

Prince George Local EMS/SFI Guides
and Documents:

Document	Page
Table of Contents	1
TPG Project Risk Rating for EMS and Safety	2
Invasives Fact sheet for Forestry Operations	4
SOMC Operator awareness sheets	9
Migratory Birds for LPCs	13
Temporary Winter Stream Crossings Guide	15
Soil Disturbance Supplemental Guide	17



Use the information below to determine the project risk ranking and record the risk ranking and inspection frequency in section B of the appropriate pre-work report.

EMS Inspection Risk Rating

Functional Area	Risk Rating	Minimum EMS Inspection Frequency			
		Pre-work	Initial	Progress (define frequency in inspection and monitoring plan)	Final
Access	High	X	ASAP after start-up, within 30 days	Monthly (during active operations)	X
Harvesting	High	X	ASAP after start-up, within 30 days	Monthly (during active operations)	X
Silviculture Herbicide treatment	High	X	ASAP after start-up, within 30 days	X	X
Silviculture	Medium	X	2 weeks from start-up	Every 3 months	X
Consulting Services	Low	X	None	None	X

Additional EMS Progress Inspections and/or Monitoring can be required if:

- Site specific factors such as; areas of increased sensitivity (soils, water, archaeological and wildlife, biodiversity features etc),
- public / stakeholder's concerns,
- Indigenous Peoples' interests,
- seasonal constraints (i.e. inspections required prior to seasonal shutdown, timing window in GAR orders)
- licensee / contractor history (see CQMS considerations below for contractors)
- estimated length of TSL or contract operations, and
- Project complexity

If additional inspections are needed at the prework, document the increased monitoring frequency in **Section B** of the CHK Pre-Work Document and notes within the prework.

Two LPC self-inspections per month per project for high-risk activities

FOR CONTRACTS ONLY

Safety Inspection Risk Rating

Contract Type	Minimum Contract Safety Inspection Frequency			
	Risk Rating	Pre-work	Initial	Progress
Tree falling, topping or limbing' blasting, road construction or maintenance, log bucking, yarding or hauling or similar activities.	High	X	ASAP after start-up	Monthly
Tree planting, silvicultural work, brushing, and assessment or forest engineering work in isolated locations.	Medium	X	Within 2 weeks of field work start-up	Every 3 months
Assessment, engineering or survey work in non- isolated locations.	Low	X	Only one safety inspection is required during term of contract. Could be a document review of contractors safety program in the office.	



Isolated location – working in an area where assistance would not be readily available to the worker in case of emergency, injury or illness and may require specialized transportation such as a boat or aircraft to facilitate medical aid. See “**Chapter 19: Dealing with BC Timber Sales Contractors**” in BCTS Safety Certification webpage for more details.

Some Projects may be Low Risk for EMS, but Moderate Risk for Safety due to Work in isolated locations.

Inspection/Monitoring Plan (frequency/timing of inspections/monitoring)

Inspection Type	Timing of inspection / monitoring	Focus
Pre-work	When requested by LPC	TSL/Contract Highlights, EMS / SFM Conformance, Safety.
Initial – documentation on a CHK form	ASAP after start up (within the first two weeks)	Emergency Preparedness, Training & Awareness, EMS / SFM Conformance, Contractual Requirements, Legislative Compliance, and Safety.
Progress inspection – documentation on a CHK form Monitoring – less formal documentation (email, Word document) or CHK 007a	As required	Consistency with project plans, EMS / SFM Conformance, Safety, Legislative Compliance and Resolution of previously identified Issues. Consider monitoring in place of progress inspections, where appropriate. The intention is not to discourage field presence but rather to reduce/streamline administrative effort (i.e. data entry). Monitoring does not replace the requirement of progress inspection.
Harvesting- Final (snow-free) – documentation on CHK form Contracts- Final – documentation on a CHK form and attach evidence as needed.	End of Project	Review of Final Obligations- Timber Sale Licence / Road Permit. Review of EMS / SFM Conformance, Licensee Conformance Certificate Review of Project Completion and EMS / SFM Conformance.

Moderate or **High-risk EMS projects** require one Test Drill most suited to the highest EMS risk of the project or the season risk potential (fire drill for summer versus winter).

Completed Test Drills from other another project/operation can be accepted if done within the same geographic region, same crew, and within the same operational season. A LPC may use their own Test Drills form if it contains same information/requirements as the BCTS CHK-10.

Forestry Operations

What Can You Do?

Invasive plants are negatively impacting forestry operations across British Columbia. Forestry professionals, including planners, researchers, operational crews and others have the ability to mitigate these negative impacts by implementing a combination of prevention and management practices.

This document provides a summary of forestry best management practices for invasive plants, which licensees are encouraged to use when developing Standard Operating Procedures under their Forest Stewardship Plans. Implementation of these recommendations will benefit from a cooperative approach that involves the support of Regional Invasive Plant and Species Organizations and additional expertise to provide education, training, technical advice, and provincial and regional coordination.

The term invasive plant, as used hereafter, includes provincially listed invasive plants and noxious weeds, as well as other alien plant species with the potential to pose undesirable impacts on humans, animals or ecosystems.

Ecological Impacts of Invasive Plants on Forestry

Invasive plants displace desirable vegetation through competition and aggressive reproduction. Lacking natural pathogens or predators, invasive plants can spread rapidly through vegetative growth and/or production of vast numbers of long-lived seeds. Invasive plants can negatively affect soil productivity, water quality and aquatic habitats, forest structure, biodiversity, seedling regeneration, range resources, wildlife habitat, species at risk, wildfire dynamics, culturally important plants, human health, public infrastructure, recreation, and landscape aesthetics.



Management Strategies

Management strategies will vary by invasive plant species and by region of the province. Refer to the accompanying species-specific factsheets for detailed information on management of specific invasive plant species.

