ Anthropogenic (no reservoirs) = 60%
Total Habitat Disturbance = 60%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Charlevoix (Quebec)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

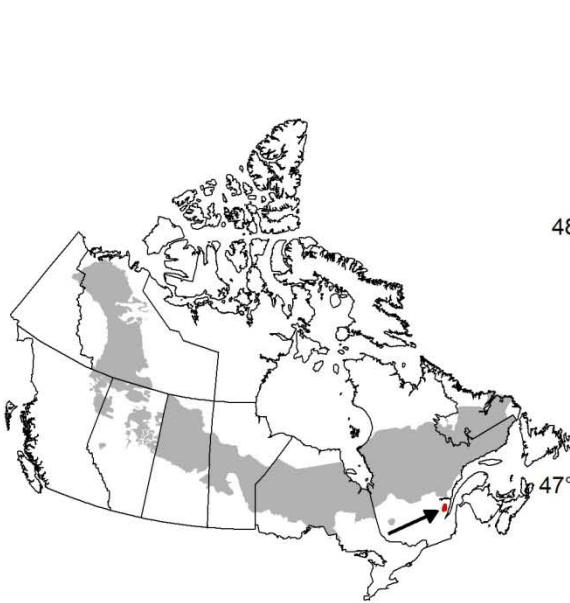


Figure 1: Keymap of the general location of the local population (in red).

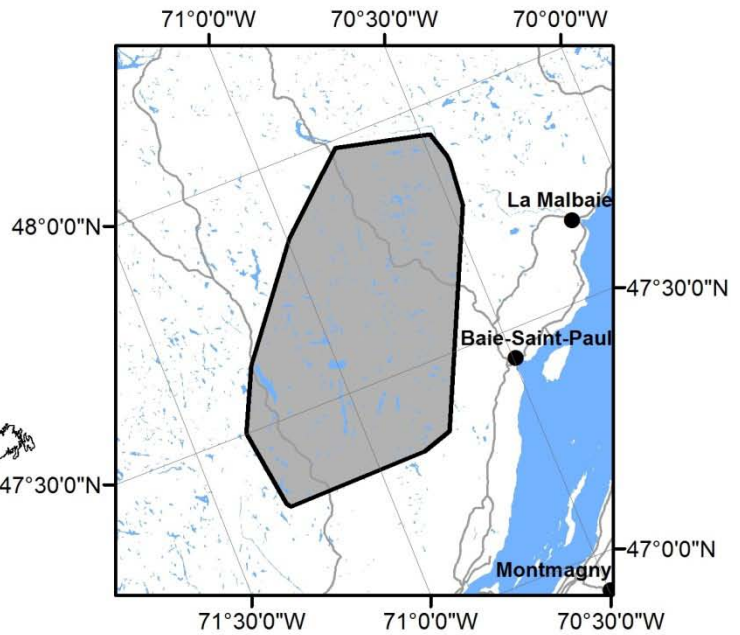


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	312,803 ha
	Population size	75
	Population trend	Stable
	Total Habitat Disturbance	250,242 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	312,803 ha (100%)
	B) Total Habitat Disturbance ¹	250,242 ha (80%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	62,561 ha (20%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

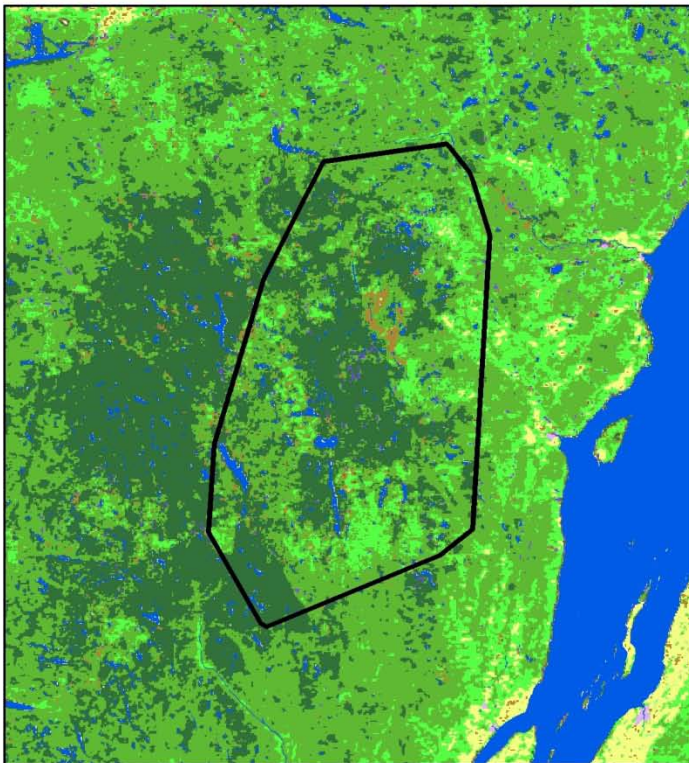
Critical Habitat Identification: Charlevoix (Quebec)

