



PEACE RIVER REGIONAL DISTRICT

2015

Strategic Plan and Profile

Of

Invasive Plants and Noxious Weeds

diverse. vast. abundant.



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1 Why Care About Invasive Plants

Once established, invasive plants can:

- Endanger public health and safety by increasing allergies and by having toxic properties harming humans, pets, livestock, and wildlife.
- Outcompete native vegetation and destroy natural habitats.
- Reduce agriculture forage yields and hay quality.
- Increase wildfire hazards and interfere with regeneration of forests.
- Decrease land values and impact recreation areas.
- Accelerate soil erosion and cause stream sedimentation with negative impacts to water quality.

A **weed** is just a plant growing where it isn't wanted. However, in BC, **invasive plants** have been defined as non-native (alien) plants whose introduction into British Columbia cause, or are likely to cause, economic or environmental damage, or harm to human health (IMISWG 2011). They originated elsewhere and are often introduced unintentionally to our area, arriving without the natural predators that kept them in check in their native homelands. Once here, they have the ability to establish easily, expand exponentially and quickly colonize an area.

Noxious weeds are invasive plants referred to in the Provincial Weed Control Act. Noxious weeds are also referred to in local government bylaws. Legislative powers require that all occupiers of lands manage infestations of plants listed in a particular piece of legislation as they negatively affect our economic, environmental and social values. The provincial invasive plant list can be found in Appendix 5.

Within the Peace River Regional District (PRRD), some native plants may plague our agriculture sector, these plants are listed in this strategy to ensure that proper identification and management strategies are used by those who discover them. Poisonous native plants and those that cause harm to livestock are in the Education and Awareness list.

All invasive plants that are the subject to this strategy are listed in four categories outlined in Section 6. They are:

Regional Early Detection Rapid Response (REDRR)

Regional EDRR species are a significant threat and is new to the area under construction. The achievable management objective is eradication. This list includes brand new incursions and high risk invasive plant species that are extremely limited in extent (i.e. have less than 10 very small sites) in the area under consideration. Some of these pieces may not be present within the PRRD but are found in adjacent areas and are at risk of being introduced.

Category A

These invasive plants are highly competitive, have the ability to spread rapidly and pose as significant threat. They have been aggressively managed over time and their populations are minimal at the landscape level. These plants require continued persistent treatment over time in order to achieve eradication.

Category B

These plants have established themselves at the landscape level and are still aggressively treated by the agriculture sector to protect crop yields and production of other agriculture products. These plants are expected to be managed where they threaten environmental, social or economic values.

Education and Awareness List

These plants plague the agriculture industry, this list includes native plants that are poisonous, difficult to control or cause harm to livestock.

2 Role of the Invasive Plant Committee of the Peace River Regional District

2.1 Goal of the Committee

The goal of the Invasive Plant Committee of the PRRD (IPCPRRD) is to complement the Mission, Vision and Goals of the Regional District by: “protecting our economy, environment and social values from invasive plants and ensuring that existing infestations are managed using an integrated pest management approach.”

2.2 Structure

Two groups work together in order to achieve broad program objectives. The Invasive Plant Committee of the Peace River Regional District (IPCPRRD) is an advisory committee with three directors appointed by the Chair of the Regional Board. The General Manager of Environmental Services and the Manager of Invasive Plants support the IPCPRRD and together, they consider issues which affect the constituents within the Region and provide operational and strategic direction for the program.

The second group is broad in scope and in the spring of 2014, consisted of over 100 members. This group is the Strategic Plan and Profile of Invasive Plants Monitoring Committee and is comprised of stakeholders and individuals interested in invasive plant management within the boundaries of the Peace River Regional District of British Columbia.

IPCPRRD holds meetings with the Monitoring Committee in the spring and fall. In the fall, members report their activities and bring forward any new invaders to the Region. The annual report, circulated early in the New Year, lists the plants and provides information for further discussion. During the spring meeting, the proposed changes are reviewed and changes to the strategic plan are made. An updated strategic plan is presented to the Board for adoption. The early history of these programs and strategies are available in Appendix 4.

