

# FLYING IN CARIBOU COUNTRY

How to minimize disturbance from aircraft





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The Mining and Petroleum Environment Research Group (MPERG) promotes research into mining and environmental issues in Yukon. It is a co-operative working group with members drawn from the Government of Yukon, Government of Canada, Yukon First Nations, mining companies and non-governmental organizations.

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# WHY ARE CARIBOU IMPORTANT?

## **People rely on caribou.**

Caribou provide food for many Yukoners. Aboriginal communities in particular rely on caribou for cultural ceremonies, clothing, traditional crafts and artwork.

## **Caribou help the economy.**

Outfitters can charge up to \$12,000 for a 10-day-long caribou hunt. Hunters, photographers, naturalists and people viewing wildlife purchase goods and services in communities.

## **People value caribou.**

Wildlife viewing is the second-most popular activity for visitors to Yukon, after walking/hiking. Visitors coming to Yukon most want to experience “wildlife.” Residents and visitors alike value the viewing of caribou and other wildlife.

## **Herds are at risk.**

Some of Yukon’s caribou herds are in decline. The Porcupine caribou herd now has 90,000-100,000 animals, down from 178,000 in 1989. Woodland caribou are also in decline and are considered a species of “special concern” under the federal *Species at Risk Act*. Efforts to help herds recover can be expensive, intrusive and not always successful.

## **Caribou disturb easily.**

Studies show that caribou are sensitive to low-altitude overhead flights. Caribou are naturally curious, which makes them more susceptible to disturbance at certain times of year.

## **Caribou shape the ecosystem.**

Caribou are an integral part of Yukon’s ecosystems. They are an important prey species for grizzly bears, black bears, wolves and wolverines. Their grazing modifies the landscape.



# CARIBOU & DISTURBANCE

The Mining and Petroleum Environmental Research Group (MPERG) encourages industry to operate in an environmentally responsible manner when flying in caribou country.

Many industries rely on helicopters and fixed-wing aircraft to carry out their activities in remote regions of Yukon, where barren ground and woodland caribou are found.

By carefully choosing when and where to fly, industry can minimize its impacts on caribou while still delivering workers, collecting samples, and providing services.

## Disturbance

Disturbance is any activity that interrupts the regular behaviour and routines of animals. For example, in response to a disturbance a caribou might stop eating and remain alert, or break into a run, or possibly leave an area. Even a small disturbance, with a small impact, can cause significant effects over time if it occurs frequently.



Caribou can be affected in many ways by aircraft disturbance, including:

- Direct injury or death,
- Increased energy expenditures, and
- Alienation from important habitat(s).

## Key Steps

Flying in Caribou Country provides guidelines for industry to follow to minimize the impacts from overhead aircraft flights on caribou as well as the rationale for doing so. Staff with mineral exploration companies and pilots of helicopters and fixed-wing aircraft have a major role in carrying out these guidelines, given the prevalence of these activities in remote Yukon.

## Here's what you can do:

- Become informed about caribou distribution and natural history in your operating area,
- Train your staff on how to minimize disturbance of caribou,
- Use the Flight Guidelines in this booklet as much as possible, and
- Enjoy caribou from distance.

Other people who should know about these guidelines are wilderness tourism operators, sightseeing operators, staff with aviation, forestry, oil and gas companies, resource management boards and councils, and people interested in caribou.



## How disturbance affects caribou

Studies have shown that overhead aircraft flights may affect caribou by causing long term behavioural changes or by increased energy expenditures. In some cases, physical injury or death may occur.

Disturbance from overhead flights, ATVs, snow-machines, predators, hikers, insects or hunters can have a cumulative effect on the health of caribou, especially calves.

Studies show that a caribou's response to aircraft disturbance will vary by season, sex, group size, group compositions, frequency of the disturbance, type of aircraft, previous experience, and flight patterns.