Three elements common to all management strategies include:

- » **Prevention** measures that encompass development planning, silviculture, and all operations.
- » Establishment of coordinated early **detection** and **reporting** systems.
- » Application of Integrated Pest Management (**IPM**) principles

Objectives of this Document:

- » Manage and mitigate the impacts of invasive plants by providing roadside maintenance contractors, land managers, and others with information and resources to prevent, detect, and report invasive plants.
- » Develop a coordinated approach to invasive plant management for all maintenance contractors, land managers, and others.
- » Manage and mitigate the impacts of invasive plants by providing forestry and resource management professionals with information and resources to prevent, detect, and report invasive plants.
- » Develop a coordinated approach to invasive plant management for all forest and resource managers.
- » Assist in compliance with the Forest and Range Practices Act and the Weed Control Act.



Prevention

The most cost-effective management option for invasive plants is prevention. Depending on the current distribution of the species, this includes preventing the initial introduction to an area, and subsequent introductions (spread). Prevention requires that, at a minimum:

- » A coordinated detection and reporting system is used; and
- » Specific practices, such as those outlined in this document, are in place across all forestry operations to prevent introduction or spread of invasive plants.

Early Detection and Rapid Response (EDRR) is a strategy that incorporates education, coordinated detection, and focused response efforts. A common approach to prevent invasive plant introduction or spread through EDRR includes the following steps.

1. Determine the priority invasive plant species within your operating area and maintain an awareness of species new to your area using, at minimum, the following sources of information.
 - » Province-wide web-based databases such as the Invasive Alien Plant Program (IAPP) Application and E-Flora BC.
 - » Regional Invasive Plant or Species Organization coordinator(s) serve to coordinate invasive plant management within each regional district or group of districts across most of BC. For current contact information: <https://bcinvasives.ca/about/partners/bc-stakeholders>
2. Ensure staff and contractors learn to identify species of concern that are present at and near their operating areas and, at a minimum, to follow the prevention measures specified in this document. This may include but is not limited to:
 - » Collaborating with the regional invasive plant committee coordinator(s) or Ministry of Forests, Lands and Natural Resource Operations and Rural Development (MFLNRORD) regional invasive plant specialists to ensure training is available on species identification.
 - » Making resources available to staff and contractors to facilitate identification of species and implementation of factsheets.
 - » Facilitating networking among staff and contractors who are likely to encounter invasive plants with MFLNRORD regional invasive plant specialists and Regional Invasive Plant or Species Organization coordinators.
3. Establish a protocol for action when an invasive plant is encountered that includes the following:
 - » Identifying the species. Determine the plant's legal status and regional priority.
 - » Using a species-specific factsheets to determine appropriate control measures.
 - » Reporting the species name, date of observation, location (UTM coordinates), and estimated area (ha or m²) of infestation to the regional invasive plant committee coordinator or MFLNRORD invasive plant specialist.



Preferably, complete a Site and Inventory Invasive Plant Record form for data entry into IAPP. Alternatively, acquire data entry access to the IAPP Application and actively participate in invasive plant data management.

Integrated Pest Management (IPM)

- » IPM is a decision-making process that includes identification and inventory of invasive plant populations, assessment of the risks that they pose, development of well-informed control options that may include a number of methods, site treatment, and monitoring.
- » Control methods vary with species, severity of the plant invasion, and site considerations. Site-specific mechanical, chemical, or biological control methods may be applied.
- » Additional information on control methods is available in the accompanying species-specific factsheets, from a regional invasive plant committee coordinator or regional invasive plant specialist, or online at the IAPP Application Reference Guide.



Best Management Practices for: Forestry Operations »

TARGETED INVASIVE PLANT SOLUTIONS

General

These practices are always applicable, regardless of the operation, and are not limited to specific operations listed here.

1. Determine priority invasive plant species within your operating area.
2. Stay informed through collaborations with regional experts, and assist staff and contractors to identify and minimize spread of invasive plant species within your operating area.
3. Carry out regular detection surveys and record the locations of invasive plants in your operating area.
4. Keep equipment out of areas infested by invasive plants and keep equipment yards and storage areas free of invasive plants.
5. Regularly inspect the undercarriages of vehicles and remove any plant material found.
6. Dispose of plant material at the site of the infestation (if no flowers are present), or bag the plant material and dispose of it (locally) in the garbage (if flowers are present).
7. Wash plant seeds and propagules from personal gear, equipment, vehicles and machinery at designated cleaning stations before leaving infested sites. Ensure soil that is being moved does not contain invasive plant seeds or propagules.
8. Minimize unnecessary soil disturbance during road, landing, skid trail and site preparation. Ensure soil that is being moved does not contain invasive plant seeds or propagules.
9. Re-vegetate disturbed areas as soon after disturbance as possible using an appropriate combination of scarification, seeding, fertilizing and/or mulching. Ensure that seed used to re-vegetate will meet site objectives. Use quality forage mixture without any weed seed contamination. Suggested to request "Certificate of Analysis" to ensure mix is weed seed free.
10. Treat infestations of invasive plants prior to disturbance (pre-treatment).
11. Monitor treatment sites for several years to ensure efficacy. Re-treat as necessary to ensure spread does not continue.



Silviculture and Reconnaissance Surveys

1. Consult the Invasive Alien Plant Program (IAPP) Application database to determine locations of high-risk infestations.
2. Incorporate IAPP spatial data into planning maps.
3. Incorporate detection surveys into existing survey procedures.
4. When an invasive plant is encountered: record the species, date of observation, location (UTM coordinates), and estimated area of infestation (ha or m²). IAPP field cards are available for use. Provide this information to the Regional Invasive Plant or Species Organization coordinator or MFLNRORD invasive plant specialist, or enter the data independently.

Road Building and Maintenance

1. Inspect gravel pits and material sources for invasive plants, and remove invasive plant seeds and materials prior to use.
2. Where possible, begin work in un-infested areas and move toward infested areas.
3. Promptly re-vegetate disturbed areas along roadsides, landings, and cleaned culverts.
4. All machinery and equipment capable of carrying invasive plant propagules should be cleaned prior to moving on and off site.
5. Grade roads in directions that do not encourage spread of seeds away from known, priority invasive plant sites.

Harvesting and Site Preparation

1. Re-vegetate all harvested openings by re-establishing an appropriate stand of trees following the stocking standards prescribed in the Forest Stewardship Plan.
2. Minimize disturbance and the duration of time the site is left un-vegetated. Consider seeding if there is a delay in re-vegetation.
3. All machinery and equipment capable of carrying invasive plant propagules should be cleaned prior to moving on and off site.