C) Type: Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield Southeast ecozone.

Type of selection	Description
Broad scale	Late seral-stage black spruce-dominated lowlands and jack pine-dominated uplands, Balsam fir stands, marshlands and abundant lichen.
Calving	Open, medium-closed conifer forests. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.
Rutting	Dense and open mature conifer forests of spruce, tamarack, jack pine and young conifer forests between 30 – 50 yrs old.
Winter	Open stands of balsam fir, balsam fir-black spruce, black spruce, black-spruce-tamarack and jack pine stands older than 70 yrs. Dry bare lands, 30-50 yrs old stands of balsam fir or fir-black spruce, as well as 50 yr old jack pine stands, and arboreal and terrestrial lichens.
Avoidance	Avoidance of roads and burns <50 yrs old.

D) Additional Information:

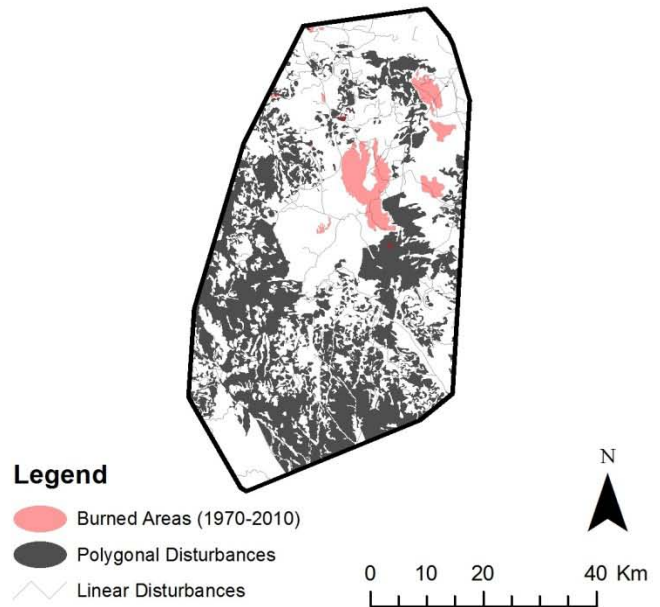


Landcover

- Water
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Shrub
- Herbaceous
- Wetland
- Cropland
- Rock Outcrop
- Recent Burn
- Old Burn
- Built-Up

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
Legend reclassified by EC
With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

Burned Areas = 4%
Buffered³ Anthropogenic (no reservoirs) = 77%
Total Habitat Disturbance = 80%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Pipmuacan (Quebec)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.



Figure 1: Keymap of the general location of the local population (in red).