### Physical injury or death

The 'startle reflex' in response to a disturbance can range from simply flinching and remaining in place to running away. Running over steep or uneven terrain may cause injury or even death.

Pregnant caribou may also abort while running, or displace the fetus in a way that results in a difficult calving. During the calving season, a disturbance can affect calf survival if newborns are abandoned, trampled, or left vulnerable to predators.

### Energy expenditures

Different behaviours have different energy costs. Caribou that spend more time running, walking and being on the alert sacrifice time that could be spent eating and digesting food. These behaviours also may increase an animal's metabolism by up to 25 per cent above normal.

Prolonged or cumulative exposure to disturbance may cause animals to lose weight, become weak and become more susceptible to disease and predation. And if disturbance interrupts nursing, calf growth and survival may be adversely affected.

### Long term behaviour change

Repeated disturbance may cause caribou to abandon high-quality habitat for quieter locations with low quality food. Impaired growth, reproduction and survival may result.

Displacement due to repeated disturbance will interrupt the imprinting of traditional home ranges on calves. A shift from traditional "safe" habitat will put animals at greater risk of predation.

# FLIGHT GUIDELINES

By carefully choosing when and where to fly, industry can minimize its impacts on woodland and barrenground caribou. MPERG recommends the following guidelines to reduce disturbance. Please use them unless weather or safety considerations dictate otherwise.

- 1. Use fixed-wing aircraft rather than helicopters whenever possible.**
- 2. At all times of year, maintain over-flight altitudes at least 300 m (1,000 ft) above ground level (AGL).**
- 3. During sensitive times of the year, maintain over-flight altitudes at least 600 m (2,000 ft) AGL.**
  - Woodland caribou – calving, post-calving and rutting
  - Barrenground caribou – calving and post-calving
- 4. Avoid flying over areas where you have seen caribou in the past.**
- 5. Avoid flying or alter your flight path to avoid areas important to caribou, especially during sensitive times of the year.**
  - Woodland caribou – aggregate near snow patches post-calving to avoid heat, insects and predators.
  - Barrenground caribou – concentrate in core calving areas and are especially sensitive to overhead flights.





6. **Avoid mineral licks by 1 km (2/3 mile) during the spring.**
7. **If/when you spot caribou, do not fly towards, follow, hover or circle them.**
8. **Minimize cumulative effects of disturbance by minimizing your flying in a given area.**
9. **Ascend to a higher flight path or veer away if you observe running, panic or other startle responses in caribou below.**
10. **Contact the Regional Biologist with Environment Yukon for information about caribou in your operating area.**

These guidelines do not apply when the benefits for conservation clearly outweigh the risks posed by disturbance (e.g. wildlife surveys).

<b>Factor</b>	<b>Response of Caribou to Aircraft Disturbance</b>
<b>Group Size</b>	Large groups (>10 animals) visibly more reactive than small groups.
<b>Group Composition</b>	Cows with calves visibly more sensitive than bulls.
<b>Life History Stage</b>	Winter, rutting, calving, insect harassment period and post-calving are when caribou may exhibit heightened sensitivity to disturbance (depending on ecotype).
<b>Flight Elevation</b>	Response to aircraft declines with increasing elevation of the aircraft above ground level.
<b>Aircraft Type</b>	Helicopters may cause greater disturbance than fixed wing because of greater noise, maneuverability and nature of work.
<b>Flight Pattern</b>	Following behind moving caribou results in most disturbance.
<b>Previous Experience</b>	Animals more likely to respond if previously exposed to similar disturbance and repeated exposure can result in cumulative effects.

# CARIBOU BIOLOGY

## **Caribou biology**

Woodland and barrenground caribou species are found in Yukon. There are about 30,000-35,000 woodland caribou in 25 herds, and about 165,000 barrenground caribou in two herds.

In winter, woodland caribou eat ground lichen mostly and some arboreal lichens. They live in small herds. Most herds migrate from alpine and subalpine ranges in the summer to coniferous forest in lower subalpine habitat in the winter, but some herds remain in alpine ranges year round.