Legal Status

Invasive plant management on Crown land is regulated by the BC Forest and Range Practices Act (FRPA), the BC Weed Control Act (WCA), and the Integrated Pest Management Act (IPMA).

The FRPA requires forest managers to specify and implement measures that prevent the introduction or spread of the 42 invasive plants listed under the Invasive Plants Regulation within their Forest Stewardship Plans. Please visit the FLNRORD website for more information on the Forest Stewardship Plans.

The WCA requires all land occupiers to control the spread of 64 provincial and/or regional noxious weeds on their land and premises, and specifies provisions for transportation, movement and cleaning of machinery. http://www.bclaws.ca/Recon/document/ID/freeside/10_66_85

The IPMA regulates herbicide applications that may be used to control invasive plant infestations. http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_03058_01

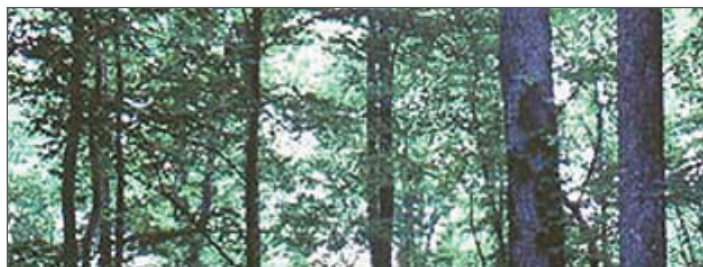
References/Links

Provincial and Regional Coordination:

- » Invasive Species Strategy for British Columbia. 2018-2022: https://bcinvasives.ca/documents/Invasive_Species_Strategy_for_BC-2018-180117-WEB.pdf

Species Identification and Management

- » Field Guide to Noxious Plants and Other Selected Invasive Plants of British Columbia https://bcinvasives.ca/documents/Field_Guide_to_Noxious_Weeds_Final_WEB_09-25-2014.pdf
- » BC Ministry of Forests, Lands and Natural Resource Operation and Rural Development Invasive Plant Program <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/plants>
- » E-Flora BC, Electronic Atlas of the Plants of BC: www.eflora.bc.ca
- » Global Invasive Species Database: <http://www.iucngisd.org/gisd/>
- » Invasive Species Council of BC <https://bcinvasives.ca/resources/tips/>



Provincial Inventory and Mapping Database

- » Invasive Alien Plant Program (IAPP) Application, Reference Guide and Field Forms: <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/reporting-invasive-species>

Integrated Pest Management

- » BC Ministry of Environment Integrated Pest Management Program: <https://www2.gov.bc.ca/gov/content/environment/pesticides-pest-management>

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Invasive Species Resource:

Field Guide to Noxious and Other Selected Invasive Plants of British Columbia

https://bcinvasives.ca/wp-content/uploads/2021/02/Field_guide_to_Noxious_Weeds_11th_2021.pdf



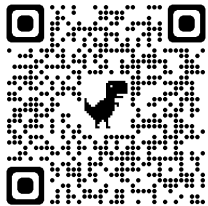
Reporting:

The Report Invasives mobile apps let you report invasive species of plants and animals sightings in B.C. The apps can be used off-line as well; simply complete the report when you are at the invasive species location, click 'Submit' and the report will be sent as soon as you are back in cell coverage.

The “Report-a-Weed” application has now been retired. Please continue to use Report Invasives on your mobile devices and remove the “Report-a-Weed” application off your phone and tablets.

Download the free reporting app:

[Report Invasives \(Android devices\)](#)



[Report Invasives \(iPhone or iPad\):](#)



BC Timber Sales, Prince George Business Area

Consistent with BCTS Environmental Field Procedures (EFPs 01-08):



Stop work and contact and (report to) your project supervisor and the BCTS representative if any of the following features are found and previously unidentified.




Do not disturb the feature, document the location and take photos if possible.





BCTS Licensees/Permittees:


Consistent with the TSL clauses and BCTS advisory Bulletin No. 2015/09/22 "[Having a Plan](#)"

- Licensees are responsible for ensuring all their operations are in accordance with BCTS Forest Stewardship Plans, and all relevant legislation.
- Licensees may have the responsibility to change the plan and are advised to consult a Qualified Professional.
- Additional information on how BCTS identifies and manages these features are available on request.

	Category	Species	Habitat	Identification	Action Required
	Mammal	Black bear (<i>Ursus americanus</i>)	<ul style="list-style-type: none"> • Forested and shrubby areas to open. Wet meadows, high tidelands, ridgetops, burned areas, riparian areas, and avalanche chutes. 	<ul style="list-style-type: none"> • Not always black, cinnamon, brown, and blonde. • Small black eyes, broad head, rounded ears, short tail, fine. • Shoulder hump of grizzlies absent. 	<ul style="list-style-type: none"> • If observed, stop work in the immediate area. • Take photos and record the sighting's GPS coordinates. • Report to supervisor and contact BCTS.
	Mammal	Fisher Boreal and Columbian Populations (<i>Pekania pennanti</i>)	<ul style="list-style-type: none"> • Old, mature forests, usual riparian, and dense wetland. • Affinity for broadleaf stands, but conifer forests dominate. • Home range, little overlap with same sex. 	<ul style="list-style-type: none"> • Long thin body, pointed face, rounded ears, and short legs. • Fur deep brown to black with lighter hairs around face and neck. • Females smaller. • Track pattern like mink and marten but larger. 	<ul style="list-style-type: none"> • If observed, stop work in the immediate area. • Take photos and record sighting's coordinates. • Report the observation to supervisor and contact BCTS.

