



CASTLEGAR NORDIC SKI CLUB

Danger Tree Policy

1. Background

The safety of the Castlegar Nordic Ski Club's ('the Club') employees, members, and visitors is central to its Strategic Plan and all aspects of the Club's day-to-day operations.

Under its Partnership Agreement with the Province of BC, the Club has agreed to operating standards that include mitigation of hazardous conditions and ensuring user safety.

Additionally, as an employer, the Club has a responsibility to assess hazards, establish safe work procedures, and maintain a safe work environment for its employees.

The Club's Strategic Plan also commits to providing opportunities for an experienced connection to the natural environment for skiers. Therefore, although safety is the primary consideration in the management of danger trees, the Club recognizes that dead and down trees also have important intrinsic values, as a natural component of forests, as potential wildlife trees, and as an important element for stand-level biodiversity and ecosystem integrity.

The intent of this policy is to provide guidance to the Club's Executive, employees, and designated volunteers regarding the management of danger trees at the *Paulson Cross Country Ski Trails*, within the scope of the Club's authority and operations.

2. Risk

a. Risk Defined

The B.C. Wildlife/Danger Tree Assessor's Course (WDTAC) - Parks and Recreation Module- developed by the Wildlife Tree Committee of BC, states: "*All trees, whether they are alive or dead, have a potential to be dangerous to people, property, or facilities*".

In relation to potentially dangerous trees, risk can be expressed mathematically as:

$$\text{RISK} = \text{HAZARD} \times \text{EXPOSURE}$$

where;

Risk is the likelihood of injury or loss to an 'element at risk' (i.e., human safety, property, or infrastructure). Risk requires both a hazard and a level of exposure to the hazard.

Hazard is the presence of a source of potential harm - a dangerous situation or event (e.g., a situation where a falling tree or part of a tree could significantly impact an element at risk). Activities which cause ground disturbance or vibration, or tree disturbance, can increase hazard, and therefore potential risk.

Exposure is the probability of an element at risk being present at the time of a hazardous event (e.g., a tree falling). This is related to the duration of time the element is present. If an element is often or always present (e.g., a shelter, work site, or location of human congregation) then the level of exposure is high, whereas if the element is mobile (passing skier / groomer) then the duration of exposure may be low.

b. Club Activities in Relation to Hazard and Exposure

The primary Club activities that take place at the *Paulson Cross Country Ski Trails* related

to danger tree hazard and risk are cross country skiing, youth program training, social events, trail grooming (involving use of snowmobiles & grooming implements on a snowpack), travel through parking lots, congregating at shelters & buildings, and project work (light vehicle travel, firewood stocking, inspections, trail brushing, infrastructure maintenance, etc.).

Consistent with the levels of disturbance (LOD) described in the Wildlife/Danger Tree Assessor's Course (WDTAC), the above activities represent a very low level of disturbance to nearby standing trees and for ground disturbance and therefore little or no increase in the hazard posed by any potential danger trees.

Related to exposure, for most of these activities, the duration of exposure to a danger tree hazard for a person skiing, trail grooming, or otherwise in motion is extremely low. Exceptions are where individuals congregate (trail junctions, shelters, parking lots, equipment yard, or project/trail worksites). In these situations, a higher duration of exposure could result in a higher level of risk if danger trees are present.

Based on the above rationales, the Club will follow a protocol that focusses on removing those trees which could present a higher risk to human safety and other *elements at risk* using the decision process outlined in the *Danger Tree Decision Flow Chart* attached to this document.

3. Identification of Danger Trees and Safety Decisions

Trees of concern in proximity to ski trails and trail infrastructure will most often be identified by:

- Annual pre-season trail inspections conducted by the Club,
- Trail Groomers, during regular grooming operations, and /or
- Skiers, reported to a Trail Groomer, Executive member, or designated Volunteer.

Generally, trees will be evaluated following the *Danger Tree Decision Flow Chart*, however Trail Groomers are authorized to use their discretion to remove any tree of concern and/or to post or close a trail for any safety reason.

Individuals who have concerns regarding the safety of any specific tree(s) should advise a Club representative. To avoid miscommunication and conflicts with Trail Groomers' trail and tree marking, *trees of concern* should only be assessed, marked, removed, or have trail markings, carried out by individuals authorized by the Club.