Barrenground caribou migrate in large herds, ranging over great distances between their summer and winter ranges and calving areas. They feed mainly on ground lichens in the winter.

Caribou response to disturbance depends on where and when the disturbance occurs. Sensitive times are those periods in the annual cycle that are most important for the long term survival of the herd.

While it's important to minimize disturbance near caribou, it's critical when the herd is in decline or recovering from past declines. Disturbance of these herds may affect their long-term survival.

## **Information sources**

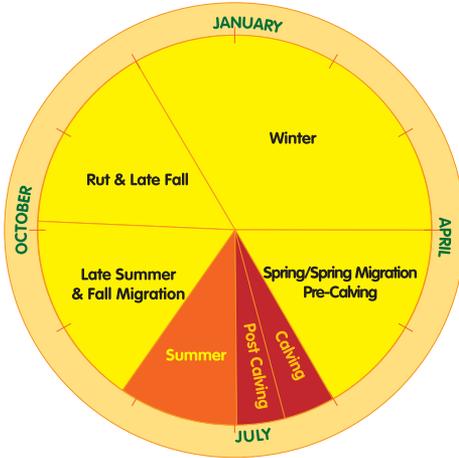
For additional information about caribou and their activities, you can turn to people and the internet.

First Nations members, especially Elders, are excellent sources of information about wildlife in your operating area. Contact local First Nations, or trapping, hunting and outfitting associations, for names.

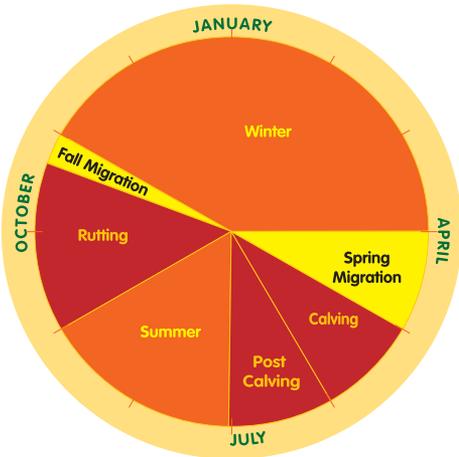
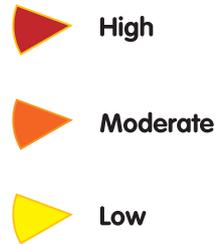
Environment Yukon's Regional Biologists are also an excellent resource. It's good practice to contact the Regional Biologist early in the planning stages for your project to get the latest information as well as identify potential impacts and mitigation measures in your operating area.



