BRITISH COLUMBIA
Ministry of Environment

BEST MANAGEMENT PRACTICES FOR TREE TOPPING, LIMBING AND REMOVAL IN RIPARIAN AREAS

Wildlife Tree: a standing dead or live tree with special characteristics that provide food and shelter for wildlife. Loss of wildlife trees has been associated with declines of threatened wildlife

Riparian areas are located adjacent to streams, lakes and wetlands and provide vegetation that is important for fish and wildlife habitat, and the proper functioning of our streams, lakes and wetlands. **Riparian areas typically have inundated or saturated soil conditions, contain vegetation that is distinct from adjacent upland sites, and can extend 30 meters, or more, from a water feature.** Retention of this important vegetation is considered a best management practice (BMP). However, in urban and rural settings where development has occurred in and around riparian areas, concerns regarding retaining riparian vegetation and the safety of human life and property may occur. In such cases, first consideration should be given to finding long-term solutions that address human safety issues while maintaining healthy riparian habitats. This document outlines BMPs for tree topping, limbing, and removal in riparian areas.

Ecological functions of riparian vegetation:

- Moderates stream temperatures by shading the water surface from solar radiation. This results in higher dissolved oxygen levels and reduced algal blooms;
- Binds bank sediments with their root systems, maintaining natural bank geometry and reducing bank erosion;
- Slows over-bank flows reducing erosion.
- Contributes large woody debris that is important for stream channel stability and structure for fish and wildlife habitat;
- Provides fish hiding cover from predators, insect drop as a direct food source and leaf litter which supplies nutrients to the stream; and
- Filters overland flows carrying sediment and other non-point source pollutants from surface runoff discharging to streams.
- Provides critical habitat for many wildlife species. Over 75% of BC's animal species use riparian areas, including many birds that are dependent of large diameter **wildlife trees** for nesting, foraging and perching. Riparian areas also provide critical movement corridors.

1.0 OBJECTIVES

1. Prevent violation of provincial and federal legislation that protects fish and fish habitat and to ensure that the works do not result in harmful alteration, disruption or destruction of fish habitat (HADD).
2. Prevent unnecessary impacts to riparian and aquatic habitats and associated species resulting from limbing, topping or removal of trees adjacent to streams, lakes and wetlands.

2.0 BEST MANAGEMENT PRACTICES FOR HAZARD TREES

The following best management practices (BMPs) address the planning and operation stages. It is advisable to retain a qualified professional to assist in planning and to ensure all legislative requirements are followed.

Refer to Section 5.0 – Legislation for legislation that may apply to wildlife trees.

2.1 **Hazard tree?** – Determine if the tree qualifies as a 'Hazard'. Live hazard trees should be assessed and designated as such by:

i) a 'Qualified Environmental Professional' (QEP) as required by the Riparian Areas Regulation (RAR) – Refer to Section 5.2; or

ii) a qualified arborist certified as a Wildlife Danger Tree Assessor when RAR is not applicable.

Refer to Section 4.0 "Non-Hazard Trees" if the tree/s have been assessed as "non-hazard" trees.

Hazard Tree: any tree that is hazardous to people or facilities because of location, lean, physical damage, overhead hazards, deterioration of limbs, stem or root system, or a combination of these.

Hazard trees may be removed or limbed without authorization from provincial or federal authorities by following the remaining operational BMPs and provided that:

i) a QEP determines no HADD will occur

OR

ii) the hazard is limited to a few **dead** trees;

AND

iii) the tree does not contain a nest of a heron, eagle, osprey, peregrine falcon or gyrfalcon (per *Wildlife Act*);

iv) the activity necessitating the tree removal does not require a RAR Assessment under the Riparian Areas Regulation; and (http://www.env.gov.bc.ca/habitat/fish_protection_act/riparian/documents/ImplementationGuidebook.pdf)

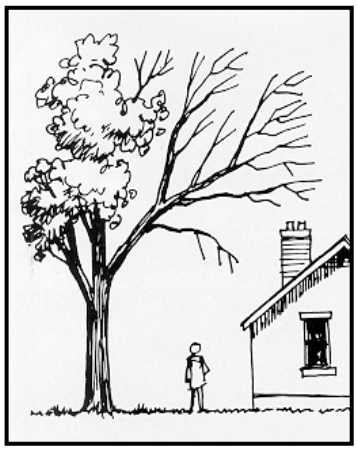
v) a bird or its egg, or an occupied nest (see 2.3 below)

2.2 **Limbing/topping** – Where safe, the preferred option is limbing or topping rather than removing the entire tree.

i) Top trees to a minimum of 3-5m in height or as tall as is reasonably safe (i.e. shorter than the distance to the nearest possible target, such as a building).

ii) Leave a large branch on the stub to provide perching habitat.