2.3 Area of Operations

The Strategic Plan area includes both private and crown land. It coincides with Peace River Regional District Area which covers the area of BC east of the Rocky Mountains to the Alberta border, and north from Kakwa Provincial Park to the 58th parallel, just south of Fort Nelson. The provincial government agencies which have jurisdiction over the crown land portion include:

- Ministry of Forests Lands and Natural Resource Operations – Northeast Region and Peace District
- Ministry of Environment/BC Parks - Peace Region
- Ministry of Transportation and Infrastructure - Peace District
- Oil and Gas Commission
- Ministry of Energy and Mines

2.3 Membership

Membership in the Strategic Plan Monitoring Committee is open to all and there is no membership fee, to be a member, send an email to: kari.bondaroff@prrd.bc.ca. This group representation all perspectives and land-related vantage points including, but not limited to:

- Concerned citizens
- All levels of government: federal, provincial, local
- Environmental and ecological organizations
- Communities and aboriginal communities in the region
- Youth groups and organizations
- Horticulture and gardening clubs and organizations
- Educational organizations
- Guide outfitters, trappers, tourism companies, clubs and organizations
- Agriculture producers, agri-business and support companies
- Industry and resource sector – forestry, mining, oil and gas
- Utilities and Transportation
- BC's Regional Invasive Organization,
http://bcinvasives.ca/documents/Regional_Committee_Map_Contacts_01_19_2014.pdf

3 Legislative on Invasive Plant Management

Invasive plant management is dealt with by federal and provincial legislation. Government agencies involved in invasive plant management in British Columbia through regulation or for lands under their management authority:

Federal Government:

- Parks Canada
- Environment Canada
- Canadian Food Inspection Agency
- Aboriginal Affairs and Northern Development Canada (Indian Reserves and Treaty Lands)
- Airports, post offices, national defence lands

Province of British Columbia:

- Ministry of Energy and Mines
- Ministry of Environment
- Ministry of Forests, Lands and Natural Resource Operations
- Ministry of Transportation and Infrastructure
- Ministry of Community and Rural Development
- Oil and Gas Commission

Local Governments:

- Municipalities
- Regional Districts

Other groups and societies assist with invasive plant management, but have no jurisdiction over lands with the exception of various agencies like Ducks Unlimited, the Nature Trust, et al.

A key resource called the *Legislative Guidebook to Invasive Plant Management in BC* can be obtained from the Invasive Species Council of British Columbia. The document summarizes pertinent federal, provincial and regional government legislation and can be found at:

www.bcinvases.ca under the technical reports tab.¹

¹ Invasive Plant Council of BC, “A Legislative Guidebook to Invasive Plant Management in BC,” December 2007.

3.1 Progressive Compliance and Enforcement Regime

The Regional District implements strategies focused on increasing awareness, sharing on-the-ground observations and annually updating the strategic plan. A progressive compliance and enforcement regime for the Region and its municipalities draws upon the powers of the *Local Government Act* and the *Community Charter*. The powers being considered would allow for warning tickets and monetary penalties to be issued prior to issuing a Weed Notice.

In order for the regime to be effective, compliance and enforcement will follow on the heels of education strategies and focus on sites where land occupiers are reluctant to manage infestations deemed to be critical as per the decision matrices and plants listed in section five. The objective is to engage managers of various jurisdictions to employ long term management techniques based on Integrated Pest Management. The progressive regime is outlined as:

- 1 **Outreach and Education** targeted at specific segments within the general public and various industries
- 2 **Warning Ticket** issued to jurisdictional managers and occupiers of land who require an authority for motivation.
- 3 **Monetary Penalty** issued to jurisdictional managers and occupiers of land who have not heeded the warning ticket and are subject to an adjudication process.
- 4 **Weed Notice** once issued will allow a time period for the occupier to treat the infestation, where the treatment is not completed to an expected standard within the time allowed, the Weed Inspector can enter onto lands and deliver treatments. An invoice will be presented to the occupier of the land. If the invoice remains unpaid, a mechanism will be triggered to collect treatment costs through the taxation process

4 Invasive Plant Management Strategies

The invasive plant strategy has the following five components derived from the invasion curve in section 5.1:

- Prevention
- Eradication / Suppression
- Containment / Rehabilitation
- Rehabilitation / Surveying
- Compliance and Enforcement

The steps in the invasive plant management scheme are:

1. The most effective and efficient management of invasive plants is to **prevent** them from arriving. The Peace-Liard Re-Vegetation Manual is available on our website to help guide reclamation and seeding efforts aimed towards prevention.
2. After invasive alien plants have arrived, the most efficient and effective management is to **eradicate** them before they become well established through early detection and rapid response. Eradication is always the goal as the agriculture industry within the Region must be protected.
3. If establishment occurs and the invasive plant population expands, the population should be contained until eradication strategies can be initiated. A long term goal of decreasing the infestation annually is of most importance. Containment involves aggressive management of high vectors of spread within the defined infestation as well as any satellite infestations outside of the containment area. Infestations should be managed with an integrated pest management approach which may include mechanical, chemical or biological techniques.
4. For species that have established at the landscape level focus is on **surveying** to determine which sites have the highest likelihood and value for **rehabilitation** and which species and sites are suitable for bio control release.
- 5 **Progressive Compliance and Enforcement Regime** explained in section 3.1.

There are many invasive plant species that are, or could establish themselves in the Region. It would not be feasible, given the resources available, to eliminate all occurrences of each of these species. Therefore, a system has been developed to guide and prioritize management efforts. The system involves a decision-making grid or matrix of three plant **invasiveness categories** and a range of four **site conditions**. Plants are placed in categories by:

- a. reviewing the literature on the habitat range and aggressiveness of invasive plants;
- b. technical advice; and,
- c. incorporating the substantial expertise and experience of the membership.

The categories and Invasive Plant Profile are regularly reviewed and changed as new information and observations indicate a need to add a plant to any of the five categories, or move a species up or down the categories. In addition, the BC Provincial Prohibited Weeds list can be found in Appendix 5 for additional invasive plant species of concern.

5 Implementing Strategies

The following actions are undertaken to implement the IPCPRRD Strategies:

- Encourage the public to report invasive plant sightings and to further engage them by replying in a timely manner and provide information regarding:
 - economic, social and environmental threats,
 - integrated pest management and
 - compliance and enforcement.
- Inform the public about invasive plant programs and incorporate comments into the continuous improvement loop.
- Assess problems and threats that various invasive plants present to the economic, social and environmental values within the area.
- Prevent the establishment of invasive plants not currently in the region.
- Prevent or minimize the spread of the invasive plants present in the region.
- Conduct invasive plant programs in the region based on Integrated Pest Management principles.
- Coordinate the activities and responsibilities of the various agencies and private landowners to meet the Goals of the Peace River Regional District.
- Facilitate Early Detection Rapid Response initiatives at the federal, provincial and regional levels.

5.1 How to Report Invasive Plants

In order to ensure that appropriate and timely action is taken regarding invasive plants, it is important to understand what you can do. Take note of any changes in the plant composition in areas that you frequent. Changes often indicate the presence of an invasive plant. It is imperative that these sightings be REPORTED. Be aware that native and rare plants, like some invasive plants, may appear on the landscape sporadically. Some of these may be listed as “Species at Risk”. For more information on Species at Risk, click here: <http://www.speciesatrisk.bc.ca/>

There are many ways to report invasive plants. The key is quick identification which ensures the correct management regime. To ensure correct identification collect the plant, roots and all, and press it in a book. Bagged samples wilt quickly and are difficult to identify. Photographs are excellent, but care should be taken to ensure the plant is on a plain background such as the hood of a truck. Be sure to note the location and how large the infestation is.

- Email the scan of the plant, pictures and location to kari.bondaroff@prrd.bc.ca
- Bring a sample to the Regional District Office
- Fill out a form at the front counter of the Regional District Office
- Call the Invasive Plant Program Manager at 250-784-3227 /250-219-4807
- Call the toll-free number: 1-800-670-7773
- Write a letter to the Invasive Plant Program, Box 810, Dawson Creek BC, V1G 4H8
- Use your smartphone, turn on your GPS, go to maps and record the location, then email it to kari.bondaroff@prrd.bc.ca along with a description of what you are seeing
- Download the free app: www.reportaweedbc.ca
- Use an interactive web tool, the app and web tool are provincial in nature, for more information go to the website: <https://www.for.gov.bc.ca/hra/plants/raw.htm>

5.2 Site Prioritization

As well as species, the strategy considers site conditions. There are numerous factors to consider for sites and this strategy focuses on the:

- susceptibility of sites and areas for invasion;
- loss or risks if invasion occurs; and,
- feasibility and costs of managing the species on the site.

