

Best Management Practice 01.00

VEGETATION REMOVAL

Mount Revelstoke and Glacier national parks

February 2015



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This Best Management Practice (BMP) allows the following described work to be undertaken at Mount Revelstoke and Glacier national parks:

Scope

For routine trimming, brushing, mowing and limited tree removal.

The use of this BMP as an Environmental Impact Analysis pathway must be approved by the FUS, based on recommendation by the park Environmental Impact Assessment (EIA) Officer. Use of this BMP must be recorded in the Parks Canada Environmental Assessment tracking system. Project managers are responsible to ensure the terms and conditions described as mitigation measures in the BMP are respected.

**Note: Work that is defined as “normal” trail maintenance and falls within the existing corridor of the trail and/or work occurring in designated Day Use Areas will be managed by the Trail Maintenance Best Management Practice (in development). .*

Exceptions*

**This section specifies circumstances when the BMP would not apply or should be used only in conjunction with additional analysis.*

- Vegetation removal in Zone I areas (Special Preservation) including the Nakimu Caves and the lower Cougar Valley;
- Vegetation removal in Environmentally Sensitive Sites including the Beaver Valley Fen or other ecologically sensitive sites;
- Vegetation removal in areas of known rare plant and/or species listed under the Species at Risk Act;
- Vegetation removal in new areas greater than 50 m² in Zone III, IV, V and areas greater than 25 m² in Zone II;
- Mowing areas outside the Trans-Canada Highway right-of-way;
- Any work that could directly impact a cultural resource;
- Falling trees with a diameter at breast height (DBH) greater than 15 cm, unless it is assessed and documented by a Qualified Danger Tree Assessor as a hazard tree; or
- Invasive alien plant control through chemical means (i.e. use of herbicides).

**Note: The Superintendent or designate may determine that a BMP alone may not be sufficient to detect or prevent adverse environmental effects, and recommend an alternate EIA pathway.*

Training

Staff performing activities described in this best management practice will receive spring training from Resource Conservation that will cover the obligations in these guidelines, including but not limited to, information on ensuring protection of cultural resources, species at risk and migratory birds.

Effects Assessment

<i>Valued Ecosystem Component (VEC)</i>	<i>Potential Key Effects</i>
Aquatic ecosystems (including lakes, rivers and surrounding riparian zones)	<ul style="list-style-type: none"> Increased light from vegetation removal could lead to changes in water temperature and chemistry, which may impact aquatic flora and fauna; Increased sedimentation; Reduced stream channel stability; Impairment to amphibian breeding habitat; Contamination from fuels and lubricants, increased pollutants from overland flow.
Terrestrial vegetation	<ul style="list-style-type: none"> Reduction in abundance / diversity; Disease / infestation (i.e. Douglas Fir Beetle); Introduction or spread of invasive species; Increased risk of Wildfire from cut vegetation and associated debris; Destruction of rare plants.
Terrestrial wildlife	<ul style="list-style-type: none"> Removal of nesting areas; Removal of bat roosts and maternity colonies; Removal of habitat; Removal of food sources; Disturbance / displacement of wildlife due to noise / human presence; Mortality of western toadlets during migration.
Soils	<ul style="list-style-type: none"> Increased soil compaction; Exposed soil may lead to greater erosion potential; Less infiltration during heavy rainfall events leading to overland flow and increased sedimentation/erosion; Contamination from spills or leaks of fuels or lubricants;
Visitor experience	<ul style="list-style-type: none"> Visual impacts: noticeable cut/modified vegetation may be visually unappealing to visitors; Noise Pollution from use of electric powered equipment; Overly-cleared areas may diminish the characteristics of the environment important to key visitor experience objectives; Dangers to public safety while work is being conducted.
Cultural resources	<ul style="list-style-type: none"> Damage or undermining cultural resources.
Indirect effects to aboriginal and non-aboriginal peoples	<ul style="list-style-type: none"> No anticipated adverse effects.