Example: Hazard tree limb over target.



2.3 **Wildlife tree?** A qualified professional can determine if the proposed tree removal is providing wildlife habitat. Vegetation removal is to be timed to avoid affecting trees used by all birds or wildlife while they are **breeding, nesting, roosting or rearing young**. See Section 34 of the *Wildlife Act*.

Choose **native plants** suited to the site conditions (i.e. suited to the biogeoclimatic sub zone and site series). Adjacent undisturbed riparian areas can be used as reference areas for suitable species.

2.4 **Reduce your impact** – limit vegetation removal to only that area which is required to avoid a hazard. Maximize tree and shrub understory retention. Minimize the potential for invasive plant infestation.

2.5 **Falling** – Avoid falling, limbing or topping trees into a stream, lake or wetland. Accumulations of fine materials and branches may block flows and are to be removed by hand. Options for falling trees in sections and/or crane-assisted removals are to be considered first. *Trees may be felled across or into a water body ONLY where no other method of tree removal is possible due to safety concerns.*

2.6 **Retain large woody debris and the stubs of large diameter trees** - the most valuable stubs and large woody debris is greater than 10 cm diameter and longer than 3 meters. *Where required, small branches and limbs may be removed offsite to reduce fire hazards.*

2.7 **Replant with native species** of trees, shrubs and herbaceous plants ecologically suited to the site conditions. Where entire trees have been removed the tree replacement criteria is to be applied. (http://www.env.gov.bc.ca/wld/documents/bmp/treereplcrit.pdf)

2.8 **Prevent contamination** – all equipment used for vegetation removal and management should comply with BMPs to prevent the discharge of deleterious substances into water bodies. For the purposes of this BMP it is assumed that all works will take place above the high water mark (HWM). Works below the HWM require *Water Act* permits and could also result in a HADD.

i) Ensure equipment and machinery is in good operating condition (power washed), free of leaks or excess oil and grease.
ii) No equipment refuelling or servicing should be undertaken within 30 metres of any watercourse or surface water drainage.
iii) Ensure all hydraulic machinery to be used around streams is clean and uses **environmentally sensitive hydraulic fluids** which are non-toxic to aquatic life, and which are inherently bio-degradable.
iv) Keep a spill containment kit readily accessible onsite in the event of a release of a deleterious substance to the environment.

2.9 **Timing windows** – If proposed works pose risks to fish and wildlife and their habitat, then the works are to take place during the instream works reduced risk timing window provided by the regional Ministry of Environment (MOE) Office. http://www.env.gov.bc.ca/wsd/regions/okr/wateract/terms_conditions.html#timing_windows

2.10 **Retain records** to demonstrate compliance with BMPs and due diligence in meeting the requirements of applicable legislation. Photo documentation prior to and after completion of works may be requested during follow-up monitoring by MOE or Fisheries and Oceans Canada (DFO) staff.

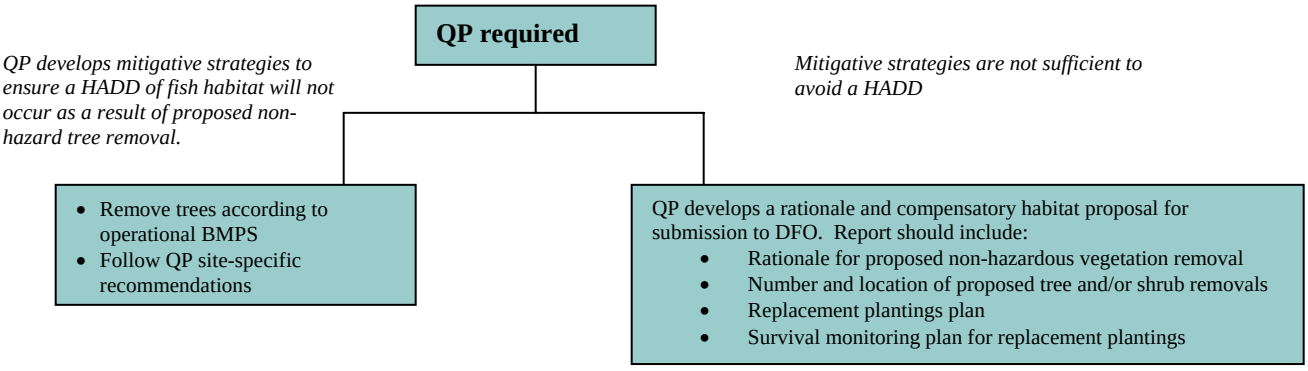
3.0 PINE BEETLE INFESTATION

In cases of large scale die offs due to pine beetle infestation, all hazard trees can be removed from the riparian area. Some of the trees within the riparian buffer should be retained as stubs to allow them to function as wildlife trees. The greater the diameter of the tree, the more species it can support. To maximize remaining riparian function, non target trees and shrub understory is to be retained. This is especially important where large areas of the riparian buffer have been impacted by beetle kill. BMPs listed in Section 2.0 also apply to removal of pine beetle killed trees, including legislative requirements such as Riparian Areas Regulation (RAR). For more information on RAR check with the local government or refer to Section 5.2.

