

# Peace Region Guidelines for Aircraft Operations/ Wildlife Interactions - July 15 2008

## Scope and Purpose of these Guidelines

This Fact Sheet summarizes the recommendations found in *Wildlife and Aircraft Operation: Assessment of Impacts, Mitigation and Recommendations for Best Management Practices in the Peace Region*<sup>1</sup>. Information presented is intended to minimize known impacts associated with aircraft operations on a number of sensitive wildlife species. The following practices are intended to guide aircraft operations in support of industrial or commercial activity including oil and gas development and exploration, commercial recreation, forestry and the associated inventory and research activities carried out by industry and agencies in Northeastern British Columbia (Ministry of Environment, Peace Region). These practices are intended to apply to protected areas, Wildlife Habitat Areas, Special Resource Management Zones, Sheep, Mountain Goat and Bison winter range, and other critical habitat designated by the Ministry of Environment. Additional information on aircraft-wildlife interactions can be found in the *Interim Wildlife Guidelines for Commercial Backcountry Recreation in British Columbia*<sup>2</sup>.

## Background

North-eastern British Columbia has the highest diversity and overall abundance of wildlife in the province, including areas with the highest numbers of ungulates and carnivores. This wildlife resource has received recognition in land use planning, both in the creation of Parks and in the creation of the Muskwa-Kechika Management Area as well as Special Resource Management Zones (including Major River Corridors, Wildlife Recreation, Wildlife Coalfield and Cultural Heritage). These zones are described in more detail in the approved Dawson Creek, Fort St. John, Fort Nelson and Mackenzie Land and Resource Management Plans.<sup>3,4,5</sup> Additional provincial initiatives to protect wildlife resource values include Wildlife Habitat Areas under the Identified Wildlife Management Strategy and the designation of Ungulate Winter Range through the Forest and Range Practices Act of British Columbia.<sup>6,7</sup> The Peace Region also has the largest extent of industrial and commercial activity and land alienation disturbance of any region in the Province; related aircraft operations can adversely affect the wildlife and their use of habitat in these Special Management Zones, Wildlife Habitat Areas, Ungulate Winter Ranges, and other critical habitat. Wildlife disturbance can result from the following elements:

- noise and movement of aircraft;
- daily and seasonal timing of flights;
- approach distance and frequency;
- landing sites and off site activities; and,
- aircraft type.

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## Key Issues of Concern

The Ministry of Environment is concerned that the increasing numbers of aircraft related disturbances, individually and cumulatively, may be negatively affecting the long-term viability of North-eastern British Columbia's diverse and abundant wildlife.<sup>7, 8, 9, 10</sup>

## Objectives

The primary objective of this Fact sheet is to provide aircraft managers and operators with information to assist them in the development of aircraft operating procedures where disturbances to wildlife are avoided where possible and where not, are minimized or mitigated. Managers and operators should pay special attention to:

- protection of ungulate and carnivore populations in special management zones and protected areas; and,
- avoidance of special features for wildlife such as licks, dens, nests, and concentrations of breeding and migrating birds.

Further objectives include increasing awareness of crews of potential aircraft/wildlife disturbance concerns and using information collected during aircraft operations to design new avoidance or mitigative procedures through a joint operator/agency adaptive management process.

## Best Management Practices

Wildlife and weather conditions in remote areas share a level of unpredictability. Planning aircraft operations to avoid or mitigate impacts on wildlife will often be compromised by unpredictable circumstances. Therefore, planning should provide alternate options which maintain safe operations while still avoiding or mitigating wildlife disturbance to the degree possible. The plan should incorporate feedback loops for using monitoring and reporting information to modify aircraft operations. Aircraft operations managers should include contingency planning that identifies alternate routes, equipment, timing, etc. to anticipate the unpredictable as part of a comprehensive planning program. Managers responsible for aircraft operations should further ensure that:

- 1) Wildlife concerns are identified by using:
  - Existing Wildlife Capability, Terrestrial Ecosystem or Predictive Ecosystem mapping (Scale usually 1:50,000 or larger).
  - Local Information from reports, biologists, First Nations, guide outfitters and others.
- 2) Based on the above and information in Table 1, a written wildlife flight plan is prepared, containing at a minimum the following elements to avoid, minimize and mitigate impacts on wildlife:
  - Identifies wildlife species of concern and seasonal (timing) windows.
  - Designates avoidance distances (500m vertical x 2000m horizontal) for:
    - avoiding sheep and goat winter range;
    - avoiding cliff habitat potentially used by sheep, goats, and cliff nesting raptors;
    - avoiding wetlands, shallow lakes, Alpine and Sub alpine (open forest) habitats; and,
    - avoiding special features; mineral licks, nest trees, and animal concentrations.
  - Predetermines suitable flight routes to: maintain avoidance distances, provide visual screening and reduce frequency of flights near critical areas.
  - Identifies suitable landing sites.

- Includes information on other activities in the area to assist in coordination with other programs to reduce cumulative impacts.
- 3) Prior to activity commencing the wildlife flight plan is conveyed to all pilots and field staff.
- 4) A program to monitor wildlife sightings, aircraft activities and adaptations is implemented (see Appendix A for a draft sightings form).
- 5) Timely written reports (e.g. monthly) are provided to the Oil and Gas Commission and the Ministry of Environment regional office.

## Protection of Wildlife Checklist

Have you enlisted the best management practices to protect and maintain wildlife in the course of your aircraft operations? Try this checklist.

- Sensitive wildlife species and habitats in the project area have been identified by checking maps, local knowledge and other information.
- Flight plans avoid or will minimize disturbing wildlife and sensitive areas and specify preferred routes, minimum approach distances and areas to avoid.
- The aircraft type being used is the most suited to the job and minimizes wildlife disturbance. (e.g. provides the fewest number of flights and the least noise); when possible, the aircraft has been modified to help accomplish this.
- Landing sites have been located to minimize wildlife disturbance.
- Pilots, employees and contractors have received orientation to ensure they help minimize impacts on wildlife while getting the job done.
- Monitoring and contingency plans are in place to ensure wildlife protection and dealing with unpredictable events.
- Information gathered is being used to further enhance operations while preserving and maintaining wildlife.

## Keywords

Aircraft, helicopter, wildlife, disturbance, mitigation.

## Feedback

To provide feedback regarding the clarity and usefulness of the information presented in this fact sheet, please contact:

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Table 1. Aircraft Operations Wildlife Mitigation Guidelines