Measures to Mitigate Impacts from Vegetation Removal

General

- 1 Trim vegetation in early spring, late fall or winter, where possible.
- 2 Use temporary fencing /signs or close an area as necessary to ensure visitor safety.
- 3 Flag or fence area to delineate work site.
- 4 No killing, capturing, injuring, taking or disturbing migratory birds or damaging, destroying, removing or disturbing their nests.

Specific

- 5 Do not remove vegetation in the vicinity of the Rogers Pass sewage lagoon from August 15th to September 15th.

Nesting Bird Surveys

- 6 From April 1st to August 31st conduct nesting bird survey prior to significant vegetation removal and/or trees greater than 15cm DBH (by Park Ecologist and/or a Qualified Environmental Professional (QEP)) UNLESS the tree is documented as a hazard tree.
- 7 For areas near tree-line (over 1000m), conduct nesting bird survey from May 1st to August 31st (by Park Ecologist and/or a QEP).
- 8 Nesting bird surveys in areas likely to support raptors (including owls) and/or waterfowl may be required from February 15th to September 30th based on input from Park specialists.
- 9 Submit nesting bird survey results to the EIA Officer. If active nests and/or tree cavities are observed, consult with the EIA Officer for advice on timing of tree removal/trimming.

Bat Roost Surveys

- 10 From April 1st to August 31st conduct bat roost and maternity colony surveys prior to tree removal (by a QEP).
- 11 During the breeding season, limit operations within 150 metres of a known roost site or 350 metres for operations such as prescribed burns. Minimize human disturbance at bat roosts.
- 12 Favorable times to conduct tree work are during the hibernation period* (typically Nov 15 - March 31) when roosts are not in use and bats are elsewhere; after young are weaned and independent* (typically by Aug 31); before hibernation* (times are climate related and can vary annually).
**Always check for bats first, since some roosting areas and human-made structures can be used as hibernation sites in winter. See Appendix D.*
- 13 Submit bat roost survey results to the EIA Officer. If active roosts and/or tree cavities are observed, consult with the EIA Officer for advice on timing of tree removal/trimming.

Hazard Tree Assessment

- 14 Conduct hazard tree assessment by a Qualified Danger Tree Assessor prior to removal for trees >15cm DBH (as per the Wildlife/Danger Tree (WDT) Assessors BC guidelines).
- 15 Submit a copy of the signed hazard tree report to the EIA Officer within 10 days of tree removal.
- 16 If hazard tree assessment identifies a tree with high wildlife value, contact the EIA Officer before falling.

Rare Plants / Invasive Species / Noxious Weeds

- 17 Plant surveys for rare or invasive alien plants (IAPs) may be required for specific sites based on input from Park specialists. *Note: Results of the survey may result in additional mitigations.

Equipment

- 18 Remove vegetation by chainsaw and/or brushsaw and on foot where possible.
- 19 Use biodegradable chainsaw bar oil for work occurring over water.
- 20 Spray wash machinery prior to mobilization.
- 21 Ensure machinery is free of leaks and well maintained.
- 22 Heavy machinery is restricted to use on existing roadways and/or hardened surfaces.
- 23 Maintenance and re-fuelling should be done at least 30 metres from any water body and at designated areas.
- 24 A spill kit capable of contain 110% of available fuel should be available on site at all times and staff working at the site trained in its correct use.

Selective Removal

- 25 Prune limbs close to the tree trunk. For a clean cut, make a shallow undercut first, then follow with the top cut.
- 26 Selectively cut vegetation to allow for diversity of vegetation types and heterogeneous plant heights.
- 27 Maintain fruit bearing shrubs outside of high density Human Use Areas.
- 28 When practical, do not fall trees >15cm DBH; instead remove lower limbs and/or top trees.
- 29 Maintain canopy vegetation immediately adjacent to streams and lakes, unless deemed to be a hazard tree.
- 30 Do not remove vegetation within 30 metres of fish-bearing water bodies. Instead, trim shrubs to a height of 1 metre and limb trees to a height of 2.5 metres.
- 31 Selectively cut clusters of young trees to allow some to continue to grow.
- 32 Do not limb or remove White Bark Pine.
- 33 Mow to a minimum height of 15 cm where appropriate (i.e. roadsides).
- 34 Mow early to mid-July along the TCH. Clean mower frequently to prevent the spread of IAPs over large areas.

