

Broadleaf forest health free-growing damage criteria

Introduction

Broadleaves are a common component of the forest landscape and recognition of their role in maintaining biodiversity and habitat values, as well as concerns about timber supply, have stimulated interest in their management (Chief Forester memo on *Incorporation of mixedwood and broadleaves into Forest Stewardship Plan stocking standards, Hardwood Management in the Coast Forest Region SP amendments and TSR regeneration assumptions*, May 01, 2008). Since the growth habits and pests of broadleaves are different than conifers, they require a separate set of damage criteria. The free-growing damage criteria outlined in the attached table are based on the best available data and professional opinion, and are expected to be revised in the future when new knowledge or information becomes available. The goal of these damage criteria is to establish forest health threshold tolerances that will help users exercise their professional judgment in identifying "healthy" and merchantable broadleaf trees. Note: The following are guidelines only and are not embedded in regulation.

The broadleaf damage criteria apply to,

- Red Alder (Dr), Birch (Ep), Big Leaf Maple (Mb), Poplar (Cottonwood [Act], Balsam poplar [Acb], Aspen [At],
- of even-aged, age class 1 stands
- at the time of a free-growing assessment,
- province-wide.

Unless otherwise stated in regulation or an approved Forest Development Plan (FDP) or Forest Stewardship Plan (FSP) stocking standard, a broadleaf tree is unacceptable for the following issues;

Condition	Unacceptable if;	Broadleaf host species	Comments
Regeneration	Stems originate from the sides or cut surface of a stump	Applies to all species except Maple (Mb)	Stems originating from the sides or cut surface of a stump are susceptible to breakage (Coppice is at this time an acceptable form of regeneration for all species where it occurs)
Defoliation	> 80% of the foliage has been removed or killed (damaged)	Applies to all species	If defoliation is wide spread consider a resurvey at a later date
Dead branches	At least one major dead branch exists in the live crown	Applies to primarily to Birch all species	

Broken stems, torn branches Sapwood penetration; (frost crack, broken stems, gouges, torn branches)	a branch is torn from the point of attachment to the main stem. The main stem is broken anywhere along its length.	Applies to all species	
Stem Wounds(Cambial damage; Exposed wood, sunscald Bark removal	a wound occupies more than 10% the circumference of the stem, or is longer than 15 centimetres.	Applies to all species	.
Stem damage from diseases or insects	cankers or fungal infections or insect damage is present	Applies to all species	There are many different types of cankers; refer to <i>Diseases of Populus in British Columbia</i> by B Callan - http://cfs.nrcan.gc.ca/publications?id=5119 Examples of visible disease damage includes swellings or depressions on stems. Some cankers can have liquid discharge. Insect damage includes signs of insect frass.
Animal damage	the main stem has been repeatedly browsed. the main stem has been abraded from antler rubbing or claw marks over half the circumference of the stem and greater than 50 cm in length. the trees are trampled by an animal.	Applies to all species	Browsing damage by animals can affect growth rate and form of trees. A main stem if repeatedly browsed it would have multiple leader or growing tips.
Sweep	a stem is displaced more than 30 cm from the center of the root crown pith, within 1 m of the ground	Applies to all species	Sweep is not an issue in merchantable hardwood provided an 8 to 10 ft length can be cut from the tree.
Forks	If the tree has two or more leaders with no dominance expressed	Applies to bigleaf Maple	Poplar displays more apical dominance than other broadleaves and therefore less readily develops multiple stems