

BEST MANAGEMENT PRACTICES FOR HAZARD TREE AND NON-HAZARD TREE LIMBING, TOPPING OR REMOVAL

Background

Streamside vegetation, also referred to as **riparian** vegetation, is an important component of fish and wildlife habitat and the proper functioning of streams, lakes and wetlands. Trees and shrubs bordering waterbodies that support fish are considered fish habitat.

Trees and shrubs benefit streams in the following ways:

- Vegetation moderates stream temperatures in the summer. Trees and shrubs shade the water surface from solar radiation, moderating water temperatures, resulting in higher dissolved oxygen levels and reduced algal blooms. In fish bearing waters, high temperatures and low dissolved oxygen levels can result in fish kills or a reduction in the health and vigour of fish.
- The root systems of trees and shrubs bind bank sediments, maintaining natural bank geometry and reducing bank erosion. Floodplain vegetation also slows over-bank flows, inducing sediment deposition rather than erosion.
- Large streamside trees provide a source of large woody debris that is important for stream channel stability and structure and forms an important component of fish habitat. These trees and the large woody debris they produce provide critical habitats for many wildlife species, especially birds and cavity dependent species.
- Overhanging vegetation provides fish hiding cover from predators, insect drop as a direct food source and leaf litter which supplies nutrients to the stream and, in turn, provides an indirect food source for fish via aquatic insects and other organisms dependent upon the stream.
- Streamside vegetation allows for filtration of overland flows carrying sediment and other non-point source pollutants from surface runoff discharging to streams.

Riparian vegetation performs similar functions for lake and wetland ecosystems. All riparian areas play a significant role in maintaining the chemical, physical and biological integrity of the provincial water supply.

Riparian areas adjacent to streams, lakes and wetlands maintain critical aquatic and terrestrial wildlife habitats. Over 75% of BC's animal species use riparian zones. These habitats often provide greater complexity and structural diversity of vegetation and wildlife than adjacent upland areas. Unfragmented riparian areas also provide critical movement corridors for terrestrial wildlife, amphibians and birds. Migratory bird abundance and diversity is generally greater in riparian areas, and small mammal communities tend to be more diverse along streams than in other habitat types. Most amphibians and some reptiles migrate to aquatic areas during part of their life cycle.

Many of BC's wildlife species at risk utilize vegetated riparian habitats. Examples from the Okanagan BC Ministry of Environment (MOE) Region include the Western Screech-owl (cottonwood forests), Lewis' Woodpecker, Yellow-breasted Chat and Gopher Snake.

Objectives

To prevent harmful impacts to riparian and aquatic habitats and fish and wildlife species due to the limbing, topping or removal of hazard trees and non-hazard trees.

Applicable Provincial Legislation

BC Water Act and Its Regulations

Works in or about a stream are defined under Section 9 of the Water Act as any and all works proposed in or about a stream, ravine or active floodplain of a stream or its riparian or streamside area. If your work involves making a change in and about a stream, your work cannot proceed unless it is compliant with the requirements of the Water Act and authorized by an Approval, License, or Order under section 9 of the Water Act from Land & Water BC Inc., or authorized through a Notification as permitted by Part 7 of the Water Act Regulation. Contact Front Counter BC at (250) 372-2127 if you have questions regarding the application of the Water Act to proposed limbing, topping and/or removal of hazard trees and non-hazard trees from riparian areas bordering streams, lakes or wetlands. Additional information can also be found at

http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html

BC Wildlife Amendment Act, 2004

Recent amendments to 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. Additional information regarding the BC Wildlife Amendment Act, 2004, is available at http://www.legis.gov.bc.ca/37th5th/1st_read/gov51-1.htm. Additional information regarding the BC Wildlife Act is available at http://www.qp.gov.bc.ca/statreg/stat/W/96488_01.htm.

Riparian Areas Regulation, 2004

The Riparian Areas Regulation, enacted under Section 12 of the Fish Protection Act in July 2004, calls on local governments by March 31, 2006, to protect riparian areas and their features, functions and conditions during residential, commercial, and industrial development. Some local governments have implemented this legislation but others have been given an extension until March 31, 2006. Check with your local government as to the applicability. Development refers to a variety of activities associated with or resulting from regulation or approval of residential, commercial or industrial activities or ancillary activities to the extent that they are subject to local government powers under Part 26 of

the Local Government Act. Additional information is available at http://www.env.gov.bc.ca/habitat/fish_protection_act/riparian/riparian_areas.html

Other Applicable Provincial Legislation

Your works may also require authorization under the Local Government Act (formerly the Municipal Act; see http://www.qp.gov.bc.ca/statreg/stat/L/96323_00.htm). Local bylaws may amplify federal or provincial legislation for working in or near water. You should contact your local municipality or regional district to find out which local bylaws may apply to your proposed works.