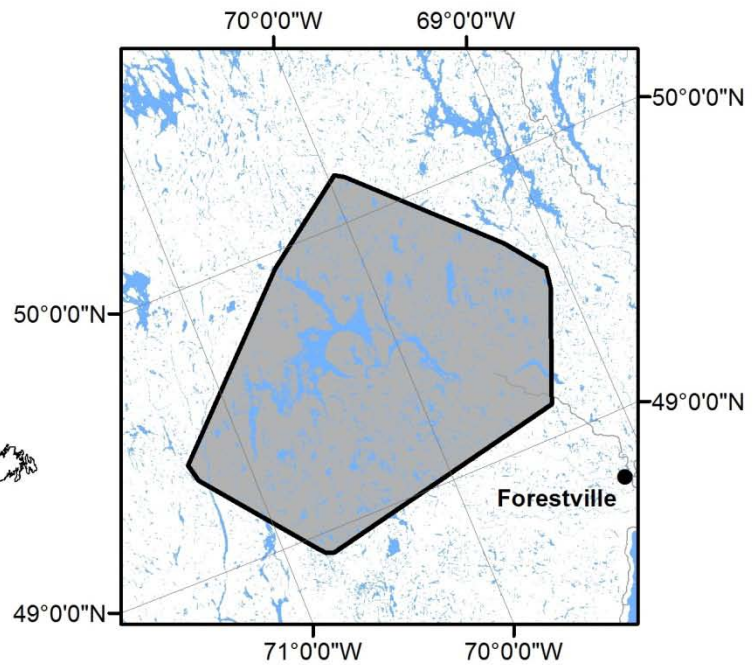


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	1,376,899 ha
	Population size	134
	Population trend	Stable
	Total Habitat Disturbance	812,370 ha
Range Assessment	Assessment of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	1,376,899 ha (100%)
	B) Total Habitat Disturbance ¹	812,370 ha (59%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	564,529 ha (41%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Pipmuacan (Quebec)

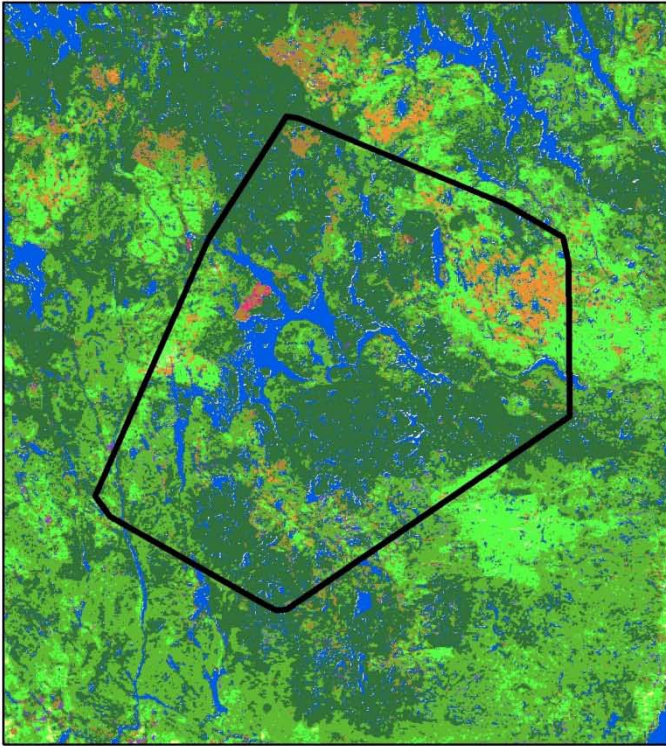
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield East ecozone.

Type of selection	Description
Broad scale	<p>Conifer-feather moss forests on poorly-drained sites and mature conifer uplands with abundant terrestrial lichen. black spruce, jack pine and balsam fir stands present with abundant lichen.</p> <p>Water bodies and wetlands (swamps, marshy areas with tamarack).</p> <p>Mountains or rolling hills.</p> <p>Elevations of 300 m.</p> <p>Intermediate values of Normalized Difference Vegetation Index.</p> <p>Selection for old (>40 yrs) burns.</p>
Calving	<p>Open wetlands, peninsulas and islands.</p> <p>Sedges, ericaceous species, bryophytes, alder and larch selected in spring.</p> <p>Balsam fir, dense black spruce stands, spruce-fir forests older than 40 yrs, and dry bare land with high lichen densities.</p> <p>Mature conifer stands, as well as wetlands (marshes, peat moss areas). Higher altitudes used for calving in this area rather than lake or water bodies.</p>
Post-calving	<p>Open and forested wetlands (marshes, swamps), and continued use of peninsulas and islands. Hilly areas, coastal sites, shorelines (rivers, lakes, creeks).</p> <p>Aquatic plants, dwarf birch (<i>Betula glandulosa</i>), deciduous shrubs, ericaceous species and moss.</p>
Rutting	<p>Open wetlands selected, swamps.</p> <p>Terrestrial and arboreal lichens, forbs, sedges, mosses and coniferous and deciduous shrubs.</p> <p>Balsam fir stands, dense spruce stands, mature and regenerating conifer stands, other forest stands (tamarack, pine) with abundant lichens, wetlands (swamps) and dry bare lands.</p>
Winter	<p>Forested wetlands. Some use of upland-tundra for loafing. Mountainous terrain.</p> <p>Dry bare land, wetlands, mature conifer forests with lichen, balsam fir stands, dense spruce stands, and mixed spruce-fir forests older than 40 yrs selected in southern areas. Observed along frozen bodies of water.</p> <p>Use of mature forests protected from harvesting increases probability of encounters with wolves that select the same habitats in winter.</p> <p>Shallow snow depths selected in late winter.</p>
Travel	<p>Caribou move greater distances during the rutting season.</p>
Avoidance	<p>Avoid deciduous and mixed forests, jack pine forests less than 40 yrs old and heaths without lichens all year round.</p> <p>Avoid disturbed habitats, including roads, recreational areas, burns and clear-cuts or harvested areas used by wolves.</p>