Disposal

- 35 Consult with EIA Officer to select disposal method. Options include any one, or combination of the following:
 - i. Buck and limb trees so that the trunk (bole) of the tree touches the ground, scatter to avoid fuel loading;
 - ii. Buck/spilt for re-use (for firewood: 15" to 20" long and 8" maximum diameter);
 - iii. Chip and leave in-situ;
 - iv. Chip and dispose of elsewhere (i.e. landfill or designated area); or
 - v. As a last option, debris may be brought to a designated area to be disposed of by burning.

*Note: The method for disposal of woody debris will depend on specific project details.

Post Vegetation Removal

- 36 Douglas-fir trees – score or peel bark of fallen trees if left in place or used for firewood, unless the wood is burned prior to the following spring.
- 37 For temporary clearing, use erosion controls on exposed soils.
- 38 For temporary clearing, re-seed as soon as practical with approved native seed and monitor re-growth.

Reporting

- 39 Consult with the Cultural Resource Officer prior to start of work in areas with designated cultural resources.
- 40 If suspected cultural resource is discovered, halt work and contact the Cultural Resource Officer immediately.
- 41 Report Wildlife sightings to Resource Conservation (ungulates, bears, wolverines, amphibians, etc.).
- 42 Stop work if a Caribou is observed in the area and contact Resource Conservation.

- 43 Report all spills (regardless of size) to Resource Conservation.
- 44 Report rare plant species observation to Resource Conservation immediately.

Additional

- 45 Additional mitigations may be identified if invasive alien plants or rare plant species are present at the worksite.

Development and Review Team

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Field Unit Superintendent Approval

Name: Nick Irving	Date:
Signature: <i>N Reynolds for</i>	<i>JUNE 4 2015</i>

References:

Mount Revelstoke, Glacier, Rogers Pass Management Plan, 2010.

Pukaskwa National Park Best Management Practice for Routine Vegetation Trimming and Clearing, 2013.

BEST MANAGEMENT PRACTICES FOR HAZARD TREE AND NON-HAZARD TREE LIMBING, TOPPING OR REMOVAL. British Columbia Ministry of the Environment, 2006.

Nesting Bird Windows, Mount Revelstoke & Glacier National Parks. Parks Canada, 2012.

ENVIRONMENTAL BEST PRACTICES FOR HIGHWAY MAINTENANCE ACTIVITIES. British Columbia Ministry of Transportation and Infrastructure. OCTOBER 2010

Wildlife/Danger Tree Assessor's Course Workbook, Parks and Recreation Sites Course Module, Wildlife Tree Committee of British Columbia, March 2012.

Best Practices for Managing Invasive Species on Utility Operations. A Pocket Guide for British Columbia's Utility Workers. 2014

Appendix A

DEFINITIONS

Approved Native Seed Mix:

25 % Slender Wheatgrass (*Agropyron trachycaulum*)

15% Tufted Hairgrass (*Deschampsia caespitose*)

13% Alpine Bluegrass (*Poa alpine*)

25% Blue Wild Rye (*Elymus flaucus*)

22% Rocky Mountain Fescue (*Festuca saximontana*)

Bat Roost Survey: A survey conducted by a qualified professional to observe the presence of bat roosts in trees, caves, or buildings, and is conducted as per direction of the Parks' Ecologist.