	Mammal	<p>Central mountain caribou Population 18 (<i>Rangifer tarandus</i>)</p>	<ul style="list-style-type: none"> • West and East sides of Rocky Mountains. • West-migrate mountains to low pine flats in early winter. • East-winter in mountains on windswept alpine ridges. 	<ul style="list-style-type: none"> • Dark brown coat with creamy white neck, and mane. • Large crescent-shaped hooves. • Both sexes have antlers. • 100-120 cm at shoulder. 	<ul style="list-style-type: none"> • If observed, stop work in the immediate area. • Take photos and record the sighting's GPS coordinates. • Report to supervisor and contact BCTS.
	Mammal	<p>Moose (<i>Alces alces</i>)</p>	<ul style="list-style-type: none"> • Snow accumulation affects population dispersal. • Second-growth forest, openings, swamps, lakes, wetlands. 	<ul style="list-style-type: none"> • Adult bull 2 m at shoulder, 450-500 kg. • Long legs, large ears, bulbous nose, shoulder hump, and brown to blackish coat. • Female identified by white vulva patch on behind. 	<ul style="list-style-type: none"> • If observed, stop work in the immediate area. • Take photos and record the sighting's GPS coordinates. • If mineral lick is identified document locale. • Report to supervisor and contact BCTS.
	Mammal	<p>Wolverine luscus subspecies (<i>Gulo gulo luscus</i>)</p>	<ul style="list-style-type: none"> • Found in large, sparsely inhabited areas. • Treed and treeless areas, all elevations. • Winter at low elevation. • Most Abundant where large ungulates and carrion are common. 	<ul style="list-style-type: none"> • Massive limbs and long, dense, dark brown fur. • Two broad yellowish stripes extending from shoulders and joining on rump. • Bushy tail, and large feet. • Large head, short neck and legs. • 65-112 cm long, weigh 12-18 kg. 	<ul style="list-style-type: none"> • If animal or den observed, stop work in the immediate area. • Take photos and record sighting's GPS coordinates. • Report to supervisor and contact BCTS.

	Bird	Connecticut Warbler (<i>Oporornis agilis</i>)	<ul style="list-style-type: none"> • Deciduous forests. • Generally, prefer aspen forests, also found in cottonwood and spruce forests. • Requires a well-developed shrub layer. 	<ul style="list-style-type: none"> • Small songbird, 13-15 cm, length. • Breeding males have grey hood extending to the lower throat, a whitish eye ring. • Olive to olive brown upper side. • Yellowish under side. • Head is grey. 	<ul style="list-style-type: none"> • If an active nest is observed, stop work in the immediate area, photo document, GPS location. • Report supervisor and contact BCTS.
	Bird	Osprey (<i>Pandion haliaetus</i>)	<ul style="list-style-type: none"> • Primarily along rivers, lakes, streams. • Open sites with suitable nesting sites close to water. 	<ul style="list-style-type: none"> • Long narrow wings, dark brown upperparts, and white underparts • White head with prominent dark eye streak, and dark wrist patches (visible in flight) on bottom of wings. 	<ul style="list-style-type: none"> • If an active nest is observed, stop work in the immediate area, photo document, GPS location. • Report supervisor and contact BCTS.
	Mammal	Little brown myotis (<i>Myotis lucifugus</i>)	<ul style="list-style-type: none"> • Dry open forests, wet riparian areas. • Roosts: attics, under bridges, hollow trees, under loose bark or shingles, or in rock crevices. • Require open water. 	<ul style="list-style-type: none"> • Fur cinnamon buff to dark brown on back. Belly may be glossy and paler. • Dark brown wings and tail lacks fur. • Ears are large compared to head. • Body 7-10 cm, wingspan 25 cm. 	<ul style="list-style-type: none"> • If observed, stop work in the immediate area. • Do not disturb roosts or hibernacula. • Take photos and record the sighting's GPS coordinates. • Report to supervisor and contact BCTS.
	Vascular Plant	Whitebark pine (<i>Pinus albicaulis</i>)	<ul style="list-style-type: none"> • Montane forests on thin, rocky, cold soils at or near timberline • Moist mountain ranges, found at lower elevations (900-1100m). 	<ul style="list-style-type: none"> • Found at high elevations. • 20 m in height, but often dwarfed, 5-10 m tall, or a shrubby sprawling timberline tree. • Thin bark with whitish scales. • Yellow green needles in bunches of five. • Egg shaped cones 	<ul style="list-style-type: none"> • Do not disturb plant. • Confirm species identification. • Take photos and record the sighting's GPS coordinates. • Report to supervisor and contact BCTS.

	Amphibian	Western toad (<i>Anaxyrus boreas</i>)	<ul style="list-style-type: none"> • Forest, wetlands, grassland, meadows, shrub lands, or subalpine or alpine meadows and dry habitats. • Usually not far from water. 	<ul style="list-style-type: none"> • Skin dry with bumpy warts, coloration light to dark green to brown or even reddish. • Distinguished by cream-colored to white stripe down the length of back. 	<ul style="list-style-type: none"> • If observed, stop work in the immediate area. • Take photos and record the sighting's GPS coordinates. • Report to supervisor and contact BCTS.
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Canada's diverse landscapes support a great abundance and variety of birds. More than 450 native bird species regularly make use of Canada's natural and human-modified landscapes for at least part of their annual cycle. Most of these species are protected under the [Migratory Birds Convention Act, 1994](#) (MBCA) and so are collectively referred to as "migratory birds". We are further guided by the [Migratory Birds Regulations](#). Birds are an integral part of our Canadian heritage. Through bird-watching, and recreational and subsistence hunting, birds make a significant contribution to our quality of life and our economy. They also play important ecological and biological roles in our environment by eating insects, dispersing seeds, and pollinating plants, to name a few. Bird populations are important environmental indicators - the health of our birds tells us much about the health of our planet.

BCTS is working to manage and protect Migratory Birds, their habitat, nests and eggs as a part of our planning and project layout.



Redpoll
Photo Credit - Nathan Voth, FLNRO

WHAT TYPE OF BIRDS ARE PROTECTED?

People often think of Migratory Birds as Ducks, Swans and other waterfowl, and although this is true, the list of Migratory Birds in Canada is much larger.

The Migratory Bird Convention Act includes protection of Geese, Cranes, Rails, Shorebirds, Pigeons, Doves, Chickadees, Flickers, Flycatchers, Hummingbirds, Martins, Meadowlarks, Woodpeckers, Wrens, Grebes, Herons, Loons and Terns... And this is by no means a complete list.