<i>Disturbance Element</i>	<i>Wildlife factor</i>	<i>Avoidance/Mitigation guideline</i>	<i>Minimum Standards</i>	
Noise & Movement	Ungulate winter range	Avoid sheep and goat winter range.	2000 m minimum horizontal avoidance for sheep and goat winter ranges.	
		Maintain overflight height for other ungulates (bison/elk/moose and deer).	400m AGL minimum overflight elevation and no circling for all winter range.	100 m AGL minimum overflight for inventory. No direct approach to aggregations.
Noise & Movement	Ungulate Lambing/ Calving/ Kidding areas	Avoid sheep, goat and Caribou birthing/rearing areas.	2000 m minimum horizontal avoidance for sheep, goat and caribou birthing/rearing areas.	100 m AGL minimum overflight for inventory. No direct approach to animals with young, especially maternal herds.
		Maintain overflight height for other ungulates & bears birthing/rearing areas.	400m AGL minimum overflight elevation and no circling for other ungulates and bears birthing/rearing areas.	100 m AGL minimum overflight for inventory. No direct approach to animals with young especially maternal herds.
Noise & Movement	Ungulate and carnivore security areas	Avoid sheep and goat escape terrain.	2000 m minimum horizontal avoidance for sheep goat escape terrain.	
		Maintain overflight height for other ungulate resting areas and groups.	400m AGL minimum overflight elevation, and no circling for other ungulates and bears.	100 m AGL minimum overflight for inventory. No direct approach to animals especially aggregations.
Noise & Movement	Waterfowl nesting and aggregation areas	Avoid direct overflights.	400m AGL minimum overflight elevation and no circling where avoidance not possible.	100 m AGL minimum overflight for inventory.
		2000 m minimum horizontal avoidance from wetlands and shallow water bodies.	No direct approach to nests or aggregations No direct approach to birds with young.	No repeated flights.
Noise & Movement	Special Features, Stick Nests, ungulate Licks, Grizzly Bear Avalanche and Berry Feeding Sites	Avoid overflights of stick nests and licks.	400m AGL minimum overflight elevation and no circling for feeding sites and licks.	Horizontal avoidance 400 m minimum of nests, 2000 m for licks.
		Maintain overflight height for grizzly bear feeding areas.	No direct approach to nests, licks or feeding sites.	Avoid special features unless screened by topography (ridges, next valley).
Seasons & Timing	Ungulate winter range, cliff escape terrain, birthing/nesting/ maternal areas	Avoid overflights of birthing /nesting/ maternal areas for sheep, goats caribou, waterfowl and raptors.	Avoid Winter range season for all ungulates December 1 <sup>st</sup> to May 15 <sup>th</sup> .	Avoid Birthing Nesting season May 15 <sup>th</sup> to August 15 <sup>th</sup> .
		Avoid overflights winter range and cliff escape terrain of sheep and goats, high elevation winter range for caribou.	Avoid disturbing goats and sheep in midday. Avoid disturbing other ungulates early morning and late evening.	
Seasons & Timing	Cliff and stick nesting birds and waterfowl nesting / flightless areas	Avoid overflights of birthing /nesting maternal areas. Avoid downwash of helicopters for nest sites.	Nesting season for all birds May 15 <sup>th</sup> to July 15 <sup>th</sup> .	Flightless period for waterfowl season July 1 <sup>st</sup> to August 15 <sup>th</sup> .
Landing and slinging sites	Proximity to escape cliffs, nests, dens, licks	Avoid landing sites near stick nests, dens, escape cliffs.	Preselect landing sites to avoid nests (e.g. Eagle, osprey and hawk stick nests, eagle and raptor cliff nests, trumpeter swan and sandhill crane nests, cavity nests).	Avoid landing sites within 2000 m of escape or nesting cliffs unless screened by topography (ridges, next valley).
		Avoid downwash of helicopters for nest sites.	Use 100 m long-lines to avoid downwash damage to stick nests and small bird nests.	Utilize existing airstrips and mid-lake for fixed wing landings and takeoffs, use existing disturbed areas for helicopter landings.
Aircraft Type and frequency	All species affected by noise	Utilize aircraft that minimize noise and frequency of overflights.	Select helicopter with the least noise footprint capable of the work.	Select aircraft that will minimize the frequency of flights. While fewer flights in one day are preferable, more flights concentrated in one day and fewer days is also desirable.
		Select aircraft type and retrofit aircraft to reduce noise.	Retrofit aircraft with propellers and exhaust control that reduces noise levels. This is particularly suitable for fixed wing, shorter propellers with more blades substantially reduce noise.	Using a NOTAR® helicopter, one of the quietest and most technologically advanced helicopters, NOTAR® (No Tail Rotor) helicopters are apparently up to 50% quieter than conventional helicopters.

## APPENDIX A: WILDLIFE SIGHTING FORM

### Directions:

This data form is intended to record wildlife encountered during operational flights. The following codes should be used to enter information in a consistent manner. Individuals completing the form are encouraged to take photographs as a record, provided the wildlife are not disturbed further. Wildlife forms can be submitted to the Peace Region office of the Ministry of Environment, at the address given below.

The first column identifies the wildlife species observed. If a species observed is not in this list, or is unknown, a short description should be included with the report. If a concentration of wildlife is observed, this should also be noted with a short description (for example, many ungulates at a mineral lick, or a large number of birds, particularly during the spring or fall migration periods).