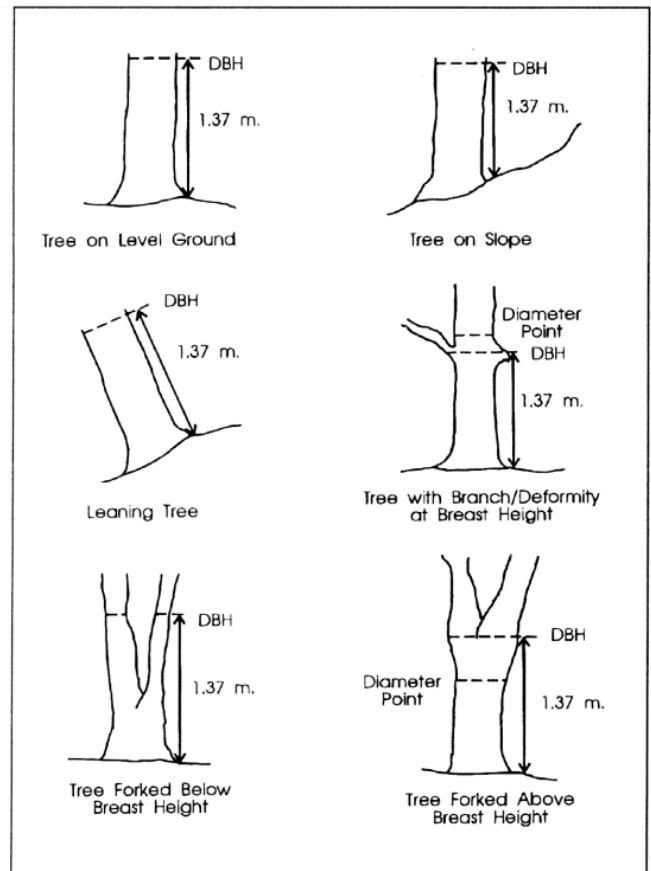
Diameter at Breast Height: The diameter of a tree taken at approximately 1.37 metres from ground level. See diagram on right.

Douglas-fir Beetle: See fact sheet (in development).

Hazard Tree: (Danger Tree) A tree which has been assessed by a qualified Danger Tree Assessor as dead or dying, dead parts of live trees or unstable trees that have the potential to cause property damage, personal injury or fatality due to the proximity to public use areas, assets, roads or trails.

Qualified Danger Tree Assessor: A person that has a minimum of 3 years of practical field experience in forestry or related field and has completed a 2 day Wildlife/Danger Tree Assessor's Course and has passed the written and field practical exam. Renewal required every 4 years.

Qualified Environmental Professional (QEP): an applied scientist or technologist, acting alone or together with another QEP. He or she must be registered and in good standing in British Columbia with an appropriate professional organization constituted under an Act, acting under that association's code of ethics and subject to disciplinary action by that association. The QEP may be a professional Biologist, Agrologist, Forester, Geoscientist, Engineer, or Technologist. To be able to certify that they are qualified to conduct an assessment methodology, the individual's area of expertise must be recognized in the assessment methods as one that is acceptable for the purpose of providing all or part of an assessment report in respect of the particular development proposal that is being assessed. The individual is considered a QEP only for that portion of the assessment that is within their area of expertise, as identified in the assessment methodology (BC Ministry of Environment Website).



Source : <http://www.fs.fed.us/psw/publications/documents/gtr-155/06-duriscoe.html>

Nesting Bird and Bat Roost Survey: A nest survey conducted by a QEP to observe the presence of nesting bird habitat and is conducted as per the Resource Inventory Standards Committee Inventory Methods for Forest and Grassland Songbirds, March 16, 1999 V 2.0 or equivalent. A bat roost survey conducted QEP following the most recent approved survey methods (federal and provincial).

Normal Trail Maintenance: work that can be reasonably completed by the members of the trail crew in less than one working day without the need of mechanical assistance (not including a brushsaw or chainsaw) or the import of additional materials (pre-fabricated wood, fill, etc.). This includes work that can be completed with normal trail maintenance tools and doesn't occur in an area of environmentally sensitive habitat or habitat known to contain species at risk (i.e. within a wetland, alterations to a watercourse, an area with known presence of Western toad where work is expected to alter habitat, etc.).