A BCTS review of the updated [Migratory Birds Regulations](#) (for Northern BC) further protects the nests of Pileated Woodpeckers *all times of the year*, regardless of it being occupied.



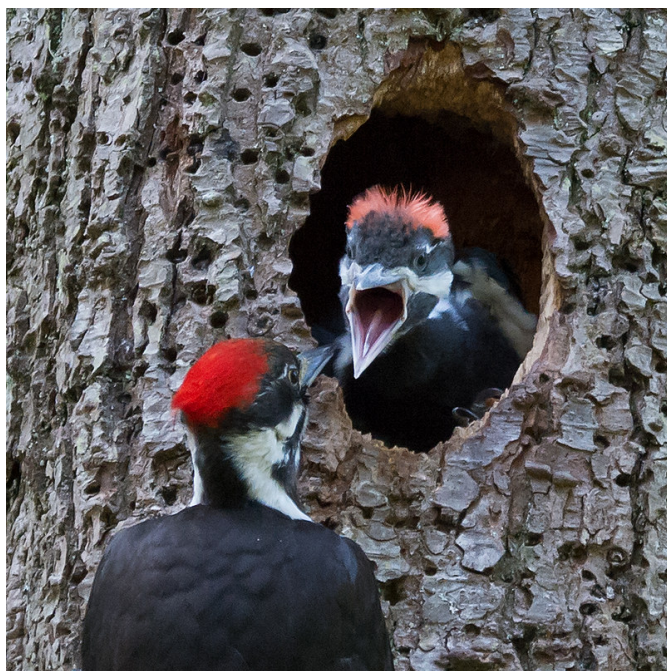
Trumpeter Swan
Photo Credit - Nathan Voth, FLNRO

HOW DOES THE MIGRATORY BIRDS CONVENTION ACT, 1994 PROTECT MIGRATORY BIRDS?

Most native bird species in Canada are protected under the [Migratory Birds Convention Act, 1994](#) (MBCA), and are collectively referred to as "[migratory birds](#)". It is the responsibility of Environment and Climate Change Canada to develop and implement policies and regulations to ensure the protection and conservation of migratory birds. General prohibitions under the Act and its regulations protect migratory birds, their nests and eggs anywhere they are found in Canada, regardless of land ownership, and including surrounding ocean waters; and prohibit the dumping of substances harmful to birds in waters or areas frequented by them.

Additional protection may be provided through other federal Acts and Regulations, in particular the [Species at Risk Act](#), for migratory bird species that have been found to be extirpated, endangered, threatened or of special concern and listed under that Act.

The BC Wildlife Act (Sec. 34) also makes it an offence to molest or destroy a nest occupied by a bird or its eggs.



Pileated Woodpecker / nest
Photo Credit - Birding BC

WHEN SHOULD I BE MOST OBSERVANT?

The MBCA applies to birds and nests all year but due to their migratory nature you are more likely to see them in the spring and summer. In our region the critical nesting period has been determined as April 18th to August 24th annually. During this period you are more likely to see migratory birds and their young nesting.

BCTS uses a process of analysing ecosystems and forest cover to determine the likelihood and concentration of migratory birds that may use an area for nesting. This process may have resulted in area's being excluded from your project or having timing restrictions on when operations can be active.

HOW DO I KNOW A NEST IS NEAR ME?

Different species of migratory birds will nest in trees, in shrubs, on the ground or even in burrows.

- 1) Look on the ground for concentrations of white coloured droppings, and then check the vegetation above for nests.
- 2) As you walk or operate in an area look for birds flying out of vegetation and flying close to you or scolding you, some birds will even feign an injury in an effort to draw you away. These activities may indicate a nest is nearby.
- 3) Watch for birds bringing nest materials or food repeatedly to one place. Birds tend to build their nests on the underside of the tree canopy where branches join together. Some birds nest in tree cavities, under a flap of bark, in shrubs or on the ground.



Black-capped Chickadee
Photo Credit - Nathan Voith, FLNRO

WHAT IF I SEE A NEST?

Determine if the nest is that of a Pileated Woodpecker. Pileated Woodpecker nests require protection year-round, regardless of occupancy, as they may be re-used.

Stop if your work could disturb or destroy the nest. Keep 30 metres away from the nest and consider a greater distance if the bird continues to scold you or seems agitated.

Larger birds such as Heron's and Cranes require a greater distance of minimal disturbance; however their usual nesting patterns are close to marshes or wetlands which normally allows for a greater distance from forestry operations.

Report the nest location to your supervisor. Your supervisor will report it to BCTS staff who will advise of next steps prior to resuming operations near the nest again.

Do not attempt to move or relocate the nest. Ideally nests should be left undisturbed until the young have left on their own. The Parent birds choose a nest location for specific reasons such as proximity to food and water, and protection from predators and the elements. If the nest is disturbed parents may abandon it along with their eggs or young.

The Migratory Bird Convention Act does not differentiate between an occupied or unoccupied nest, nor does it consider the condition of the nest, only that it (and its potential occupants) need to be protected. If you see an empty nest with no sign of feathers, down, fresh droppings or eggs then make every effort to not molest or damage the feature.



Loon
Photo Credit - Nathan Voith, FLNRO

HOW ELSE CAN I HELP CONSERVE MIGRATORY BIRDS?

All Canadians have a role to play in protecting migratory birds, their nests and young. As a business, you can:

- 1) Operate according to your plan;
- 2) Be observant and stop work in the immediate area if you see a nest;
- 3) Participate and encourage colleagues to participate in public consultations.

FURTHER INFORMATION:

Migratory Birds Convention Act, 1994:



Environment and Climate Change Canada – Migratory Birds:



List of Migratory Birds protected in Canada under the MBCA:



BC wildlife Act:



Updated: 2023-08-01

FPIInnovations prepared this guide in order to provide forest workers with information on winter stream crossings. FPIInnovations worked in close cooperation with BC Timber Sales, Stuart-Nechako Business Area during the development of this guide. Reference material for this guide included the *Reduced Risk Timing Windows and Measures for the Conservation of Fish Habitat for the Omineca Region* (BC Ministry of Water, Lands and Air Protection, 2004).