The second column records the number of wildlife encountered per sighting, or best estimate.

The third column generally describes the habitat the wildlife was observed in, using the key words provided and noting any special features. Include dominant plants of the area if possible. More than one habitat can be identified for each sighting. Key Words are provided to help describe the habitat.

The fourth column identifies the observed activity. If an observed activity is not on this list, "other" is recorded in this column, and a short description is given in the comments. More than one activity can be identified for each sighting.

The fifth column records the altitude the aircraft was operating at when the wildlife was observed.

Finally, the last column records the location of the wildlife, as accurately as possible, with an error estimate (+/-).

The codes used in the following tables are provided to help fill out the form. These codes were adapted from *Inventory Dataforms for Species Inventory Fundamentals: Standards for Components of British Columbia's Biodiversity No. 1 [Forms]*, prepared by the Ministry of Environment, Lands and Parks, Resources Inventory Branch for the Terrestrial Ecosystems Task Force, Resources Inventory Committee, March 1998 (version 2.0).

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**Wildlife Species Codes**

<b>Species</b>	<b>Code</b>	<b>Species</b>	<b>Code</b>
Bear, Black	URAM	Moose	ALAL
Bear, Grizzly	URAR	Mountain Goat	ORAM
Caribou	RATA	Northern Goshawk	NOGO
Deer, Mule	ODHE	Osprey	OSPR
Deer, White-tailed	ODVI	Sheep, Stone's	OVDA
Eagle, Bald	BAEA	Wolf	CALU
Eagle, Golden	GOEA	Wolverine	GUGU
Elk	CEEL	Unknown	UNKN
Falcon, Peregrine	PEFA	Wildlife Concentration	CONC
Gyrfalcon	GYRF		

**Habitat Key Words**

<b>Terrestrial</b>	<b>Riparian</b>	<b>Special Features</b>
Forest Needleleaf	Big / Med River	Old Field
Forest Broadleaf	Creek	Cropland/Hedgerow
Forest Mixed	Spring	Suburban/Orchard
Old Forest	Hotsprings	Urban
Mature Forest	H / M / L Gradient	Ice
Shrubland	Pool	Rock Outcrop
Savanna	Riffle	Coarse Talus/Boulders
Grassland/Herbaceous	Floodplain	Scree/Fine Talus
Alpine	H / M / L Bench	Cliff
Subalpine	Sand/Gravel Bars	Sand/Dune
	Deep / Shallow Water	Snag/Hollow Tree
	River Mouth/Delta	Snow Free
	Herb Wetland	Moderate, Deep Snow
	Shrub Wetland	Moderate Slope
	Forested Wetland	Steep Slope
	Bog/Fen	N, S, E, W Aspect
	Temporary Pool	