Critical Habitat Identification: Pimpuacan (Quebec)

D) Additional Information:

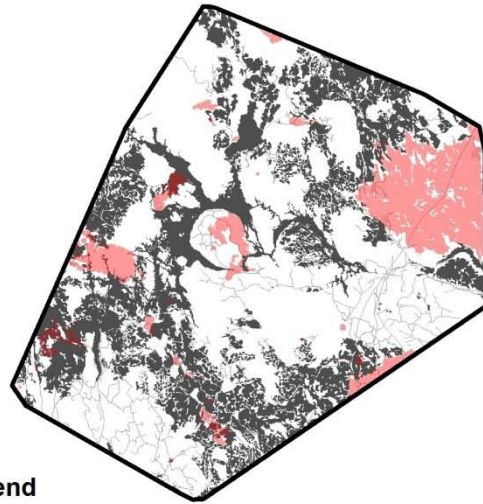


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

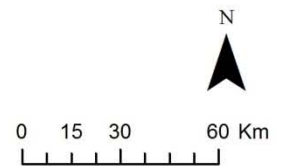
MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
- Polygonal Disturbances
- Linear Disturbances



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 11%
- Buffered³ Anthropogenic (no reservoirs) = 51%
- Total Habitat Disturbance = 59%⁴

³ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁴ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Manouane (Quebec)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.

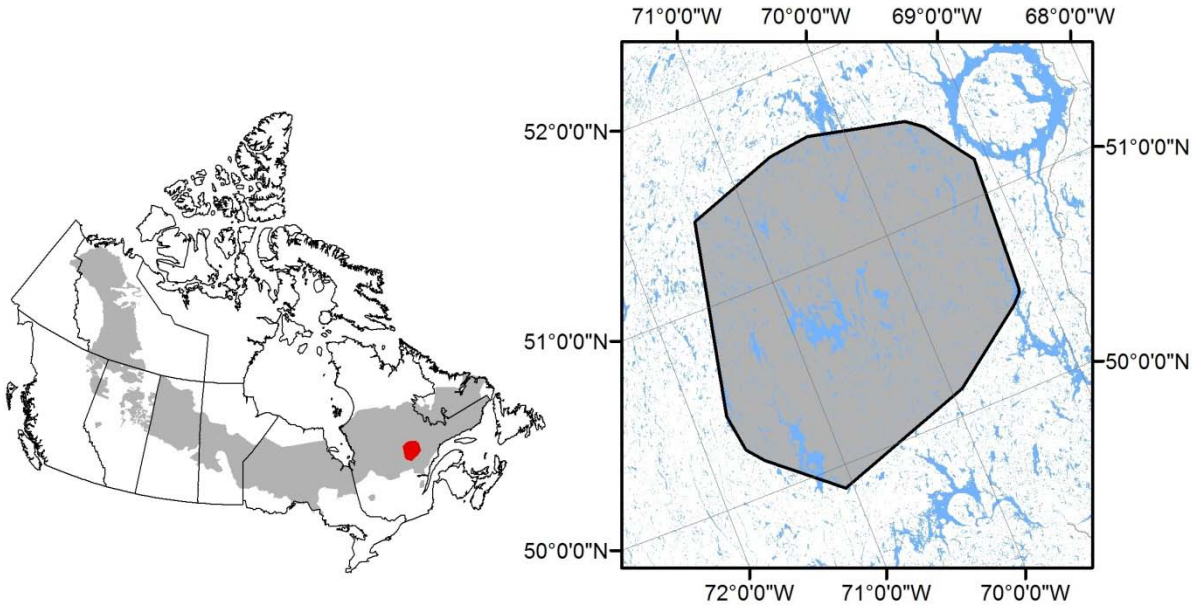


Figure 1: Keymap of the general location of the local population (in red).

Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	2,716,449 ha
	Population size	358
	Population trend	Stable
	Total Habitat Disturbance	1,059,415 ha
Range Assessment	Assessment of the likelihood of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining / Self-Sustaining
Determination of Amount of Habitat	A) Range Size	2,716,449 ha (100%)
	B) Total Habitat Disturbance ¹	1,059,415 ha (39%)
	C) Undisturbed Habitat, Initial Critical Habitat ²	1,657,034 ha (61%)

¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat).

² The initial Critical Habitat is the current amount of undisturbed habitat. This may be decreased over time, if demonstrated that local populations are being stabilized.

Critical Habitat Identification: Manouane (Quebec)

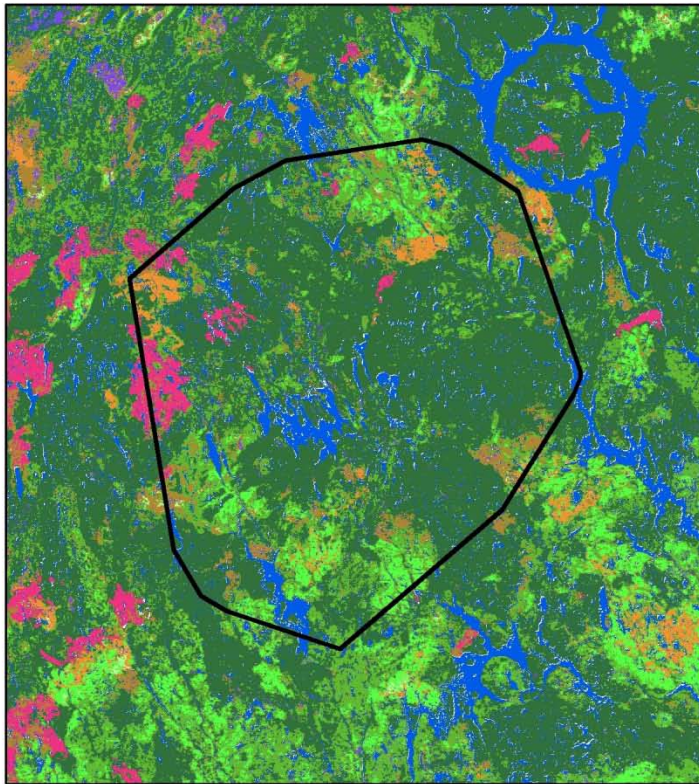
C) **Type:** Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield East ecozone.

Type of selection	Description
Broad scale	Conifer-feather moss forests on poorly-drained sites and mature conifer uplands with abundant terrestrial lichen. black spruce, jack pine and balsam fir stands present with abundant lichen. Water bodies and wetlands (swamps, marshy areas with tamarack). Mountains or rolling hills. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.
Calving	Open wetlands, peninsulas and islands. Sedges, ericaceous species, bryophytes, alder and larch selected in spring. Balsam fir, dense black spruce stands, spruce-fir forests older than 40 yrs, and dry bare land with high lichen densities. Mature conifer stands, as well as wetlands (marshes, peat moss areas). Higher altitudes used for calving in this area rather than lake or water bodies.
Post-calving	Open and forested wetlands (marshes, swamps), and continued use of peninsulas and islands. Hilly areas, coastal sites, shorelines (rivers, lakes, creeks). Aquatic plants, dwarf birch (<i>Betula glandulosa</i>), deciduous shrubs, ericaceous species and moss.
Rutting	Open wetlands selected, swamps. Terrestrial and arboreal lichens, forbs, sedges, mosses and coniferous and deciduous shrubs. Balsam fir stands, dense spruce stands, mature and regenerating conifer stands, other forest stands (tamarack, pine) with abundant lichens, wetlands (swamps) and dry bare lands.
Winter	Forested wetlands. Some use of upland-tundra for loafing. Mountainous terrain. Dry bare land, wetlands, mature conifer forests with lichen, balsam fir stands, dense spruce stands, and mixed spruce-fir forests older than 40 yrs selected in southern areas. Observed along frozen bodies of water. Use of mature forests protected from harvesting increases probability of encounters with wolves that select the same habitats in winter. Shallow snow depths selected in late winter.
Travel	Caribou move greater distances during the rutting season.
Avoidance	Avoid deciduous and mixed forests, jack pine forests less than 40 yrs old and heaths without lichens all year round. Avoid disturbed habitats, including roads, recreational areas, burns and clear-cuts or harvested areas used by wolves.