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This guide can be downloaded and printed from www.fpinnovations.ca



A PRACTICAL GUIDE FOR FOREST WORKERS

The essence of a temporary crossing is that it will be utilized for a short period of time. This guide will help forest workers choose preventative measures that will help maintain stream and stream bank integrity.

Best practices

Goal is to minimize any damage to the stream channel, banks or vegetation in the vicinity of the work area

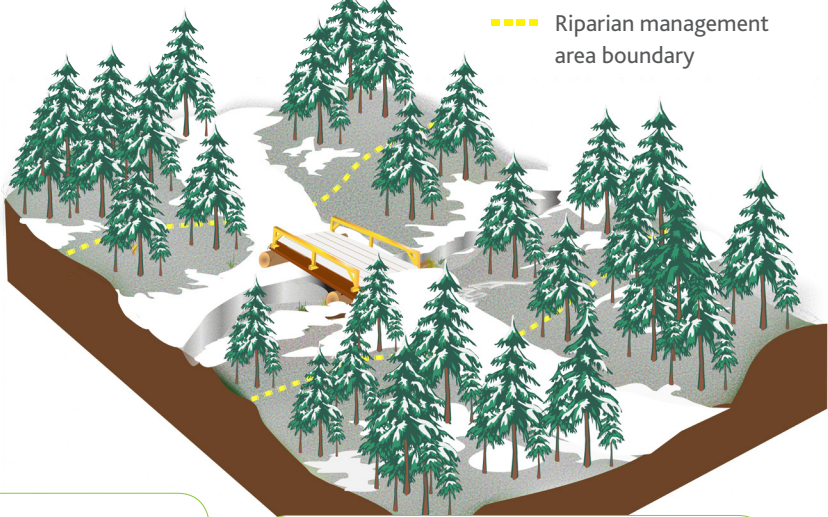
Plan your work

Choose a crossing location with the following characteristics:

- Narrow stream width
- Straight section of stream; not meandering or braided
- Solid, stable stream banks and bed that are less susceptible to erosion or degradation

Crossing structures

- Temporary clearspan is desirable in all cases for protection of stream channel
- A log bundle can be used during frozen conditions or where there is no flow
- A culvert can be used if there is flowing water
- Other structures may be considered provided they adhere to the same principles outlined in this guide



Avoid crossing at wide, braided or meandering section.

Wheeled equipment is not permitted to cross exposed channels. All refueling and servicing must be done outside of the riparian management area.

Choice of allowable crossing structure will depend on stream classification and flow characteristics.

Be aware of the goals set for the riparian management area at/near the crossing.

Crossing of an exposed channel by tracked machines is only permitted where stream banks and channel are stable (i.e. rock or frozen) and there is no risk of damage. If these conditions are met, tracked machines may cross the exposed stream in order to aid with construction of the crossing (see crossing consideration section).

follow us on:

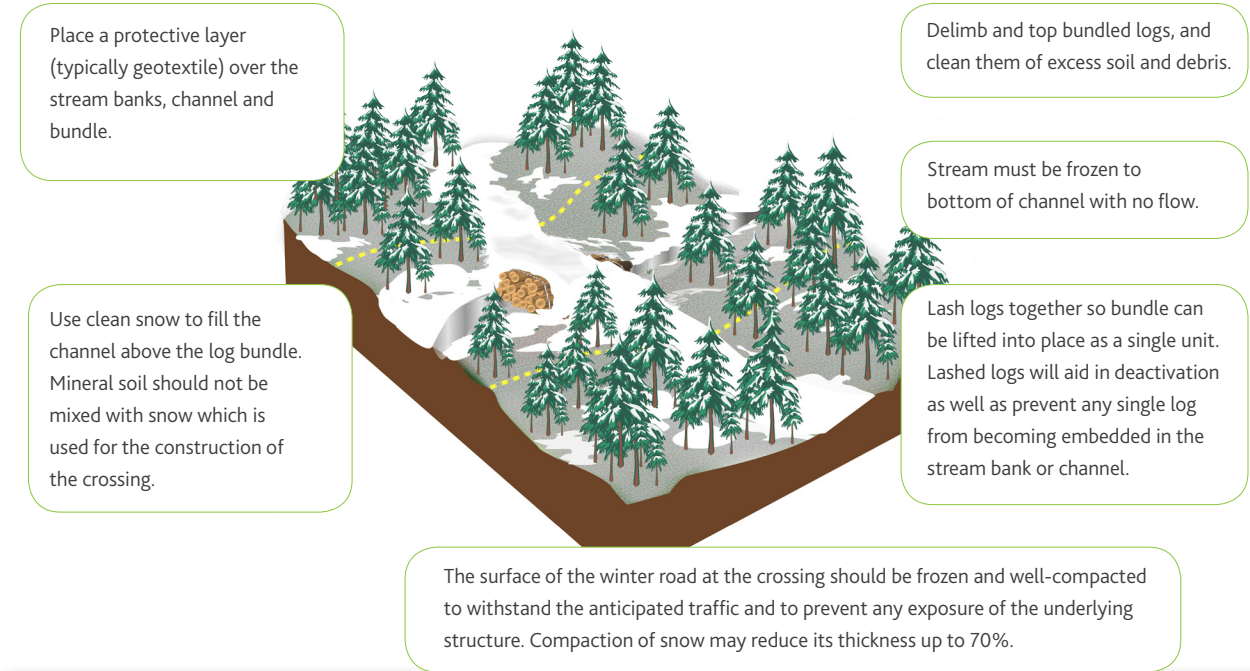


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Temporary Winter Stream Crossings