Site conditions are divided into four groups in decreasing expected potential for control (See Table 1).

Table 1. Site Prioritization	
Priority/Opportunity for Control	Site condition / management intent or goal
1 Extremely High	<ul style="list-style-type: none"> • A relatively small infestation (up to 0.25 ha or 0.5 acre) likely to spread to large highly susceptible areas or high value crops (e.g. certified seed, grains and oilseed). • Intent is to prevent establishment or spread and to eradicate the infestation quickly and efficiently. • Effective treatment (eradication or containment) is critical.
2 High	<ul style="list-style-type: none"> • Moderate sized infested area (0.25-0.50 hectare or 1.25 acres) in susceptible areas and a good expectation that control will be effective. • Goal is to quickly reduce the population of the invasive plant, contain the infested area and reduce impacts on agriculture and susceptible habitats and ecosystems.
3 Moderate	<ul style="list-style-type: none"> • Larger infested area (greater than 0.50 hectare or 1.25 acres) that are not adjacent to agriculture areas or other delicate habitats and ecosystems that need to be protected. • Expectation that control will be effective. • Goal is to contain the infestation.
4 Low Opportunity for Control	<ul style="list-style-type: none"> • Infested areas larger than 5 hectares or 12 acres where control would require high investment of resources. • Areas are not adjacent to agriculture or susceptible high value habitats and ecosystems that need to be protected. • Goal is to reduce the damage from the infested area, record changes to the size and ensure that all vectors of spread are treated.

Site conditions ranked #1 have the highest opportunity for control being effective. A site ranked as #4 has a much lower potential or opportunity for eradication or control. Costs are also part of this ranking where #4 has the highest cost/benefit ratio. The following invasion curve, Figure 1, references the thought process regarding landscape distribution and opportunities for eradication.

