FLYING IN SHEEP COUNTRY:

How to minimize disturbance from aircraft

MERG Report 2002-6

Alejandro Frid did the research that is summarized here; RumKee Productions compiled his information and data to produce an earlier draft. Thank you to individuals of the aircraft, exploration, and mining industries for generously taking the time to review and provide suggestions for this version.

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MERG is a co-operative working group made up of the Federal and Yukon Governments, Yukon First Nations, mining companies, and non-government organizations for the promotion of research into mining and environmental issues in Yukon.

MERG (Mining Environment Research Group)
reports are available at
Geoscience Information and Sales,
Yukon Government Room 102, Elijah Smith Building,
Whitehorse, Yukon.

Mailing Address:
102-300 Main Street
Whitehorse, Yukon Y1A 2B5
Phone: (867) 667-5200
Fax: (867) 667-5150

For more information about the research reports, contact:

Jean Carey, Sheep Biologist,
Yukon Department of Environment
Fish and Wildlife Branch,
Box 2703,
Whitehorse, Yukon
Y1A 2C6

Phone: (867) 667-5849
E-mail: jean.carey@gov.yk.ca

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photo credit: S. Kraseman

Concern about aircraft disturbance of Dall sheep and other wildlife continues to grow in the Yukon. Aircraft-based tourism, both sightseeing and outdoor adventures in remote areas, has steadily increased in recent years. Mineral exploration often occurs in remote mountainous regions that can only be accessed by aircraft. These areas, or the access to them, are often in sheep range.

The Yukon Department of Environment has funded several research projects looking at how aircraft disturbance can affect Dall sheep. We found that fixed-wing aircraft cause less disturbance than helicopters, but landing requirements often don't allow their use. Both the Branch and the researchers realize that the fieldwork was limited, but feel that we learned ways to minimize the effects of aircraft on Dall sheep.


photo credit: S. Kraseman

This booklet is intended for:

- pilots of rotary and fixed-wing aircraft
- wilderness and ecotourism operators
- mineral exploration companies
- mining companies
- outfitters
- owners of remote lodges
- management boards and councils
- anyone interested in sheep

Our research has focussed on sheep, but these guidelines could also apply to other animals in the alpine, like mountain goats and caribou.

What is Disturbance?

Disturbance is any activity that interrupts the regular behaviour and routine of animals.

photo credit: S. Kraseman

When disturbed, a sheep will:

Become vigilant: The animal interrupts its activity, such as foraging, stands with its head above its shoulders, and scans the surroundings.

Stop eating: The animal will stop eating and usually become vigilant.

Un-bed: The animal will get up from a lying position. It is usually ruminating (chewing its cud) when it is bedded.

Flee: The animal will walk and/or run a distance from its pre-disturbance position. The distance can range from a few steps to over a kilometer, depending on the degree of disturbance.

Each of these reactions costs the animal energy.

photo credit: S. Kraseman

Research results

After a disturbance had passed, sheep tended to remain vigilant. Depending on what they were doing, it took up to 45 minutes to resume their pre-disturbance activity. Even if an aircraft was in sound range for less than 5 minutes, sheep displayed disrupted behaviour for up to 10 minutes following. If the disturbance happened while they were bedded, it took up to three times longer to re-bed or to begin eating than if they were already standing or eating.

Frequent disturbances could eventually affect body weight and reproductive success. Sheep may spend too much time being vigilant and not enough time eating to maintain good body condition. As well, if sheep stand up while they are ruminating the digestion process may stop, which would limit the amount of energy and nutrition that they would absorb.

Disturbances may also affect nutrition by causing sheep to move to areas of poorer quality food. These shifts may be short term, but if the disturbance persists they could become long term.

The number of sheep in a group appeared to affect how individuals reacted. As the group size increased, there was a greater chance that one animal detected a disturbance from a greater distance. When this alert sheep reacted, the rest of the group took the cue, even if they weren't aware of the actual disturbance.


photo credit: S. Kraseman

Habituation is the term used when animals become so used to an activity that they no longer appear bothered. However, there was no strong evidence that sheep become habituated to helicopter overflights. There may have been some short-term habituation if several flights were done in the same day. During the research observations, sheep reacted to every overflight but their responses were greatest to the first flight of the day. The first flight of each following day seemed to create as great a disturbance as the first flight of the first day.

photo credit: S. Kraseman

GUIDELINES

To minimize the disturbance to sheep:

Whenever possible, fly more than 3.5 km from known sheep ranges.

If sheep cannot see or hear the aircraft they obviously will not be disturbed. The closer the aircraft gets to the sheep, the greater the disturbance and the faster and farther the sheep will flee.

Plan your route to avoid sensitive areas.

If you must fly near a sheep range, avoid known lambing cliffs and mineral licks from May 1 to June 15.

Plan a route that places a ridge between you and the sheep.

If you must fly near a sheep range, ridges can act as visual and sound barriers. But be careful: if the aircraft suddenly appears over a ridge without warning sheep will be strongly disturbed.

Fly below the sheep.

If you must fly near sheep range, fly below the level of the sheep. Sheep naturally seek safety by fleeing upslope. If they are forced to flee downslope, they are more likely to fall and hurt themselves.

Concentrate your total flying time.

Sheep tend to be less affected if flights are concentrated into a single session, rather than spaced out over several days. In some cases it may be best to have two aircraft, rather than one, operating over a shorter time.

Fly when sheep are active.

Morning flights may disturb sheep less than flights in the afternoon, when sheep are usually bedded and ruminating. If scheduling allows, avoid flying between 11 a.m. and 3 p.m.

Fly at an angle when approaching sheep areas

Try to avoid flying directly toward sheep. Sheep perceive the aircraft as an avian predator and so flee to escape. Approaches on an angle, especially from below, will seem less threatening.

Proceed on course.

It is tempting to take a closer look, but good wildlife viewing is observing animals without interrupting their normal activities. The best practice is to proceed with no detours and disrupt the animals as little as possible. Pictures of fleeing animals are permanent evidence of being too close to them.

Use binoculars or a telephoto lens to get a better view. Better yet, take the time to land where sheep won't be disturbed and view them from there.

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