A PRACTICAL GUIDE FOR FOREST WORKERS

CONSTRUCTION AND INSTALLATION OF A LOG BUNDLE



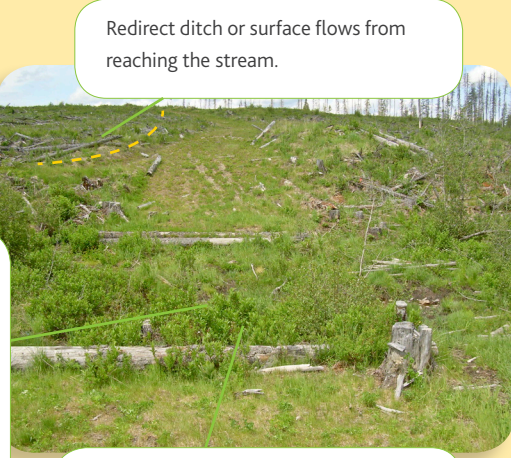
Deactivation

- Remove crossing when no longer needed. Structure must be removed before stream thaws and develops any water flow, or by April 15th, whichever is first.
- At all times damage to the stream channel and banks must be minimized. Vegetation in the vicinity of the work should be conserved as much as possible.
- Stabilize exposed soils at the crossing site and along the approaches.
- All permanent foreign (non-biodegradable) material is to be collected and removed from the site.
- To aid in the complete removal of geotextile used as a separations layer, it should be specified that the material be of a high grab tensile strength in order to be pulled and gathered without ripping. Grab tensile strength is measured in newtons (N) and for woven geotextile has a typical range of 700 to 1400 N.

- A separation layer made of biodegradable material which can be left in place to degrade may be appropriate for use where retrieval is especially difficult.

All foreign material is to be collected and removed from the site

Preserving the natural vegetation next to the stream helps to protect this highly vulnerable area from erosion and sedimentation.



Redirect ditch or surface flows from reaching the stream.

Cribbing or logs used as abutments which are stable or embedded into the ground may be left in place.

CROSSING CONSIDERATIONS

TEMPORARY CLEARSPAN

LOG BUNDLE

CLOSED BOTTOM CULVERT

Stream and riparian classification

STREAM WIDTH		STREAM AND RIPARIAN CLASS
Stream is a fish stream or in a community watershed		
>20 m		S1
>5 – 20 m		S2
1.5 – 5 m		S3
<1.5 m		S4
Stream is not a fish stream and not in a community watershed		
>3 m		S5
<3 m		S6

Note that S3 and S4 streams are the primary focus for this winter crossing guide.

***Number of stream channel crossings by tracked equipment during construction of crossing**

- S4: Up to three one-way crossings
- S3: Up to two one-way crossings

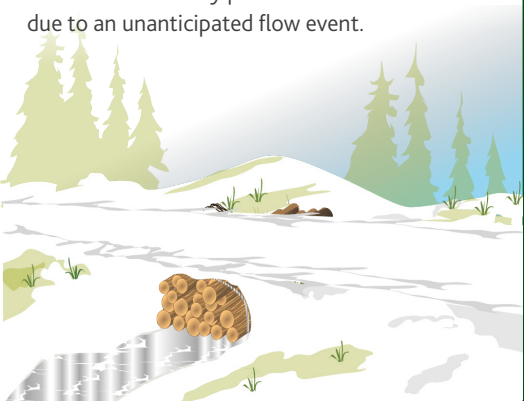
*Only allowed if stream banks and channel are stable (i.e. rock or frozen) and there is no risk of damage to the stream banks or channel.

- Can be used to cross S3 or S4 streams.
- Can be used to cross streams with flowing water
- Can be installed without encroaching on stream channel
- Open bottom provides for debris passage
- Clearspan can provide best protection to stream banks and channel, and helps to preserve riparian vegetation / features
- Remove structure prior to spring melt

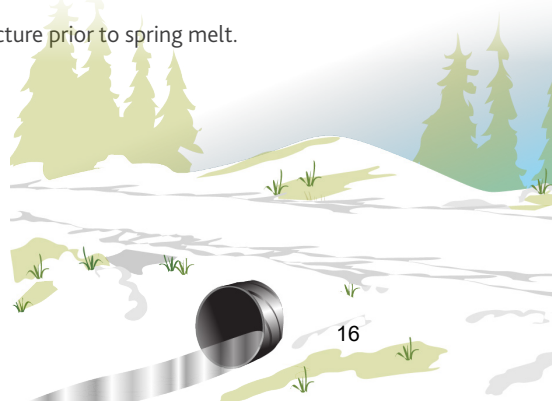


- Can only be used to cross S4 and S6 streams that have no flowing water
- Installation may only occur once the water course has frozen solid to the bottom
- Bundle must be tightly lashed so as to prevent any loose logs from being placed within the channel
- Lift bundle into place, which will aid to preserve the stream bank from any gouging due to rolling or dragging
- A separation layer is required for use over the banks, channel and bundle

- Use clean snow to place in channel and over entire crossing location
- Logs are the typical choice for use in a bundle; PVC pipe may be considered as an alternative
- Remove structure prior to spring melt
- A culvert amongst a log bundle allows for a larger conduit to be incorporated in the structure which may provide for a fail-safe due to an unanticipated flow event.



- Can only be used for S4 and S6 streams
- Culvert needs to conform to the shape of the channel at crossing location—typically a straight stream reach is chosen.
- Separation layer is required for use over the banks, channel and culvert.
- Use clean snow to place in channel and over entire crossing location.
- Remove structure prior to spring melt.



This supplement has been developed in support of the BCTS Environmental Management System. It is to be used solely as a reference guide and is not intended to replace BCTS Site Plans. BCTS staff, Contractors and Licensees are asked to ensure that a Pre-work has been completed prior to the commencement of work and to ensure that they are familiar with both the Site Plans and the applicable Environmental Field Procedures.

What is Soil Disturbance?

- Includes compaction, rutting, gouging, scalping and the construction of trails, roads, landings, pits and quarries.
- It is caused mainly by moving machinery and logs
- Excessive soil disturbance is that which is beyond what is necessary under the right combination of equipment and site conditions. This is caused by excessive random (unplanned) traffic over sensitive terrain or under wet conditions, commencing or continuing to work in poor (wet) soil conditions, or by heavily concentrated activity outside of road side work areas. This is to be avoided through proper planning, familiarity with Site Plans and recognizing these situations before they become a problem.