Park Zoning: see Park zoning map on page 66 of the Mount Revelstoke, Glacier and Rogers Pass Management Plan, 2010.

White Bark Pine: See fact sheet on White Bark Pine.

Wildlife Tree: Any standing dead or live tree with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife.

Appendix B

REVISION TRACKING

Version Number	Date	Reason for Revision	Revised By
BMP.01.00	February 2015	Original draft	Sara DeVita
BMP.01.01	November 2016	Section 35 (i) update	Danielle Backman
BMP.01.02			
BMP.01.03			
BMP.01.04			
BMP.01.05			
BMP.01.06			
BMP.01.07			

Appendix C

EIA OFFICER SCREENING QUESTIONS

1. What park zone is the project area in?
2. What area or how much vegetation is being removed?
3. Are trees greater than 15cm DBH being removed?
→ Must be assessed as hazard tree with lower wildlife value
4. Is the project area above tree line?
→ Use delayed bird window
5. Is there observations of rare species in the area? (use GIS layer to assess)
→ Assess using GIS layer and habitat description
6. Is there invasive alien plants (IAPs) in the area?
7. Is there raptor/owl nesting habitat? Bat roosting habitat?
8. Is there sensitive sites/wetlands that support amphibians?
9. Is the project in critical habitat?
→ Complete SARA Authorization Form

Appendix D

Assessment and Mitigations for Bat Roost Sites

1. Prior to disturbance to buildings, trees or caves, survey for bat potential and evidence of bats.
2. The presence of bats or roosts within a tree or building may be indicated by the following:
 - Historical site records.
 - Sightings of live or dead bats.
 - Bat calls or squeaking.
 - The smell of bats.
 - Bat droppings.
 - Grease stains around openings.
 - Flies around openings.
 - Urine staining below openings.
3. Identify bat roosting sites annually, especially maternity roosts where females are raising pups.
4. Maintain the integrity of the roost if possible.
5. If you discover bat roosts in the project area:
 - Contact the Project Manager and/or Environmental Impact Assessment Officer.
 - Can you leave the bats where they are?
 - Protect the availability to bats of the roost structure.
6. During the breeding season, limit operations within 150 metres of a known roost site or 350 metres for operations like prescribed burns. Minimize human disturbance at bat roosts.
7. If you cannot leave the bats where they are, undertake necessary work at times favorable to bats.
 - Implement operations around roost sites;
 - During the hibernation period* (typically Nov 15 - March 31) when roosts are not in use and bats are elsewhere;
 - After young are weaned and independent* (typically by Aug 31);
 - Before hibernation* (times are climate related and can vary annually).

*Always check for bats first, since some roosting areas and human-made structures can be used as hibernation sites in winter.
8. Use bat exclusion methods that are bat-friendly (see Appendix 1) of Interim Management Recommendations for Bats and their Residences in Parks Canada's Heritage Places (in publication, in management review and due May 2015).

9. Provide new viable alternate roosting opportunities if bat exclusion proves necessary.
10. If, for reasons of human health etc., disturbance at bat roosts must take place while bats are present, please contact the Project Manager and/or the Environment Impact Assessment Officer.

Is the roost in a tree, rock crevice or other natural habitat?

Bats often roost in trees and snags, under bark, and in rock crevices. For effective roosting habitat, bats require trees with what might be considered to be defects that predispose the tree to structural failure. Retention of dead and dying trees, and trees with basal hollows (hollows low down in the tree trunk) should be encouraged wherever possible without compromising human safety. The following management actions are recommended:

1. Retain the trees and understory around bat roost trees/snags or rock crevices to maintain the environmental conditions of the roost.
2. If a potential bat roost is considered a danger tree, then assess if:
 - a. The tree needs to be felled;
 - b. The dangerous parts of the tree can be removed, while still maintaining the wildlife characteristics of the tree;
 - c. An exclusion area of appropriate size and shape can be flagged around the tree, with appropriate signage.
3. Avoid major increases in the levels of noise and activity around potential roosts.
4. Avoid artificial lighting around roost trees.