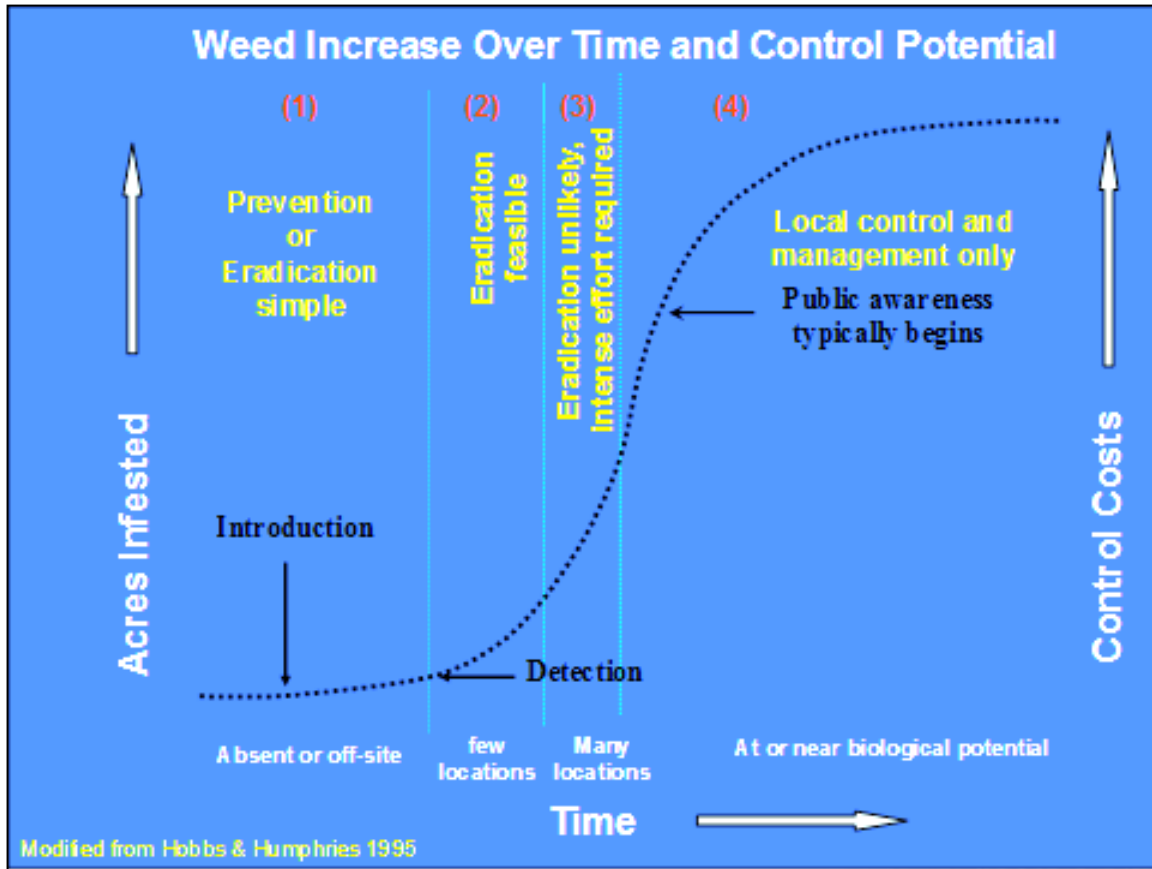


Figure 1: Weed Increase over Time and Control Potential

5.3 IPCPRRD Treatment Matrix

Table 2 IPCPRRD Treatment Matrix		
Plant Species Invasiveness Category		
Site Priority	A	B
1		
2		
3		
4		

5.4 Program Thresholds

Table 3. Program Thresholds			
Invasive Plant Category	Site Priority	Program Level	Control Objective or Requirement
A/R-EDRR	1	<p>REDRR</p> <ul style="list-style-type: none"> Regional Early Detection Rapid Response 	<p>Regional or local eradication:</p> <ul style="list-style-type: none"> Identify and eradicate the local population, prevent new invaders, see the Provincial EDRR process at http://www.for.gov.bc.ca/hra/invasive-species/edrr.htm See the regionally specific list on page 12. Stop the spread of recently established invaders
A	1	<p>ERADICATION <i>and</i> CONTAINMENT</p>	<p>Treatment or some form of management is mandatory:</p> <ul style="list-style-type: none"> Immediate requirement to prevent newly arriving invasive plants, or those with low population, from establishing or spreading. Mid and long term goal is to eliminate the population from within the region.
A	2		
A	3		
B	1		
A	4	<p>CONTAINMENT <i>and</i> REHABILITATION</p>	<p>Treatments are mandatory for sites outside of containment lines or where values are threatened:</p> <ul style="list-style-type: none"> Within containment areas, treatments occur when protection or rehabilitation of social, environmental or economic areas is required; or, A need is indicated and approved by funders or, Land owner or occupier has other reasons for containment or rehabilitation.
B	2		
B	3		
B	4	<p>REHABILITATION <i>and</i> SURVEYING</p>	<p>Control and rehabilitation will be attempted when biological control agents are available and effective:</p> <ul style="list-style-type: none"> Specific issues and requests are made, whereby an analysis of risks and/or cost-benefit indicates control is required to protect or rehabilitate agriculture areas or critical habitats.

5.5 Prevention

Prevention of invasive plant problems requires an aggressive outreach and education program focused on all segments of the population. Managing susceptible sites and taking actions that prevent movement of invasive plant seeds and propagules is complimentary to education. Some of the actions IPCPRRD supports and encourages are:

- Farming and grazing practices that prevent invasive plant establishment.
- Seeding all disturbances as quickly as per the Peace Liard Re-Vegetation manual found here: http://prrd.bc.ca/services/environmental/weed_control/documents/NEIPC_Reveg_manual_PeaceLiard_April2010.pdf
- Use of local clean or weed free seed, reference to the Certificate of Seed Analysis and adherence to the *Seed Act*.
- Inter-ministry Invasive Species Working Group Early Detection Rapid Response Plan found here: <http://www.for.gov.bc.ca/hra/invasive-species/edrr.htm>
- Best practices based on various industries within the region, such as cleaning equipment between sites, tarping or covering grain, hay and other agriculture loads when transporting and harvesting hay before weed seeds are viable.
- Using locally grown weed free forage when taking livestock into the wilderness.
- Using locally grown weed free straw for rehabilitation and rehab of erosion areas.
- Controlling invasive plants at chronic sources of seed and spread vectors such as gravel pits.

