



**BCTS**  
BC Timber Sales  
Skeena  
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## Best Management Practices Riparian Management for Small Streams

February 28, 2017

### Introduction:

The purpose of this Best Management Practices document is to provide guidance to field layout personnel for prescribing and applying suitable riparian management practices along S4, S5 and S6 streams. These streams do not have riparian reserve zones prescribed in legislation and are vulnerable to undue impacts from forestry activities if suitable measures are not applied to maintain water temperature regimes, short and long-term channel stability and to reduce the amount of sediment and debris that is introduced in the stream. The application of best management practices as a supplement to prescribed requirements is very important to ensure riparian management objectives will be achieved.

### Background:

Stream channels and associated riparian classes are defined in the Forest Planning and Practices Regulation according to the presence/absence of fish, occurrence in a community watershed and average channel width. Riparian management requirements by stream class dictate that riparian reserve zones (RRZ's) and riparian management zones (RMZ's) are required along S1, S2 and S3 channels. Only RMZ's are required on S4, S5 and S6 channels. Riparian Management Areas (RMA's) are comprised of the applicable RRZ and RMZ.

Riparian areas occur next to the banks of streams, lakes and wetlands and include both the area dominated by continuous high moisture content and the adjacent upland vegetation that exerts an influence on it. Vegetation in riparian areas provides stability to stream banks, regulates stream temperatures, and provides a continual source of woody debris and other organic material to the stream channel. When intact, riparian areas help protect water quality by acting as a filter for sediment-laden surface water arriving from upland areas.

For the purpose of riparian zone management, stream channels can be described as either alluvial or non-alluvial based on the composition of the channel bed and banks. Alluvial refers to materials transported and deposited by flowing water, either historically or under current flow regimes. Alluvial stream channels consist of unconsolidated or erodible materials and are susceptible to bank instability. Riparian root strength resists stream erosion by holding alluvial particles together and large woody debris (LWD), as provided by the riparian zone, creates in-stream structure that dissipates flow energy. As such, alluvial channels are dependent upon riparian vegetation to some extent to maintain both channel bed and bank stability. Non-alluvial streams are normally composed of bedrock, glacial till, colluvium, or some combination of the three. These materials are less erodible based on their characteristics. The maintenance of riparian vegetation along non-alluvial channels is less important to maintain stability.

Successful stream and riparian management is associated with five main management actions / outcomes<sup>1</sup>:

1. Road associated generation and transport of fine sediments (particularly vulnerable at stream crossings);
2. Level of RMA tree retention;
3. Windthrow;
4. Falling and yarding trees across small streams; and
5. Post-harvest machine disturbance in the RMA.



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### Best Management Practices:

The following evaluations and practices are recommended to promote the functional level of riparian cover and prevent or limit the introduction of fine sediment into a stream:

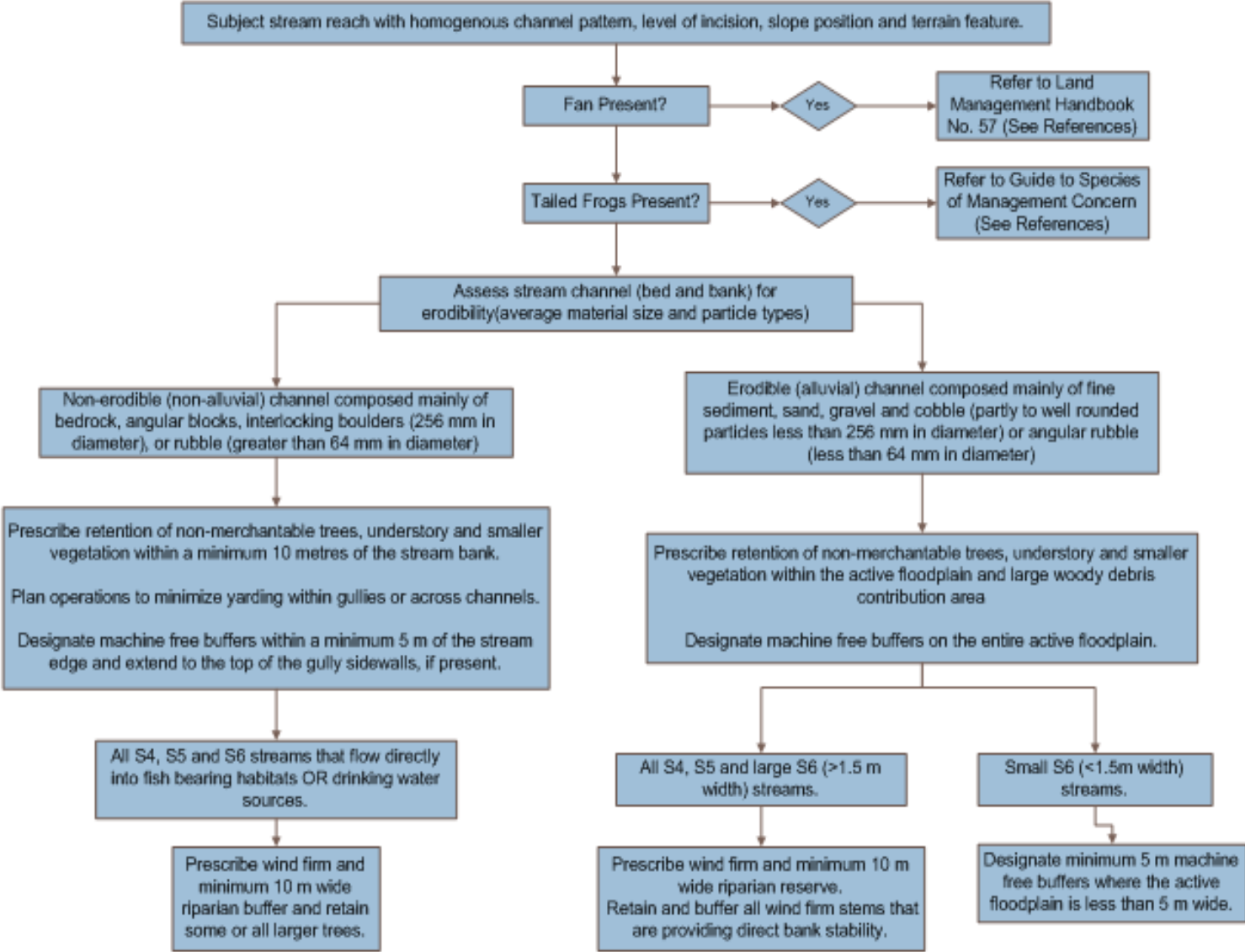
#### Evaluations

1. Determine the presence or absence of hydro geomorphic hazards (e.g. fans) or specific environmental sensitivities or designations (e.g. temperature sensitive stream or fisheries sensitive watershed designations). If these are present, seek site specific direction from BCTS personnel or qualified persons.
2. Delineate alluvial and non-alluvial channel types within all reaches, including short alluvial reaches within longer non-alluvial sections that may need to be managed separately depending on length, level of incision and dependency on riparian vegetation for stability. Determine the Riparian Classification of all reaches and whether the stream is directly connected to fish bearing habitats and (or) drinking water sources.
3. For alluvial channel types, determine the extent of the active floodplain, as defined by the area adjacent to the active channel that regularly experiences complete or partial flooding. Determine any large woody debris contribution areas immediately adjacent to the active floodplain where mature vegetation is capable of reaching the channel (generally within 20 m but up to 1 tree length). Note on some large S5 and S6 streams, active management of the floodplain and LWD contribution areas may extend beyond 20 or 30 m and may be required to maintain channel stability.
4. Assess the potential for post-harvest wind throw disturbance in the riparian management area.
5. Assess the potential for fish or tailed frog presence and consider enhanced riparian management practices, consistent with the *Guide to Species of Management Concern in the BCTS Skeena Business Area*.

#### Practices

- When approaching stream crossings with road rights-of-way, minimize the width of the right-of-way and eliminate the potential for road debris and sediments to enter the stream channel (widen the riparian buffers along S4, S5 and S6 streams, divert surface runoff, etc.).
- Plan falling and yarding activities so that physical contact with the streambed and banks is avoided (e.g. falling and yarding away from channels whenever possible, machine crossings at designated sites only). Should cross-stream yarding be required, prescribe steps to minimize channel bed disturbance, minimize temporary crossings and implement post-harvest debris assessment and cleaning measures suitable for the site. Yarding over felled timber (i.e. from the back forward across the gully) may minimize overall disturbance.
- Consider the following S4, S5 and S6 Stream and Riparian Management Decision Key when determining additional best management practices to apply for the type and size of stream and channel materials:

**Stream and Riparian Management Decision Key – S4, S5 and S6 Streams**





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3. FREP Extension Note # 17 State of Stream Channels, Fish Habitats, and adjacent Riparian Areas: Resource Stewardship Monitoring to evaluate the Effectiveness of Riparian Management 2005 – 2008. P. J. Tschaplinski 2011. B.C. Ministry of Forests, Mines and Lands.

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6. Guide to Species of Management Concern in the BCTS Skeena Business Area, 2012. C. Guppy, McElhennay Consulting Services.

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