Trees will most often be removed by Trail Groomers, if within the scope of their training and qualifications, otherwise the services of a qualified professional will be secured. Felling of standing dead or danger trees and bucking of downed trees will only be conducted by Club employees, Executive members, or authorized volunteers who are qualified to the level of expertise required (e.g., certified faller for tree falling or chainsaw safety training for bucking). Trail Groomers removing dead and down trees during their daily activities will follow the safe work procedures provided by the Club.

a. Trees for High Priority Removal

Unless they have been individually assessed as a “*safe tree*”, the following trees are a high priority for removal:

- Dead / danger / suspect trees within reach of any trail junction, shelter, outhouse, other building, parking lot, area where individuals congregate, or the equipment yard.
- A tree that has *recently moved or become overhanging*. These may be live or

dead trees where it has been noted the lean of the tree has increased toward, or become newly overhanging, a *zone* containing an *element at risk*. These should be removed using extreme caution as they may be under significant tension or compression stress.

b. Retaining “Safe” Trees

Where a *tree of concern* has been determined by a *qualified person* to be a *safe tree* or has been assessed as safe by a certified danger tree assessor, the tree should be spray painted with an “S” on its base and retained undisturbed.

4. Definitions and Acronyms

The following terms are defined specific to this Club policy. Some of the definitions are quoted or have been adapted from the document: *Wildlife / Dangerous Trees Assessor’s Course Workbook: Parks and Recreation Sites Course Module – Rev. Jan. 2019*.

Danger Tree: A tree that is a hazard to an ‘element at risk’ due to its location or lean, its physical damage, overhead conditions, deterioration of limbs, stem or root system., or any combination of these conditions.

Element at Risk: In the context of this policy, includes human safety (e.g., an area occupied periodically, regularly, or continuously by humans), trail infrastructure (e.g., buildings, bridges, equipment, etc.) or private property of significant value (e.g., vehicles).

Exposure is the probability of an element at risk being present at the time of a hazardous event. Exposure rating examples:

Low: skier or grooming snowmobile may pass through the location (mobile)

Moderate: trail junction / viewpoint / congregation area

High: shelter, outhouse, parking lot, equipment yard, trail worksite

Hazard is a source of potential harm - a dangerous situation or event. In the context of this policy, a falling tree or part of a tree that could significantly impact an element at risk.

Qualified Person: A person who, by reason of education, training, experience, or a combination thereof, is able to recognize and evaluate hazards associated with trees, with regard to anticipated activities and possible disturbance of the tree(s).

Recently Moved or Become Overhanging means it has been noted that the lean of a tree has increased toward, or become newly overhanging, a zone containing an element at risk.

Risk is the likelihood of injury to, or loss of, an ‘element at risk’.

Safe Tree: A tree that has been determined by a qualified person to be ‘leaning away’ or otherwise not a hazard to an element at risk or has been assessed as safe by a certified danger tree assessor.

Tree of Concern: A tree that may or may not be a Danger Tree but is of concern to an individual due to its location or characteristics.

WDTAC: Wildlife/Danger Tree Assessor’s Course, developed by the Wildlife Tree Committee of BC, in cooperation with the Province of BC and WorkSafe BC.