Critical Habitat Identification: Manouane (Quebec)

D) Additional Information:

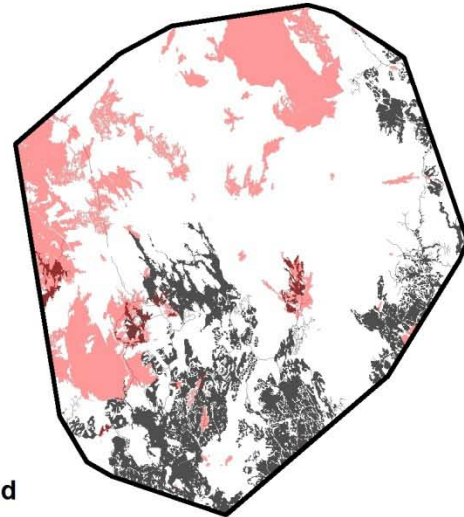


Landcover

- | | | |
|-------------------|------------|--------------|
| Water | Shrub | Rock Outcrop |
| Coniferous Forest | Herbaceous | Recent Burn |
| Deciduous Forest | Wetland | Old Burn |
| Mixed Forest | Cropland | Built-Up |

MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend

- Burned Areas (1970-2010)
 - Polygonal Disturbances
 - Linear Disturbances
- 0 25 50 100 Km

*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

- Burned Areas = 18%
- Buffered⁴ Anthropogenic (no reservoirs) = 23%
- Total Habitat Disturbance = 39%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.

Critical Habitat Identification: Red Wine Mountain (Labrador)

The identification of critical habitat for boreal caribou is described by three factors for each local population: i) Location of habitat; ii) Amount of habitat; and iii) Type of habitat.

A) **Location:** Where critical habitat is found.



Figure 1: Keymap of the general location of the local population (in red).

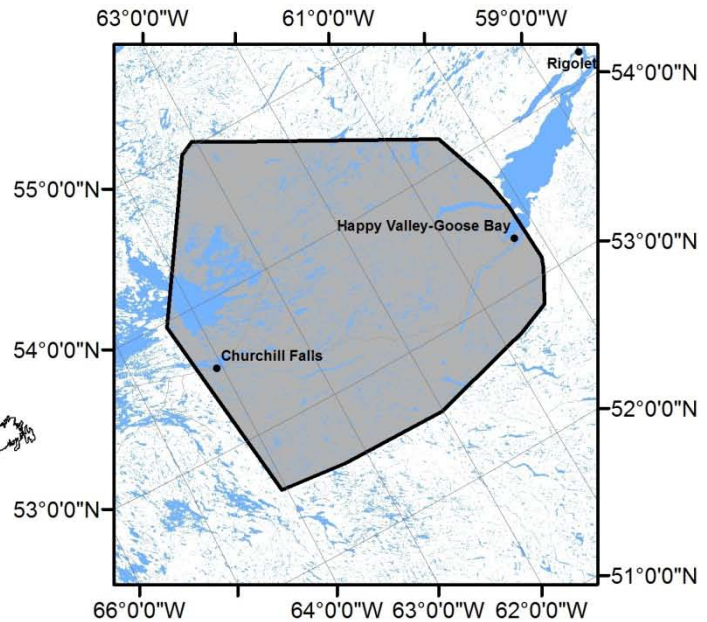


Figure 2: The geographic boundary within which critical habitat is located (in grey).

B) **Amount:** Quantity of critical habitat.