5.6 Eradication, Containment, Rehabilitation and Inventory

1. Canada has an invasive species strategy found here: http://www.ec.gc.ca/eee-ias/98DB3ACF-94FE-4573-AE0F-95133A03C5E9/Final_IAS_Strategic_Plan_smaller_e.pdf
2. The Invasive Species Council of BC has finalized their strategy found here: http://www.bcinvases.ca/images/stories/documents/reports/IS%20Strategy%20for%20BC%20Final%202012_06_07.pdf
3. BC has recently finalized the Provincial EDRR strategy and it is available here: <http://www.for.gov.bc.ca/hra/invasive-species/edrr.htm>.

Regardless of invasive plant list, federal, provincial and regional EDRR strategies must be activated in a timely manner. The plant must be correctly identified and samples collected, prepared and submitted to the Royal BC Museum. GPS location, photographs, sketches and notes on density and distribution of the plant must be collected. Following initial containment and eradication steps, a management strategy with the land occupier must be prepared and followed annually.

Efficient and effective management of invasive plants requires integration of awareness to prevent unintentional introduction, planning, inventory and integrated pest management treatments. Public and stakeholder support is needed to locate invasive alien plant sites, particularly remote sites started from activities like backcountry recreation, transport of industrial equipment and distribution wildlife, livestock and weather. The public is encouraged to contact the invasive plant program to report any newly arriving aggressive invasive plant.

6 Plant Species Invasiveness within the Peace River Regional District

Table 4. Regional Early Detection Rapid Response (REDRR)

Regional EDRR species are a significant threat and is new to the area under consideration. The achievable management objective is eradication. This list includes brand new incursions and high risk invasive plant species that are extremely limited in extent (i.e. have less than 10 very small sites) in the area under consideration. Some of these species may not be present within the PRRD but are found in adjacent areas and are at risk of being introduced.

Common Name	Latin Name	Occurrences/Threat
Baby's breath	<i>Gypsophila paniculata</i>	Not present at this time
Big Head knapweed	<i>Centaurea macrocephala</i>	One infestation of 6 plants discovered in 2013, is a provincial EDRR species
Blueweed	<i>Echium vulgare</i>	Not present at this time
Bohemian knotweed	<i>Fallopia x bohemica</i>	Not present at this time
Brown knapweed	<i>Centaurea jacea</i>	Exists in the NWIPC along Highway 16.
Cheat grass	<i>Bromus tectorum</i>	Not present at this time
Chicory	<i>Cichorium intybus</i>	1 site found in 2013. Numerous sites found in southern BC.
Creeping bell flower	<i>Campunaula rapunculoides</i>	One small infestation discovered in 2013
Cypress spurge	<i>Euphorbia cyparissias</i>	The New Invaders Program notes cypress spurge to be a problem in the Hudson's Hope area. This invasive plant is highly aggressive and toxic.
Field Scabious /Blue button	<i>Knautia arvensis</i>	One site between Arras and Groundbirch, may still be sold in nurseries
Giant knotweed	<i>Polygonum sachalinense</i>	Not present at this time
Himalayan balsam/Policeman's Helmet	<i>Impatiens glandulifera</i>	Horticulture plant in a few gardens in Dawson Creek. 1 new site discovered in 2014.
Himalayan knotweed	<i>Polygonum polystachyum</i>	Not present at this time
Hoary alyssum	<i>Bereroa incana</i>	Sites present in the Prince George area.
Hoary cress	<i>Cardaria draba</i>	None present at this time
Hound's tongue	<i>Cynoglossum officinale</i>	Two sites previously mis-identified, plant is under effective bio-control in southern portions of BC since 2007.
Japanese knotweed	<i>Fallopia japonica</i>	Not present at this time
Leafy spurge	<i>Euphorbia esula</i>	Present in Grande Prairie AB
Marsh plume thistle	<i>Cirsium palustre</i>	Less than 10 sites documented with 3 sites under control.
Mountain bluet	<i>Centaurea Montana</i>	Noted in horticulture settings in 2011 historically at Telegraph Creek BC
Nodding thistle	<i>Carduus nutans</i>	Not present at this time, exists in the NWIPC along Highway 16.
Plumeless thistle	<i>Carduus acanthoides</i>	Found in Trail, BC and has biocontrol agents.
Purple loosestrife	<i>Lythrum spp.</i>	Present in Grande Prairie AB
Rush skeletonweed	<i>Chondrilla juncea</i>	N sites in the PRRD to date
St. John's Wort or goatweed	<i>Hypericum perforatum</i>	No sites reported

Regional Early Detection Rapid Response (REDRR) Continued		
Common Name	Latin Name	Occurrences/Threat
Sulphur cinquefoil	<i>Potentilla recta</i>	Not present at this time
Tansy ragwort	<i>Senecio jacobeeae</i>	No sites reported
Tartary buckwheat	<i>Fagopyrum tataricum</i>	No known sites in the region
Wild parsnip	<i>Pastinaca sativa</i>	One small infestation discovered in 2013.

