

REGIONAL DISTRICT OF NANAIMO

POLICY

SUBJECT:	Tree, Fire Risk and Invasive Species Management in Regional District of Nanaimo Parks and Trails	POLICY NO: C1.7 CROSS REF.:
EFFECTIVE DATE:	February 23, 2021	APPROVED BY: Board
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PURPOSE

To provide direction on the management of trees, park fire risk and invasive species in the Regional District of Nanaimo's regional and community parks and trails.

DEFINITIONS

"Hazard tree" refers to a tree, identified by a Qualified Tree Assessor, to be in such a condition where the likelihood that all or part of the tree will fail or create a risk for personal injury or property damage;

"Qualified tree risk assessor" refers to a Regional District of Nanaimo staff person or external party who is qualified and certified under a WorkSafeBC approved program to conduct a tree risk assessment and make recommendations for abatement of risks where a tree is assessed as a Hazard Tree;

"Tree" refers to a woody perennial plant usually having a single or multi trunk or stem which has a diameter of at least 10 centimeters when measured from a height of 1.4 meters above the natural grade of the land and with an overall height of at least 3 meters. The root system of a tree is considered an integral and vital part of tree

POLICY

The Regional District of Nanaimo has extensive land holdings such as regional parks, community parks, trails and conservation areas where the public is invited to recreate. This policy is intended to provide:

1. Direction and guidance for the management of tree removals in RDN parks and trails.
2. Direction and guidance for the replacement of trees in RDN parks and trails
3. Direction to minimize fire risk in RDN forested parks and trails.
4. Direction for the management of invasive species in RDN parks and trails.

1) Management of tree removals in RDN parks and trails.

a) Inspection and Management of the Regional District of Nanaimo Parks and Trails Trees

Trees located in forested areas of regional and community parks where the public is invited to recreate will only be inspected and managed upon receipt of a notice, whether from a Regional District staff, the public or a third party.

b) Hazard Tree Abatement Actions

Where a tree has been assessed and deemed as a hazard tree, abatement actions will be undertaken in accordance with the recommendations of a Qualified Tree Risk Assessor in order to achieve the following broad objectives:

- Reduce/abate risk to RDN staff and the public;
- Protect the Regional District and private property's infrastructure and other valued assets;
- Enhance and maintain healthy rural and wilderness forested ecosystems.

c) Joint Property

Trees are to be considered a joint property of the RDN and another property owner when any part of the tree trunk crosses a shared property line at grade and is exclusive of the aerial parts of a tree, including branches and trunks. For example, a tree trunk being located entirely within an RDN park or trail but that has aerial parts growing over a private property is not a joint property and is instead the sole property of the RDN. Trees as joint property require all owners to agree on the removal of any part of the tree, including roots and generally share the cost of any tree work performed on a joint property tree.

d) Tree Planting

The planting of trees, shrubs or other vegetation in RDN parks and trails by property owners, residents or visitors is prohibited, unless authorized by RDN Parks. The RDN reserves the right to remove vegetation that has been planted in RDN parks and trails without permission or prior notice.

e) Tree Pruning in RDN Parks and Trails

The pruning or removal of an RDN tree is the sole responsibility of the Regional District of Nanaimo and its authorized agents. The pruning or removal of an RDN tree, including roots, without the RDN permission is subject to fines as detailed in Part IV Section 24 of Park Use Regulation Bylaw 1801.

2) Replacement of trees in RDN parks and trails

Trees play a crucial role in both human and wildlife health and wellbeing. They help manage storm water runoff, improve water and air quality as well as play an important role in carbon sequestration. Adopting a "zero net loss" of trees is highly desirable and requires that an equal number (or more) trees be planted than those lost to human activities, such as during the construction of infrastructure like a trail, parking lot or other park amenities.

a) Tree replacement ratio

A tree removed in an RDN park or trail for elective purposes such as for building park infrastructure shall to be replaced with a minimum of one (1) or more replacement tree for every tree removed.

b) Exceptions

A replacement tree is not needed when a tree is:

- Lost from natural causes such as windstorms, decay, or other natural causes.
- Removed to improve forest health, reduce forest fire risk, reduce risk to public or infrastructure.
- Of an undesirable species or considered a nuisance to the local environment e.g. English Holly trees (*Ilex aquifolium*) are common invasive tree species and when removed from a park or trail, does not need to be replaced.

c) Replacement tree type

The principle of the “*Right Tree, Right Place*” should prevail when choosing a replacement tree species for a site. For example, black cottonwood trees (*Populus trichocarpa*) are well suited to be planted in riparian areas but can be challenging and problematic if planted in parks located in residential areas. A replacement tree planted in a natural setting should be of a species native to the area and appropriate to the environmental conditions of the planting site such as the soil type and drainage regime.

d) Replacement tree planting site

When possible, a replacement tree should be planted in proximity to the lost tree. If it is deemed not possible or that a suitable tree sapling is already growing near the lost tree, a replacement tree needs to be planted in another area within the park or alternatively in a different RDN park or trail. A suitable tree sapling is defined as a vigorous young tree specimen of a desirable species, free of disease and defects and of a height of at least 2 m or more.