Table 1: Range Attributes and the Amount of Habitat Required

Range Attributes	Range Size	5,838,594 ha
	Population size	97
	Population trend	Declining
	Total Habitat Disturbance	467,088 ha
Range Assessment	Assessment of the likelihood of the current condition of the range to support a self-sustaining local population	Not Self-Sustaining
Determination of Amount of Habitat	A) Range Size	5,838,594 ha (100%)
	B) Total Habitat Disturbance ¹	467,088 ha (8%)
	C) Critical Habitat ²	3,795,086ha (65%)
¹ Total Habitat Disturbance reflects loss of functional habitat. It will be more than the associated disturbance footprint (e.g. 100 ha footprint could lead to 400 ha loss of functional habitat). ² The available undisturbed habitat is more than 65% of the range.		

Critical Habitat Identification: Red Wine Mountain (Labrador)

C) Type: Biophysical attributes.

Table 1: Biophysical attributes of boreal caribou habitat in the Boreal Shield East ecozone.

Type of selection	Description
Broad scale	Conifer-feather moss forests on poorly-drained sites and mature conifer uplands with abundant terrestrial lichen. black spruce, jack pine and balsam fir stands present with abundant lichen. Water bodies and wetlands (swamps, marshy areas with tamarack). Mountains or rolling hills. Elevations of 300 m. Intermediate values of Normalized Difference Vegetation Index. Selection for old (>40 yrs) burns.
Calving	Open wetlands, peninsulas and islands. Sedges, ericaceous species, bryophytes, alder and larch selected in spring. Balsam fir, dense black spruce stands, spruce-fir forests older than 40 yrs, and dry bare land with high lichen densities. Mature conifer stands, as well as wetlands (marshes, peat moss areas). Higher altitudes used for calving in this area rather than lake or water bodies.
Post-calving	Open and forested wetlands (marshes, swamps), and continued use of peninsulas and islands. Hilly areas, coastal sites, shorelines (rivers, lakes, creeks). Aquatic plants, dwarf birch (<i>Betula glandulosa</i>), deciduous shrubs, ericaceous species and moss.
Rutting	Open wetlands selected, swamps. Terrestrial and arboreal lichens, forbs, sedges, mosses and coniferous and deciduous shrubs. Balsam fir stands, dense spruce stands, mature and regenerating conifer stands, other forest stands (tamarack, pine) with abundant lichens, wetlands (swamps) and dry bare lands.
Winter	Forested wetlands. Some use of upland-tundra for loafing. Mountainous terrain. Dry bare land, wetlands, mature conifer forests with lichen, balsam fir stands, dense spruce stands, and mixed spruce-fir forests older than 40 yrs selected in southern areas. Observed along frozen bodies of water. Use of mature forests protected from harvesting increases probability of encounters with wolves that select the same habitats in winter. Shallow snow depths selected in late winter.
Travel	Caribou move greater distances during the rutting season.
Avoidance	Avoid deciduous and mixed forests, jack pine forests less than 40 yrs old and heaths without lichens all year round. Avoid disturbed habitats, including roads, recreational areas, burns and clear-cuts or harvested areas used by wolves.

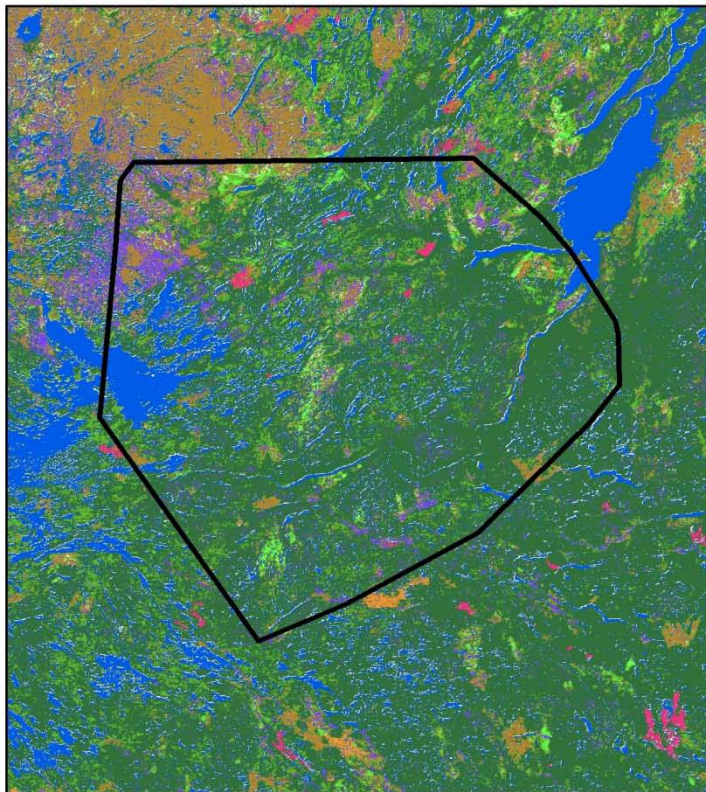
Table 2: Biophysical attributes of boreal caribou habitat in the Taiga Shield ecozone.