Table 5. Category A – High Priority for Eradication and Containment

These invasive plants are highly competitive, have the ability to spread rapidly, and pose as significant threat.

Common Name	Latin Name	Occurrences/Threat
Burdock	<i>Arctium spp.</i>	Historic sites in Taylor along the rail line, Lynx Creek subdivision at Hudson’s Hope, Clayhurst area and areas along the Peace, Jackfish Lake area, and Groundbirch community pastures and East Pine, 46 sites in 2012
Comfrey	<i>Symphytum spp</i>	Two sites in Chetwynd, one in Fort St. John ID’d in 2012.
Common tansy	<i>Tanacetum vulgar</i>	. Likely present since homesteader times, medicinal plant used to keep insects away and induce miscarriage.
Dalmatian toadflax	<i>Linaria dalmatica</i>	Present in small patches since 1987 south of Charlie Lake. Currently there are 45 sites, largest site at the Peace Lookout 7 ha., occupying private and crown land, initial site was small, but present since 1991.
Diffuse knapweed	<i>Centaurea diffusa</i>	One historical site within BC HYDRO’s Site C. Plant may have spread outwards, need better education around identification and reporting
Green foxtail	<i>Sertaria viridis</i>	Plant is difficult to see as it heads out later in the summer, few sporadic sites in Cecil Lake, Hudson’s Hope highway, historically in Dawson Creek, Fort St. John, Chetwynd, and Taylor, and the 103 road.
Meadow goat’s-beard or salsify	<i>Tragopogon pratensis</i>	Sporadic distribution.
Orange hawkweed	<i>Heiracium aurantiacum</i>	62 sites, noted since 1994, sporadic infestations in the region, see notes under yellow hawkweed
Russian thistle	<i>Salsola kali</i>	Present in the Stewart Lake Gravel Pit, East Pine, historically in Taylor
Spotted knapweed	<i>Centaurea biebersteinii</i>	Historically, there were 12 spotted knapweed sites in 1999, 14 in 2000 and 15 in 2001, 2002 and 2003. New IAPP records indicate a total of 24 sites infesting approximately 10 ha in 2011, there were 26 sites spread throughout the area
Invasive yellow hawkweeds	<i>Pilosella spp.</i>	Inventory began in 2005. There were 199 sites in 2008, currently there are 108 sites located in the region located at Mile 137 Alaska Highway, Monkman, Tumbler Ridge, Johnson Creek and the Hudson’s Hope area. Treatments have occurred since 2007.
Wild caraway	<i>Carum carvi</i>	Prevalent north of Pink Mountain, historical infestation at Site C.

Table 6. Category B – Medium Priority for Eradication and Containment

Primary invasive plants have the ability to spread rapidly but are not as aggressive as Category A plants, or have become naturalized, are still considered a threat to the fine seed industry.

Common Name	Latin Name	Occurrences/Threat
Annual bluegrass	<i>Poa Annua</i>	Present on local golf courses and worldwide on lawns.
Common toadflax	<i>Linaria vulgaris</i>	Under biological control since the 1950's, larger patches are surveyed and treated if threatening farm land.
Creeping (Canada) thistle	<i>Cirsium arvense</i>	Wide spread, are surveyed and treated if threatening farm land.
Kochia	<i>Kochia scoparia</i>	Historically in commercial lots, landfill sites and gas plant at Taylor, minor amounts on private land, Beaton Hills on Cecil Lake Road
Night-flowering catchfly	<i>Silene noctiflora</i>	Seeds introduced with alfalfa. Important to review seed analysis prior to purchasing seed.
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>	Prevalent in Southern BC, Pine Pass and Hudson's Hope several sporadic infestations showing up throughout the region
Scentless chamomile	<i>Matricaria perforata</i>	Widespread in the area, rare in southern BC.
Tall/Meadow buttercup	<i>Ranunculus acris</i>	First occurrence noted in 2011, species was confirmed in 2013 as <i>Ranunculus acris</i> . More infestation discovered in 2013

Table 7. Education and Awareness List

The plants on this list can spread easily but requirements to contain are site specific. The priority is to educate, raise awareness and maintain an up to date inventory. This list includes native plants that are weedy in nature and cause damage to environment, social and economic values and invasive plants under successful biological control.