3) Fire risk management in RDN parks and trails

Several RDN parks and trail have a long history of logging and fire suppression. Forest exploitation, silviculture activities and the occurrence of invasive species in RDN parks have all played important roles in changing the forest composition and consequently altering the natural forest succession process. In some cases, historical silviculture activities have led to the widespread dominance of even-aged stands of Douglas-firs. The focus on harvesting and cultivating commercial tree species, such as the Douglas-fir, as opposed to all naturally occurring tree species can sometimes lead to an increase to the frequency and severity of the damage inflicted by pest and disease infestations. In addition, even-aged stands or coniferous species can be more prone to more severed damages resulting from windstorm events which directly impacts fire risk in forested areas.

In recent years, there has been a general growing concern surrounding fire management in parks and trails and without any park management plans specific to fire risk , there could be an increase to the fire risk, loss of natural areas and an increased risk to public safety.

a) 3.1 Park fire risk management plan

In order to preserve the integrity of the natural forest ecosystems as well as to protect human life, property and infrastructure, specific fire plans for all major parks need to be put in place. These comprehensive technical plans need to include a fire history of each park, fire suppression challenges, identify major risks of ignition, present an overview of the forest’s health and

composition, list preventative fire management practices tailored to each park, map current access plans and provide recommendations on fuel management in forested parks and trails.

b) On-going fire risk management

Fire management planning must always consider the control of accesses to parks and trails in order to provide safe and reliable access to First Responders such as the local fire departments. Gates and bridges need to be inspected annually to ensure that they are not only in good condition but also to ensure that First Responders are well aware of their locations and that they have the correct corresponding keys and codes to independently and efficiently access them in case of an emergency. In addition, identified fire lanes within parks need to be properly mapped, marked and maintained on an on-going basis so that emergency access is safe and reliable.

c) Woody debris in parks and trails

Woody debris is comprised of fallen trees and branches, logs, stumps and roots in all stages of decomposition. Historical logging practices and other management activities have led to a decline in the quantity of woody debris in many RDN parks and trails.

Woody debris provides an essential nutrient source for living plants to begin their life cycle as well as provide crucial habitat for insects, birds, small mammals and soil organisms. Dead fallen trees help to stabilize slopes, reduce erosion, slows down the movement of organic matter, improve mineralization and the soil pH levels. Woody debris helps to slow down evaporation, regulate the soil temperature and helps to retain moisture in the trees' feeding root zone.

As woody debris is the primary source of fire fuel in a park setting, its management needs to balance the needs of the ecosystems with public safety.

d) Woody debris management principles

Where possible and in keeping with sound fire prevention management principles, the woody debris management principles listed below should be followed:

- i) Woody debris resulting from tree removal activities in park should be left *in-situ* in order to replicate as much as possible the natural process of wood decay in forest ecosystems.
- ii) When possible, practical and safe, trees removed in RDN parks and trails will be left in long and large pieces. Larger pieces of woody debris decompose at a slower rate, retain more water and have a greater habitat value than smaller woody debris pieces.
- iii) In order to balance ecosystem needs with fire safety, the accumulation of fuel in parks should be minimized to reduce the ignition risk. When removing trees in parks and trails such as clearing trails of windthrow trees, the small woody plant material needs to be chipped, hauled away or distributed horizontally in a way to:
 1. minimize fuel built up
 2. maximize the speed of decomposition
 3. Reduce the fire ladder risk.
 - 4.

4) Invasive species management in RDN parks and trails

a) Current situation

The spread of invasive species in parks and trail is a major cause of declining biodiversity. Historical logging activities, illegal dumping of yard waste and limited actions taken to manage emerging invasive species infestations have contributed to the widespread occurrence and establishment of invasive species in several RDN parks and trails.

Some invasive species found in RDN parks and trails can not only have a detrimental effect on the ecosystem's biodiversity, but in some cases can also pose significant risk to human health, notably species such as the giant hogweed (*Heracleum mantegazzianum*) and the poison hemlock (*Conium maculatum*). Other invasive species, such as the Japanese knotweed (*Fallopia japonica*), have the potential to cause considerable damage to infrastructure.

Most of the RDN's regional park management plans make recommendations on invasive species management. Fortunately, RDN Parks staff are aware of where most of the major infestations are located and have mapped and successfully managed a number them. Unfortunately, due to limited resources allocation and competing priorities, limited progress has been made in the management of invasive species in parks, including the eradication of highly toxic invasive species such as the Giant hogweed (*Heracleum mantegazzianum*).

b) 4.2 Managing established invasive species

Established invasive species are plants that have invaded or naturalized our environment beyond our ability to control their spread. Himalayan Blackberry (*Rubus armeniacus*) is a good example of an established invasive species plant common in RDN parks and trails, historical records show that its establishment on the West Coast dates back to the 1940s.