**Activity Codes**

<b>Code</b>	<b>Activity</b>	<b>Description</b>
<b>AL</b>	Alert	<ul style="list-style-type: none"> <li>activity with the purpose of detecting predators; e.g., guard or sentry duty or a heads-up rigid stance</li> </ul>
<b>BE</b>	Bedding	<ul style="list-style-type: none"> <li>bedding, sleeping, or resting above ground, including bedding for the purpose of cud chewing, and roosting and resting of birds</li> </ul>
<b>BI</b>	Birthing	<ul style="list-style-type: none"> <li>giving birth to young, including hatching of eggs of amphibians, reptiles, and birds</li> </ul>
<b>CO</b>	Courtship	<ul style="list-style-type: none"> <li>behaviour for the purpose of enticing a conspecific of the opposite sex into copulation, including copulation, courtship feeding, and defense of mates</li> </ul>
<b>DI</b>	Disturbed	<ul style="list-style-type: none"> <li>behaviour for the purpose of avoiding the observer</li> <li>use only if the activity before disturbance is not known</li> </ul>
<b>DR</b>	Drinking	<ul style="list-style-type: none"> <li>drinking</li> </ul>
<b>EX</b>	Excreting	<ul style="list-style-type: none"> <li>discharging waste through the anus</li> </ul>
<b>FD</b>	Feeding	<ul style="list-style-type: none"> <li>consuming food items, including feeding by animals that search for food and eat simultaneously; e.g., grazers, browsers, flying insectivores, and filter feeders</li> <li>does not include hunting</li> </ul>
<b>FG</b>	Feeding, green-up	<ul style="list-style-type: none"> <li>feeding during spring green-up</li> </ul>
<b>FL</b>	Fleeing	<ul style="list-style-type: none"> <li>hurried movement to avoid a conspecifics or other animals</li> <li>does not include fleeing to avoid the observer</li> </ul>
<b>GR</b>	Grooming	<ul style="list-style-type: none"> <li>behaviour for the purpose of arranging and protecting the fur, feathers, skin, etc., including scratching and rubbing of antler velvet</li> </ul>
<b>HU</b>	Hunting	<ul style="list-style-type: none"> <li>searching for, pursuing, and killing prey</li> </ul>
<b>LI</b>	Living	<ul style="list-style-type: none"> <li>the activity could not be specified due to ignorance or the activity was too diverse</li> </ul>
<b>MD</b>	Migrating daily	<ul style="list-style-type: none"> <li>traveling that is a regular daily activity, including traveling to or away from a communal habitat; e.g., a bat on its daily flight to or from a roosting site</li> </ul>
<b>MS</b>	Migrating seasonally	<ul style="list-style-type: none"> <li>traveling that is a regular annual activity; e.g., an elk or a Sandhill Crane on its migration route, or a snake traveling away from a communal habitat such as a hibernaculum</li> </ul>
<b>RR</b>	Rearing	<ul style="list-style-type: none"> <li>adults feeding neonates and juveniles</li> </ul>
<b>TE</b>	Territoriality	<ul style="list-style-type: none"> <li>behaviour for the purpose of marking or defending a territory; e.g., singing, drumming, winnowing, howling, antler rubbing, wallowing, and scraping the ground</li> </ul>
<b>TF</b>	Traveling, flying	<ul style="list-style-type: none"> <li>used when the purpose of flying is not known</li> <li>if the purpose is known, use a more specific description such as hunting</li> </ul>
<b>TP</b>	Traveling on a path	<ul style="list-style-type: none"> <li>walking on a trail that is embedded in the ground due to animals walking the same route for many years</li> </ul>
<b>TR</b>	Traveling	<ul style="list-style-type: none"> <li>traveling by a method other than flying, swimming, and walking; usually used for animals that do not normally fly, swim, or walk</li> <li>includes seeing an isolated track</li> <li>does not include running if the purpose for running is known</li> </ul>
<b>TS</b>	Traveling, swimming	<ul style="list-style-type: none"> <li>used when the specific purpose of swimming is not known</li> <li>if the purpose is known, use a more specific description such as fleeing</li> </ul>
<b>TW</b>	Traveling, walking	<ul style="list-style-type: none"> <li>used when the purpose of walking is not known</li> <li>if the purpose is known, use a more specific description such as migrating</li> <li>does not include traveling on a path (see TP)</li> </ul>
<b>UR</b>	Urinating	<ul style="list-style-type: none"> <li>urinating</li> </ul>



- <sup>1</sup> Churchill, B. and B. Holland. 2003. *Wildlife and Aircraft Operation: Assessment of Impacts, Mitigation and recommendations for Best Management Practices in the Peace Region*. Report prepared for the British Columbia Ministry of Water, Land and Air Protection, Peace Region. Forts St John, British Columbia.
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- <sup>3</sup> Fort Nelson LRMP Working Group. 1997. *Fort Nelson Land and Resource Management Plan*. Land Use Coordination Office. <http://srmwww.gov.bc.ca/rmd/lrmp/fortnelson/index.htm> (March 28, 2003)
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