Type of selection	Description
Broad scale	Upland tundra dominated by ericaceous shrubs (<i>Ericaceae</i> spp.), lichen, grasses and sedges. Lowland tundra composed of peatland complexes (muskeg and string bogs), wetlands (swamps, marshes), lakes, rivers and riparian valleys. Dense mature jack pine and black spruce stands with balsam fir and tamarack present and open conifer forests with abundant lichens.
Calving	String bogs, treed bogs, small open wetlands (< 1 km ²), large muskeg, marshes along water bodies. Barren grounds. Calving on peninsulas and islands increases with amount of open water.
Post-calving	Forested wetlands. Hilly areas, coastal sites, along shorelines of water bodies (rivers, lakes, creeks), marshes with lichen availability.
Rutting	Open wetlands, swamps. Mature forests, mountainous terrain with forests of black spruce, tamarack and pine trees with abundant lichen.

Critical Habitat Identification: Red Wine Mountain (Labrador)

Type of selection	Description
Winter	<p>Forested areas are used in years of low snow accumulation otherwise winter habitat selection reflects general avoidance of deep snow, including use of tundra habitat at higher elevations in mountainous regions and bogs along lakes or oceans.</p> <p>Forested wetlands.</p> <p>Tundra uplands and sand flats in proximity to water. Barren grounds.</p> <p>Bog edges, glacial erratics and bedrock erratics with lichen, and lakes for loafing or ruminating.</p> <p>Some use of mature white spruce and fir stands as alternative to habitat with arboreal lichens. Mix of Mature forest stands, mountainous terrain with forests of black spruce, tamarack and jack pine with abundant lichen.</p>
Travel	<p>Connectivity between selected habitat types important given reported patterns of movement among caribou.</p> <p>Some females travel 200 to 500 km from winter areas to calving sites.</p> <p>Females show fidelity to post-calving sites returning to within 6.7 km of a given location in consecutive years.</p>
Avoidance	Avoidance of roads and areas recently burned.

D) Additional Information:

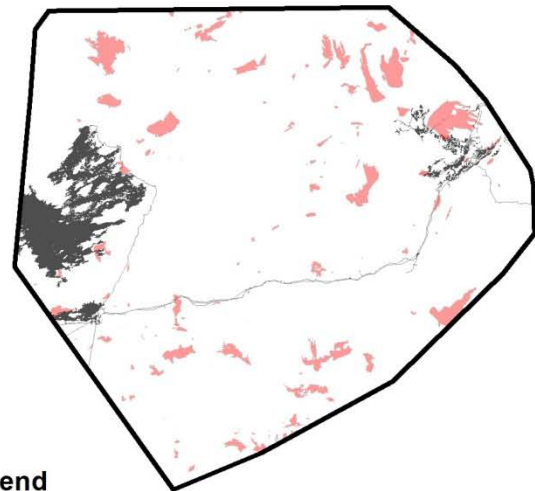


Landcover

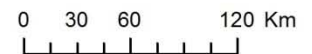
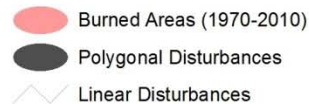


MODIS 2005 Landcover (250m Pixels) (Generated by CCRS)
 Legend reclassified by EC
 With NTDB 1:250,000 Hydrology Layer

Disturbances Across Caribou Range



Legend



*Based on fire data provided by jurisdictions

Disturbance Type and Amount:

Burned Areas = 5%
 Buffered⁴ Anthropogenic (no reservoirs) = 3%
 Total Habitat Disturbance = 8%⁵

⁴ Buffered means a 500m buffer is applied to linear and polygonal disturbances.

⁵ Total Habitat Disturbance is non-overlapping which means anthropogenic disturbances and burned areas that overlap are not counted twice in the total.