Although established invasive species can have significant negative impacts on the ecosystem's integrity and health, their management should be focused on controlling the infestations rather than eradicating them. This can be accomplished by controlling the growth and limiting their spread. Proper management of established invasive species also includes the appropriate disposal of the removed material as well as the restoration of the disturbed sites with native plant communities that can dominate and oppress invasive species in a short-term horizon. When an invasive species infestation is removed and the site left to fallow, the infestations generally comes back, or another invasive species takes the place of the one removed from the site.

Invasive species management principles leverage the vulnerability of each species in order to facilitate controlling its growth and spread. For example, Himalayan Blackberry (*Rubus armeniacus*) is shade intolerant and can be controlled by removing it and restoring the site with a thick vigorous evergreen plant cover. Another good example is with controlling the spread of the English holly (*Ilex aquifolium*) a favorite food source for local birds, who tend to spread holly seeds everywhere. This invasive tree species common in ornamental planting is dioecious which means that male and female reproductive organs are found on separate individuals. One way to slow down its spread is by removing all female trees first and than all males. Other established species such as the Scotch Broom (*Cytisus scoparius*) can only be efficiently removed when in flower and by cutting the structural roots located underground. A single Scotch Broom plant can produce over 10,000 seeds and the hard coats covering the seeds enable them to survive in the soil for up to 80 years.

c) Managing priority invasive species

While eradicating established widespread invasive species like the Himalayan Blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*) in RDN parks is unfortunately unrealistic, the eradication of priority invasive species can be. This can be successfully accomplished with a focused approach that follows proper Integrated Pest Management Principles and by the allocation of dedicated resources. Many jurisdictions in British Columbia have implemented programs aimed at eradicating emerging priority noxious invasive species and controlling established invasive species infestations in parks and trails. Some of these programs have been in place for over a decade and have produced tangible results, notably in jurisdictions on South Vancouver Island.

Some example of priority invasive species found in RDN Parks and trails are:

- i) Giant hogweed (*Heracleum mantegazzianum*), a highly toxic annual plants that can cause painful blisters, long-term sunlight sensitivity, and blindness.
- ii) Poison hemlock (*Conium maculatum*), an extremely poisonous biannual plant with serious human and animal health risks from ingestion, inhalation or skin contact. The dead plants remain toxic for up to three years which can contaminate compost piles if dispose inappropriately.
- iii) Daphne laurel (*Daphne laureola*), a toxic ornamental plant which poisonous sap known to cause skin rashes, nausea and swelling of the tongue.

d) Disposal of invasive species

While some invasive plant species can be successfully composted, such as the Himalayan blackberry (*Rubus armeniacus*) and the English ivy (*Hedera helix*), other species require to be buried in order to prevent their spread as the composting process does not prevent their propagation through the composted material. The Japanese Knotweed (*Fallopia japonica*) and the Scotch broom (*Cytisus scoparius*) are good examples of plants that should not be composted.

Other invasive species are highly toxic and can pose significant hazard risk to human health if incorporated in any composting process, this is the case for the giant hogweed (*Heracleum mantegazzianum*), the poison hemlock (*Conium maculatum*) and the daphne laurel (*Daphne laureola*).

In order to reduce the spread of invasive species as well as to reduce the harmful effects associated with the open burning of yard waste by residents, some jurisdictions have opened sites where residents can dispose of invasive species free of charge.

e) Foundation of an RDN invasive species management program

For the RDN to implement an invasive species management program and to deliver on all the recommendations listed in the various park's management plans, it is recommended that dedicated resources be allocated to this cause. The recommendations listed below present a good starting point to begin addressing invasive species in RDN Parks and Trails:

- i) Allocate recurring operational funding for staff to manage an invasive species management program.

- ii) Work collaboratively with non-for-profit groups and volunteer associations on developing joint invasive species management initiatives.
- iii) Create a grant funding stream that can support local non-for-profit organization and local resident's association willing to take part in controlling invasive species in parks and trails. Small grants (less than \$1,000) could be made available to cover the cost of hand tools needed by volunteers such as weed wrench, loppers, tarps and wheelbarrows.
- iv) Increase awareness in the community by developing an educational campaign focused on:
 - 1. deterring illegal dumping of yard waste in parks and trails
 - 2. educating park users on the RDN' actions to address invasive species in parks;
 - 3. install signage in parks specific to invasive species and their potential harmful impacts
 - 4. Set up an annual event in parks to encourage, recognize and reward the volunteers that have taken part in invasive species management in the RDN's parks and trails