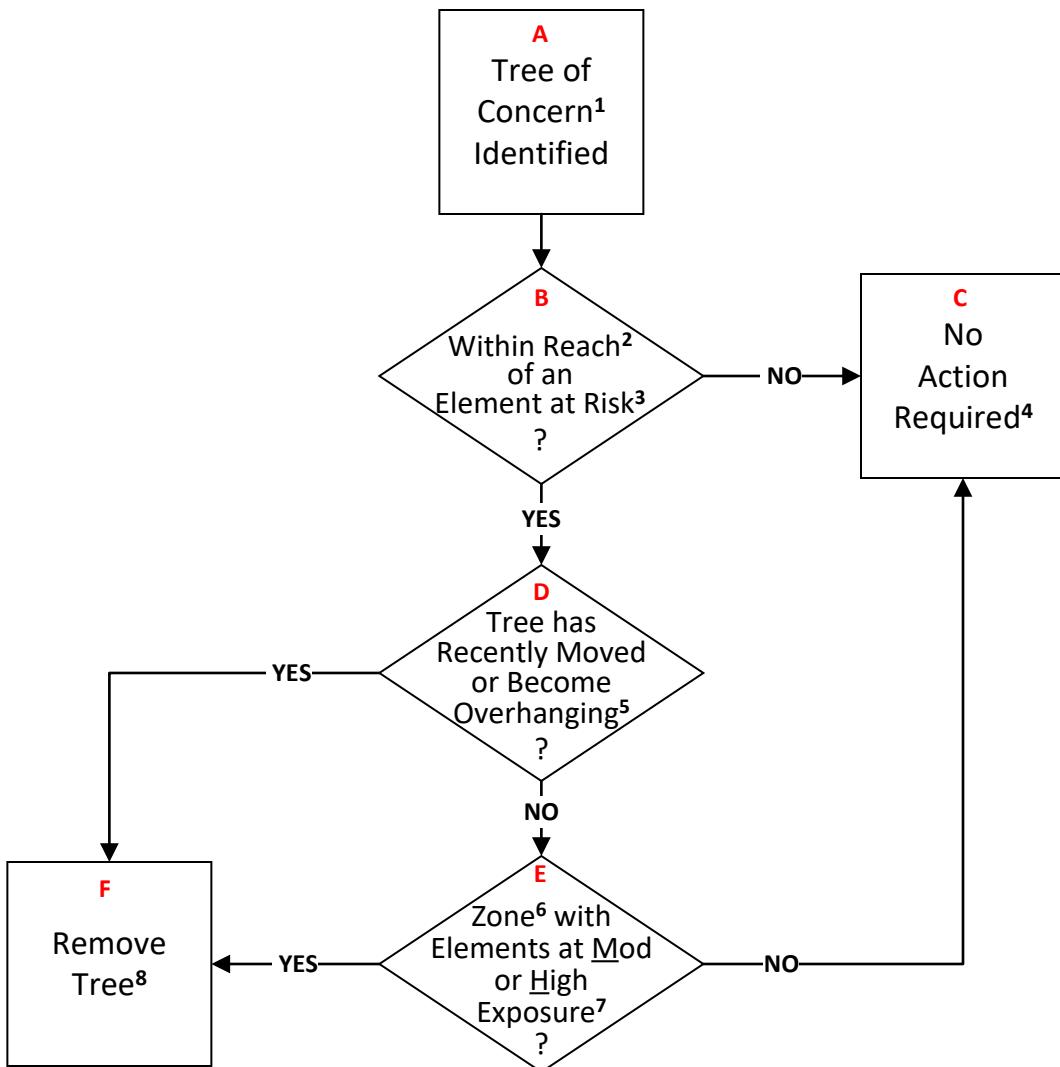
Within Reach means the tree is standing vertical or leaning toward an element at risk and is within 1.5 times the tree height (or length of defect on the tree) from the element at risk.

Zone: The area that a potential danger tree and/or its defective parts (e.g., dead/forked top, large dead branches, etc.) could fall into.

ATTACHMENT: Danger Tree Decision Flow Chart

CASTLEGAR NORDIC SKI CLUB

Danger Tree Decision Flow Chart



Notes:

¹ A tree that may or may not be a *Danger Tree*, but is of concern to an individual due to its location or characteristics. (For reference, a *Danger Tree* is a tree that is a confirmed hazard to an *element at risk* due to its location or lean, its physical damage, overhead conditions, deterioration of limbs, stem or root system, or any combination of these conditions.)

² *Within Reach* means the tree is standing vertical or leaning toward an *element at risk* and the tree (or length of defect on the tree) could reach the *element at risk* if it fell. This hazard distance will usually be 1.5 times the tree height or defect length, but site-specific conditions should be considered (e.g. less if flat ground surrounded by large blocking trees; more if on a slope above).

³ *Element at Risk* means human safety (an area occupied periodically, regularly, or continuously by humans), trail infrastructure (e.g., buildings, bridges, equipment, etc.) or private property of significant value (e.g., vehicles).

⁴ No immediate action is required, but the tree may be scheduled for removal at a future date (e.g., as part of scheduled trail maintenance and/or for firewood), unless it has attributes or evidence of use as a wildlife tree.

⁵ *Recently Moved or Become Overhanging* means that it has been noted that the lean of a tree has increased toward, or become newly overhanging, a zone containing an *element at risk*.

⁶ *Zone* is the area that a potential danger tree and/or its defective parts (e.g., dead/forked top, large dead branches, etc.) could fall into.

⁷ *Exposure* is the probability of an *element at risk* being present at the time of a hazardous event. Exposure rating examples:
Low: skier or grooming snowmobile may pass through the location (mobile)
Moderate: trail junction / viewpoint / congregation area
High: shelter, outhouse, parking lot, equipment yard, trail worksite

⁸ Tree removals must be completed by individuals qualified to the skill level required and following safe work procedures.