Applicable Federal Legislation

Fisheries Act

The federal Fisheries Act provides protection for all fish and fish habitat in Canada. The Fisheries Act defines 'fish habitat' as "spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes." This definition indicates that watercourses, including but not limited to streams, ditches, lakes, ponds and wetlands, that provide water or nutrients into a fish bearing stream or lake, are considered fish habitat even if they do not directly support fish and/or if they only have temporary or seasonal flows. This definition also indicates that not only the watercourse itself but also vegetated streamside areas that provide nutrients and shade to the stream or lake are considered fish habitat. Section 35 of the Fisheries Act in particular prohibits the harmful alteration, 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 under section 36(3) of the Fisheries Act.

The Fisheries Act can be found online at <http://laws.justice.gc.ca/en/F-14/>. Please also check out the following website:

http://www-heb.pac.dfo-mpo.gc.ca/publications/publications_e.htm

for additional guideline documents and, in particular, the document *Habitat Conservation and Protection Guidelines (1998)*.

Removal of trees or shrubs from within 30 horizontal meters distance of the greater of the top of bank or high water mark of a stream, lake or wetland may cause a HADD of fish habitat. This may result in a violation of section 35(1) of the Fisheries Act. For further information regarding works that may result in a HADD of fish habitat, please contact your nearest DFO Field Office.

Species at Risk Act

Impacts to the habitat of threatened or endangered species can have catastrophic effects on a species' or local population's survival and should be avoided at all times. Some species at risk have no "window" of least risk during which works may be permitted

because of the risk of harm to the animal (More information on timing windows can be found at <http://wlapwww.gov.bc.ca/okr/wateract/workwindows.html>. 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 and follow the links provided there to the Conservation Data Centre and other resources. The “Species Explorer” at the same link can also help you to find out what species at risk may be in your area. However, the lack of data found on the Species Explorer does not confirm the absence of species at risk as the level of inventory data varies over the BC MOE Okanagan Region.

The legislation guiding the protection of species at risk, the federal Species at Risk Act, is detailed in the following website:

http://www.speciesatrisk.gc.ca/legislation/default_e.cfm

Best Management Practices

The following Best Management Practices (BMP's) are directed to the prevention of harmful impacts to riparian and aquatic habitats and fish and wildlife species due to the limbing, topping or removal of hazard trees and non-hazard trees adjacent to streams, lakes and wetlands. These BMP's are intended to meet a standard that no-net-loss or a gain in habitat be achieved as a result of proposed works. In addition, the described practices should ensure that proposed limbing, topping or removal of hazard trees and non-hazard trees are completed with minimum or no impact to surrounding riparian vegetation.

Operational Best Practices

Removal of trees and shrubs from riparian areas is not considered a best management practice for the proper functioning of streams, lakes and wetlands. However, in urban and rural settings where development has occurred in and around riparian areas, conflicts between preserving 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 addresses human safety issues while maintaining healthy riparian habitats.

To ensure your proposed works meet the requirements of applicable legislation:

- Limit vegetation clearing for access to and within your work area to the area required to work safely.
- Consider other options when contemplating the need to remove vegetation. It is very often not the best choice for fish and wildlife habitat and species.
- Wildlife trees are important for many wildlife, bird, and amphibian species. You should avoid vegetation removal or management activities that will affect trees used by all birds and other wildlife while they are breeding, nesting, roosting or rearing young (e.g. owls nest in winter/early spring, some species nest more than once a season so nests may be occupied in late summer. Also some owls and other bird species may use nest cavities in winter for thermal protection). Section 34(a) of the Wildlife Act protects all birds and their eggs, and Section 34(c) protects their nests while they are occupied by a bird or egg. Nesting periods can be identified by a

qualified professional or another source is the book *Birds of the Okanagan Valley, British Columbia* by Cannings et al 1987.