Compaction	Rutting
<p>Keys to identification:</p> <p>Caused by felling, skidding, and forwarding routes with repeat traffic.</p> <p>Compacted mineral soil, puddled mineral soil (soil that has liquefied then hardens), and compacted deposits of slash and organic debris.</p> <p><i>Compacted soils reduce drainage, aeration and reduce root growth and forest productivity. Also reduces water infiltration which can lead to off-site drainage problems.</i></p>	<p>Keys to identification:</p> <p>Ruts or impressions into the soil from wheels and tracks</p> <p>On sensitive soils these are of concern when only 5 cm deep</p> <p>On all sites be concerned about ruts that are, 2 m long and over 15 cm deep.</p> <p><i>Rutting can occur from just one pass and cause compaction which decreases drainage, aeration and damage shallow feeder roots</i></p>
Gouging, Scalping and Scraping	Trails (Bladed or Excavated)
<p>Keys to identification:</p> <p>Forest floor (surface organic layer) has been removed, exposing the mineral soil, or where organics are absent, top soil has been excavated 5 cm or more. Mainly a concern if over 30 cm deep or to bedrock, or wider than 1m.</p> <p><i>Gouging and Scalping displaces nutrients and increases erosion potential as the topsoil contains large reserves of nutrients and contains the majority of roots.</i></p>	<p>Keys to identification:</p> <p>Trails excavated into side slopes, either along the contour of the slope or at an angle to the slope.</p> <p><i>Excavation exposes subsurface seepage and creates drainage paths during runoff events (thunderstorms). Soils under trails become very compacted. Excavated cuts and fills expose subsoils with few nutrients and steep, exposed surfaces that can erode and deliver sediments to streams.</i></p>

General Soil Disturbance Guidelines

PRE-WORKS: Review Site Plan soil disturbance limits.
Identify sensitive or difficult harvesting areas during Pre-work, and areas identified with sensitive soils, low lying drainage and receiving areas.

PLAN: Identify and plan felling and skidding routes ahead of time. When designating main trails, a herring bone pattern may reduce overall trafficked area. Consider manual treatments such as hand felling, especially in ecologically sensitive areas.

WEIGHT: Reduce loads carried by logging equipment.

TURNING: Creates the most disturbance off main trails.
Avoid sharp turns with loaded equipment, especially at the base of hills. Use trails and road surfaces to turn where possible.

SOIL MOISTURE: Monitor soil moisture and frost. Dry or frozen soils do not compact as easily. Soils lose strength as the moisture level increases.

DEPRESSIONS: and wetter, more sensitive areas avoid traveling through these areas, if unavoidable, designate and design a crossing to reduce impacts.

ORGANIC SOILS: Avoid disturbing predominantly organic wet soils. Utilize slash for traction and padding (puncheon). Maintain soil organic matter, litter, and slash in place when harvesting.

GROUND PRESSURE: Use low ground pressure equipment. **SLASH PLACEMENT:** Avoid piling slash on good high spots and other good growing sites.

MONITOR WEATHER: Shift harvest operations to upland areas of a timber sale if weather conditions deteriorate. Shut down when soil disturbance objectives are threatened

Operating Techniques

Excavated or Bladed Trails

Where bladed or excavated trails are planned:

- Keep the excavated area as small as necessary.
- Avoid excavating the cut slope into the subsoil layers. Maintain organic debris and productive soil for re-contouring and rehabilitation later. Scatter slash and organic debris onto exposed mineral soil.
- Use excavators to build trails, where possible.
- Maintain the natural drainage pattern for all identifiable watercourses.
- Where conditions change over the length of the trail, be prepared to modify techniques.
- Control drainage and erosion on excavated trails to reduce the likelihood of landslides, mass wasting events or stream sedimentation.
- Where the forest floor is sufficiently thick, remove it separately from the topsoil and stockpile in mounds. Avoid mixing this material with unproductive soils.
- Where forest floors are too thin to be easily separated, keep these materials with salvaged topsoil.
- When building trail sections with deeper cuts and fills, place the excavated material down in the fill bank in the following order: topsoil, intermediate soils, then subsoils on top. The outer track of the running surface will run on the excavated subsoil, preserving the topsoil at the bottom of the fill.
- To minimize the amount of side cast required and for rehabilitation, use stumps and logs to create a crib to fill.
- Long machine trails on steep slopes should be placed so there are grade breaks and run-offs to prevent water channeling.

Winter Harvesting

When harvesting in Winter:

- Use compacted snow trails from harvesting equipment to skid or forward. Skid one or two turns in sensitive areas and then allow frost to penetrate compacted snow. Soil frozen to a depth of 15 cm offers maximum strength and protection.
- Soil frost begins to disappear after snowfall covers the soil and/or night temperatures stay above freezing for three or four days.
- When building excavated trails in the snow, avoid piling topsoil on top of snow or mixing the two.
- When building excavated trails in snow, excavate the snow on the inside, compact it on top of the snow on the fill side, cut out the soil on the inside and lay it on top of the snow and compact it. Cover this with snow and compact it to form the running surface. Operators rehabilitating the trail will recognize the bottom of the stockpile is at the lower layer of snow.

Rehabilitation

When building and rehabilitating bladed trails along a hill slope:

- Rehabilitation and mitigation should be conducted under the best soil and weather conditions possible.
- Outslope the trail surfaces to avoid collecting water. Decompact the running surface to a greater depth on the outer portion of the trail to avoid creating a subsurface water trap next to the cut.
- Decompact all compacted soils on running surfaces.
- Restore slopes to natural contours. Place slash on exposed soils.
- Deconstruct all corduroyed trails (punchon) and scatter slash material away from drainage courses.
- Ruts may be rehabilitated by restoring natural drainage, loosening the soil at the bottom of the rut and gently distributing berm material into the depression. Create an even soil layer for rooting while not exposing poor soils.
- Avoid mixing woody debris with top soil. Avoid handling top soil under wet conditions. When stockpiling top soil, develop standard methods to aid in finding and re-using the material. Avoid burying top soil with slash and protect it from water runoff and traffic. Avoid stockpiling top soil in wet areas.
- Cover exposed subsoils as well as organic matter with scattered slash to provide protection from erosion.