Sensitivity to disturbance



Barrenground caribou



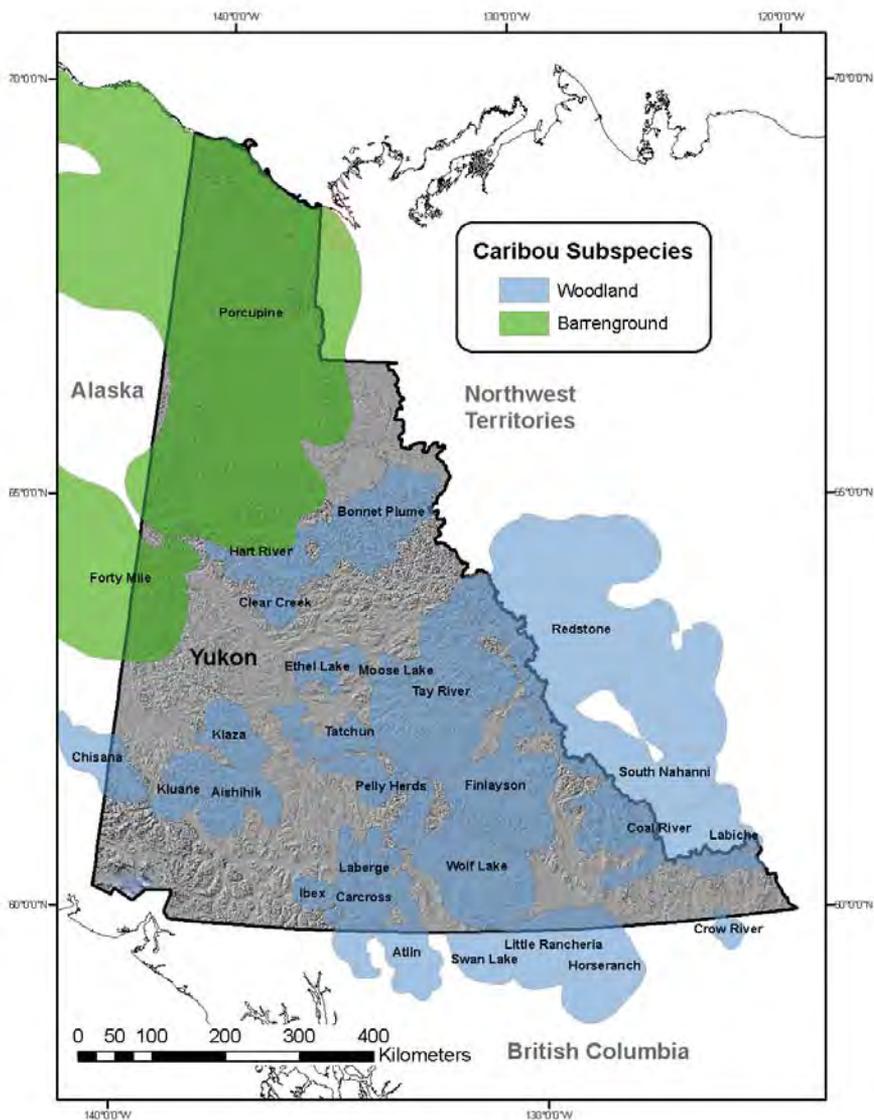
Woodland caribou

# CARIBOU HERD POPULATION TRENDS

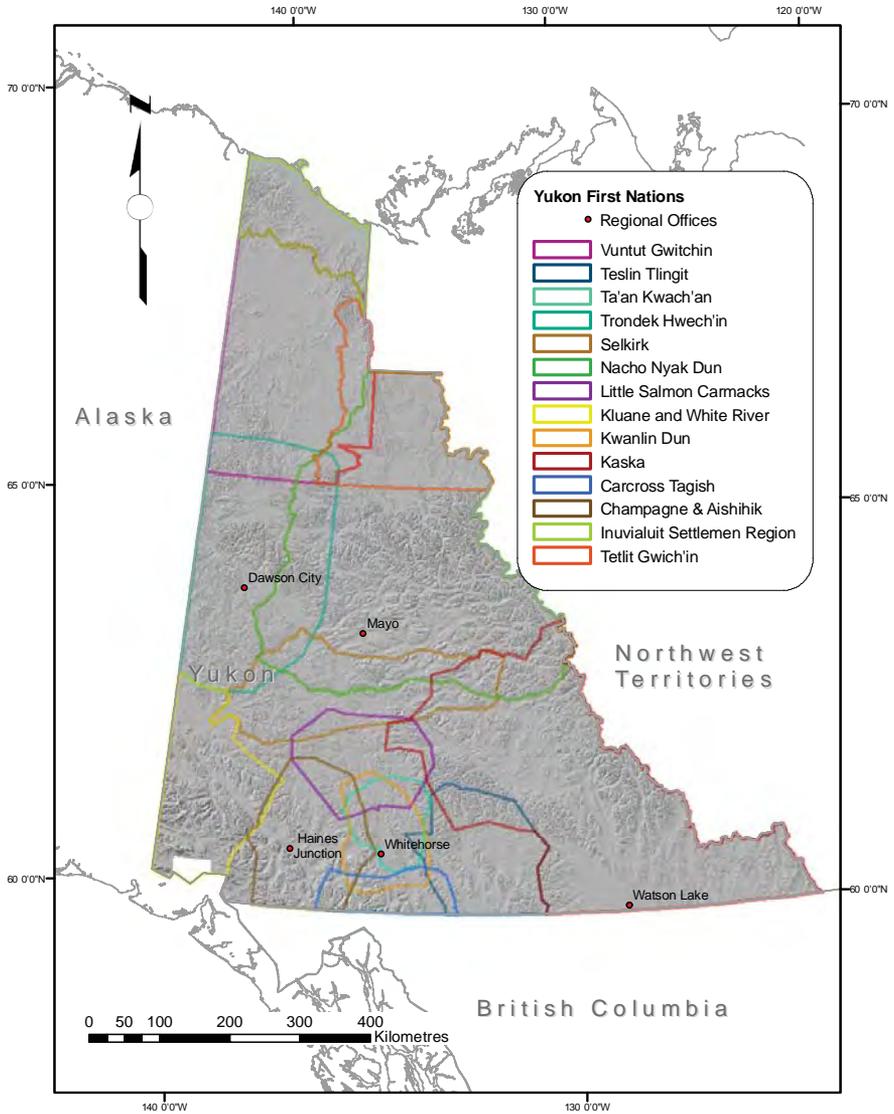
<b>Herd</b>	<b>Population Estimate</b>	<b>Last Surveyed</b>	<b>Trend</b>
<b>Woodland Caribou</b>			
Laberge	200	2003	Unknown
Coal River	450	1997	Unknown
La Biche	400	1993	Unknown
Swan Lake	400	2005	Unknown
Hart River	2,130	2006	Unknown
Clear Creek	900	2001	Unknown
Bonnet Plume	5,000	1982	Unknown
Ethel Lake	300	1993	Stable
Moose Lake	200	1991	Stable
Tay River	3,750	1996	Unknown
Redstone	5 - 10,000	1982	Unknown
Finlayson	3,100	2007	Declining
South Nahanni	950 - 1,150	2001	Unknown
Little Rancheria	1,000 - 1,200	1999	Stable
Wolf Lake	1,400	1998	Stable
Atlin	800	2007	Stable
Carcross	775	2008	Stable
Ibex	850	2008	Increasing
Pelly Herds	1,000	2002	Unknown
Tatchun	500	2000	Stable
Klaza	650	2000	Increasing
Aishihik	2,030	2009	Increasing
Kluane	180	2009	Declining
Chisana	760	2007	Stable
Crow River	150	2005	Unknown
Horseranch	600 - 800	1999	Unknown
<b>Barrenground Caribou</b>			
Fortymile	46,500	2009	Increasing
Porcupine	123,000	2001	Declining



## Barrenground and Woodland caribou home ranges



# First Nations Traditional Territories and Environment Yukon regional biologist offices



# FOR MORE INFORMATION

## **Environment Yukon**

### **Caribou Biologist**

Phone: (867) 667-5465

Toll free (in Yukon): 1-800-661-0408

Fax: (867) 393-6263

Email: [environmentyukon@gov.yk.ca](mailto:environmentyukon@gov.yk.ca)

Website: [www.environmentyukon.gov.yk.ca](http://www.environmentyukon.gov.yk.ca)

### **Regional Biologists**

Southern Lakes (Whitehorse): (867) 667-8640

Northern Region (Dawson): (867) 994-6461

Liard Region (Watson Lake): (867) 536-7365

Kluane Region (Haines Junction): (867) 536-7365

Northern Tutchone Region (Mayo): (867) 996-2162

### **Environmental Assessment Program**

Phone: (867) 667-5683

Toll free (in Yukon): (1-800) 661-0408, local 5683

Fax: (867) 393-6213

Email: [envprot@gov.yk.ca](mailto:envprot@gov.yk.ca)