4.0 NON-HAZARD TREES

The BMP for non-hazard trees is to avoid topping, limbing or removal. Removal of non-hazard trees from riparian areas bordering waterbodies that support fish habitat may result in a violation of the *Fisheries Act* and/or Riparian Areas Regulation. Non-hazard trees should only be removed if they have been designated for removal under a government pest control program. To avoid contravention of the *Fisheries Act*, prior to removal, you should consider engaging the services of a qualified professional to develop mitigation strategies to ensure a HADD of fish habitat will not occur as a result of proposed non-hazard tree removals. Refer to the chart below for procedures required when proposing to remove non-hazard trees in riparian areas providing fish habitat.

Note: a Qualified Professional (QP) includes Qualified Environmental Professional (QEP), which is applicable where the Riparian Areas Regulation is in effect.



APPLICABLE LEGISLATION

5.1 Local Government

Contact your local municipality or regional district to find out which local bylaws may apply to your proposed works.

5.2 Provincial Legislation

Water Act and Regulations
All works proposed in and about a stream, below the high water mark, are subject to the *Water Act* and require authorization by the MOE. Additional information is available at: http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html

Wildlife Act, 2004
The *Wildlife Act* prohibits the killing, harming, harassment, capture or taking of species at risk and the damage or destruction of a residence of a species at risk except as authorized by regulation, permit or agreement. The *Act* also protects all birds and their eggs; nests while they are occupied by a bird or egg; and the nests of eagles, peregrine falcons, gyrfalcons, ospreys, and herons year-round. http://www.qp.gov.bc.ca/statreg/ stat/W/96488_01.htm.

Riparian Areas Regulation, 2004
Through local government legislation, RAR protects riparian areas and their features, functions and conditions during residential, commercial, and industrial development and ancillary activities. Additional information is available at http://www.env.gov.bc.ca/habitat/fish_protection_act/riparian/riparian_areas.html

Check with your local government on requirements for a RAR Assessment. If the local government has not currently fully implemented RAR we advise you to ensure that your project is in compliance with this legislation. This assessment (completed by a QEP) delineates a Streamside Protection and Enhancement Area (SPEA) setback necessary to avoid a HADD of fish habitat. The QEP will be able to best direct any hazard tree management in accordance with applicable legislation.

5.3 Federal Legislation

Fisheries Act
The *Fisheries Act* provides protection for all fish and fish habitat in Canada by prohibiting the harmful alternation, disruption or destruction (HADD) of fish habitat that is not authorized in advance by Fisheries and Oceans Canada (DFO). Depositing sediment or any other 'deleterious substance' into streams supporting fish is also prohibited. Additional information: http://www-heb.pac.dfo-mpo.gc.ca/publications/publications_e.htm

Species at Risk Act

The *Species at Risk Act* provides for the legal protection of designated wildlife species and the conservation of their biological diversity. Before planning any work, review the website http://www.env.gov.bc.ca/atrisk/ for further information on the species at risk in your area. The Conservation Data Centre is a provincial resource that can help you to find out what species at risk may be in your area (http://www.env.gov.bc.ca/cdc/). Lack of species data does not confirm the absence of species at risk in that area.

5.0 FURTHER INFORMATION

International Society of Arboriculture (ISA) - information on assessing tree health and tree care can be found at http://www.treesaregood.com/

Urban Tree Risk Management: A Guide to Program Design and Implementation **–** comprehensive document outlining practices around tree care and assessment and includes a section on wildlife values. http://www.na.fs.fed.us/spfo/pubs/uf/utrmm/

Wildlife & Trees in British Columbia
Fenger, Manning, Cooper, Guy and Bradford. 2006. Lone Pine Publishing

Birds of the Okanagan Valley, British Columbia
Cannings, et. al. 1987. Royal British Columbia Museum, Victoria BC.

Bald Eagles and Ospreys Fact Sheet #10 - Develop With Care
http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html

Great Blue Herons Fact Sheet #11 - Develop With Care
http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html