- Section 34(b) of the Wildlife Act protects the nests of eagles, peregrine falcons, gyrfalcons, ospreys, and herons year-round. This means that a tree or other structure containing such a nest must not be felled, even outside of the breeding season for these species.
- Section 6 of the BC Wildlife Amendment Act, 2004, pertaining to species at risk and/or the Species at Risk Act may also be applicable to vegetation management activities.
- If you are proposing to limb, top or remove trees, have the trees within the riparian area assessed by an appropriately qualified professional biologist to determine the presence and status of bird nests. If trees are suspected of being hazardous, then also have them assessed by a **qualified professional arborist** who is also a certified Wildlife Danger Tree Assessor, to determine the presence and nature of the hazard. These assessment results should be retained for your records.
- Where topping the tree or removing the dead limb can remove the danger, opt for doing this rather than removing the entire tree, leaving as much trunk height as is reasonable to maintain safety. Stubs favored by cavity nesting birds may be created by cutting trees at 3 to 5 meters above the ground. For further information on human safety issues associated with stub wildlife trees, contact the Workers Compensation Board of BC.
- Where an entire **hazard tree(s)** must be removed from a riparian area bordering a water body that supports fish and/or wildlife habitat, then tree replacement criteria should be applied. For information on replacement tree criteria required by Provincial and Federal agencies see the following website: http://srmwww.gov.bc.ca/sry/csd/downloads/forms/vegetation_riparian/treereplcrit.pdf; or, refer to the *Tree and Shrub Replacement Criteria for Fisheries and Oceans Canada (Salmon Arm Subdistrict)*. Plant native trees, shrubs and herbaceous plants ecologically suited to the site conditions (i.e., suited to the biogeoclimatic subzone and site series) to revegetate the site and replace impacted riparian vegetation. Often adjacent undisturbed riparian areas can be used as reference areas for suitable species.
- Complete removal of **non-hazard tree(s)** from riparian areas bordering waterbodies that support fish habitat may result in a HADD of fish habitat. To avoid contravention of the Fisheries Act, prior to removal, you should consider engaging the services of a qualified professional to develop mitigative strategies to ensure a HADD of fish habitat will not occur as a result of proposed non-hazard tree removals. If mitigative strategies are not sufficient to avoid a HADD and you still wish to proceed, **a qualified professional should be engaged** to develop a rationale and compensatory habitat proposal for submission to DFO. Reports submitted for DFO review and possible authorization should include, at a minimum, a rationale for proposed non-hazard tree and/or shrub removals, the number and location(s) of proposed tree and/or shrub removals and replacement plantings, and a survival monitoring plan for replacement plantings.
- Retain large woody debris and the stubs of large diameter trees onsite where it is safe to do so. These are important for preserving fish habitat and wildlife populations. Tree trunks may be left on the ground as wildlife habitat within the riparian zone.

Where required, small branches and limbs may be removed offsite to reduce fire hazard

- Trees should be limbed, topped or felled to avoid falling in a stream, lake or wetland area where accumulations of fine materials and branches may block flows. While larger materials are an important component of fish habitat, the position of the larger materials left in the stream is important. These materials can deflect flows and create new erosion patterns which can be a concern in urban areas. If larger materials are left in the channel to provide complexity to fish habitat then potential impacts to neighbouring properties should be assessed. If smaller material does inadvertently end up in a waterbody, then it should be removed to a location from which it will not re-enter the waterbody during high water. Removal of tree materials from stream, lake or wetland areas should be completed in a manner that does not disturb fish habitat or aquatic organisms
- Trees may be felled across or into a waterbody only where no other method of tree removal is possible because of safety reasons (e.g., to protect fallers, buildings etc.). Removal of felled trees should be completed in a manner that does not damage riparian vegetation or bank or bed areas of streams, lakes or wetlands. Alternatives to falling whole trees include falling trees in sections and/or crane-assisted removals.
- If your proposed works pose risks to fish habitat, then these works should take place during the instream works reduced risk timing window approved for your region. If you have received a response to a Water Act application, then the applicable timing window may be specified. Otherwise, to find out what the timing window requirements are for your area, check the regional website at <http://wlapwww.gov.bc.ca/okr/wateract/workwindows.html>. If you do not have web access contact your regional BC MOE office. Wherever possible, schedule vegetation removal and management activities within period of least risk for breeding birds **and** within the instream works timing window.
- To demonstrate compliance with these BMP's - and to demonstrate due diligence in meeting the requirements of applicable legislation - you should compile a short report of completed works, including a photo record of the work site before and after vegetation removal and management activities. This information may be requested during follow-up monitoring by BC MOE or DFO staff.

All equipment used for vegetation removal and management should comply with best practices to prevent the discharge of deleterious substances into waterbodies. Monitoring of riparian areas should be completed on a regular basis so that hazard trees can be identified and managed during reduced risk timing windows for breeding birds and least risk to fish habitat (instream least risk windows).

Additional information can be found at:

[International Society of Arboriculture](http://www.treesaregood.com/) (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 can be found at <http://www.na.fs.fed.us/spfo/pubs/uf/utrm/> (this is a comprehensive document

outlining practices around tree care and assessment and includes a section on wildlife values

REMEMBER:

If you have difficulty understanding the BMP's presented in this document, then you should consult with a qualified professional who is familiar with these BMP's and with applicable legislation. The yellow pages often provide listings of Environmental Consultants. Alternatively, contact information for qualified professional biologists may be obtained from the College of Applied Biology of British Columbia (see <http://www.cab-bc.org/>). Contact information for qualified professional arborists may be obtained from the International Society of Arboriculture (see <http://www.isa-arbor.com/findArborist/findarborist.aspx>).

It is your responsibility to ensure that your project is in compliance with applicable legislation such as the Fisheries Act, Water Act and local government bylaws and regulations. BC MOE recommends that you contact your local government to ensure that proposed works comply with local tree bylaws and development permit areas, where these exist. Ensure you keep all reports and information on file to support your use of due diligence as this information may be requested if your works are monitored by provincial or federal agencies.

These best management practices do not cover requests to remove embedded materials from stream, lake or wetland areas. These works require permits under the Water Act.