Website: [www.environmentyukon.gov.yk.ca/monitoringenvironment/aboutassessment.php](http://www.environmentyukon.gov.yk.ca/monitoringenvironment/aboutassessment.php)

### **Wildlife Key Area Inventory Program**

Phone: (867) 667-3739

Fax: (867) 393-6405

Email: [wka@gov.yk.ca](mailto:wka@gov.yk.ca)

Website: [environmentyukon.gov.yk.ca/wka](http://environmentyukon.gov.yk.ca/wka)

### **Wilderness Tourism Association**

Phone: (867) 668-3369

Website: [www.wtay.com](http://www.wtay.com)

## **Yukon First Nation Governments**

Carcross/Tagish First Nation (Carcross):  
(867) 821-4251

Champagne & Aishihik First Nations  
(Haines Junction): (867) 634-4200

First Nation of Na-Cho Nyäk Dun (Mayo):  
(867) 996-2265

Kluane First Nation (Burwash Landing):  
(867) 841-4274

Kwanlin Dun First Nation (Whitehorse):  
(867) 633-7800

Liard First Nation (Watson Lake):  
(867) 536-5200

Little Salmon/Carmacks First Nation (Carmacks):  
(867) 863-5576

Ross River Dena Council (Pelly Crossing):  
(867) 969-2278

Selkirk First Nation (Pelly Crossing): (867) 537-3331

Ta'an Kwäch'än Council (Whitehorse):  
(867) 668-3613

Teslin Tlingit Council (Teslin):  
(867) 390-2532

Tr'ondëk Hwëch'in (Dawson City):  
(867) 993-7100

Vuntut Gwitchin First Nation (Old Crow):  
(867) 966-3261

White River First Nation (Beaver Creek):  
(867) 862-7802

### **Yukon Outfitters' Association**

Phone: (867) 668-4118

Fax: (867) 668-4120

Email: [info@yukonoutfitters.net](mailto:info@yukonoutfitters.net)

Website: [www.yukonoutfitters.net](http://www.yukonoutfitters.net)

### **More information on caribou biology:**

[www.rangifer.net/rangifer/index.cfm](http://www.rangifer.net/rangifer/index.cfm)

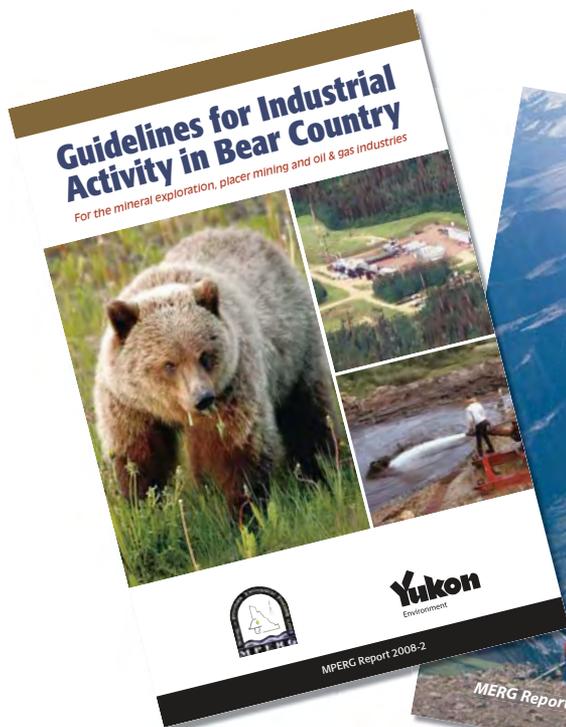
[www.taiga.net/pcmb/](http://www.taiga.net/pcmb/)

[www.environmentyukon.gov.yk.ca/wildlifebiodiversity/mammals/caribou.php](http://www.environmentyukon.gov.yk.ca/wildlifebiodiversity/mammals/caribou.php)



# FOR MORE INFORMATION

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Environment