Common Name	Latin Name	Occurrences/Threat
American dragonhead	<i>Dracocephalum parviflorum</i>	Native, distribution unknown
Arrow Grass	<i>Triglochin maritime</i>	Native, distribution unknown
Bladder campion	<i>Silene cucubalus</i>	Distribution unknown
Bluebur western	<i>Lappula spp</i>	Distribution unknown
Buckwheat, wild	<i>Polygonum convolvulus</i>	Distribution unknown
Bull thistle	<i>Cirsium vulgare</i>	Widely distributed, under biocontrol.
Chickweed, mouse eared	<i>Cerastium spp.</i>	Widely distributed
Cleavers	<i>Galium aparine</i>	Distribution unknown
Corn spurry	<i>Spergula arvensis</i>	Distribution unknown
Curled dock	<i>Rumex crispus</i>	Sporadically distributed
Dame's Rocket	<i>Hesperis matronalis</i>	Two garden escapes noted in 2011.
Flixweed	<i>Descurainia sophia</i>	Distribution unknown
Foxtail barley (native)	<i>Hordeum jubatum</i>	Native, widely distributed
Groundsel, common	<i>Senecio vulgaris</i>	Distribution unknown
Hawksbeard, narrowleaf	<i>Crepis tectorum</i>	Widely distributed
Hemp nettle	<i>Galeopsis tetrahit</i>	Widely distributed
Lamb's quarters	<i>Chenopodium album</i>	Widely distributed
Mallow	<i>Malva neglecta</i>	Distribution unknown
Mullein	<i>Verbascum thapsus</i>	Distribution unknown
Mustard, dog	<i>Eruscastrum gallicum</i>	Distribution isolated to the Kootenays
Mustards	<i>Sisymbrium spp.</i>	Distribution unknown
Pineapple weed	<i>Matricaria matricarioides</i>	Widely distributed
Prickly lettuce	<i>Lactuca serriola</i>	Widely distributed
Quackgrass	<i>Agropyron repens</i>	Widely distributed
Sea Buckthorn	<i>Hippophae rhamniodes</i>	Widely distributed
Shasta daisy	<i>Leucanthemum x superbum</i>	One site noted along the Murray FSR in 2011
Sheep sorrel	<i>Rumex acetosella</i>	Widely distributed
Smartweed	<i>Polygonum spp.</i>	Distribution unknown
Sow thistles	<i>Sonchus spp.</i>	Prevalent throughout the region.
Stinking mayweed, dog	<i>Anthemis cotula</i>	Introduced in seed to an isolated area in 2013.
Stinkweed or pennycress	<i>Thlaspi arvense</i>	Widely distributed
Stork's bill	<i>Erodium spp.</i>	Distribution unknown
Tarweed (native)	<i>Madia glomerata</i>	Native, present on the hills of the Peace
Western water hemlock	<i>Cicuta douglasii</i>	Native, present in moist areas, very toxic.
White cockle	<i>Lychnis alba</i>	Sporadically distributed
Wild mustard	<i>Sinapsis arvensis</i>	Prevalent throughout the region
Wild oats	<i>Avena fatua</i>	Widely distributed
Wormwood or Absinthium	<i>Artemisia absinthium</i>	Distribution unknown
Yellow clematis	<i>Clematis tangutica</i>	One site confirmed at WAC Bennett Dam.

APPENDIX 1: Stakeholders and Members of the Strategic Plan and Profile of the Invasive Plants Monitoring Committee

Chair: Appointed by the Invasive Plant Committee of the Peace River Regional District

Agriculture Producer Groups

- BC Grain Producer’s Association
- Groundbirch Community Pasture Association
- Peace River Organic Producers Association
- Peace River Regional Cattlemen’s Association
- Peace River Forage Association
- South Peace Stockmen’s Association

Agriculture – Other Jurisdictions

- Clear Hills County
- Leduc County
- Municipal of District Greenview
- Saddle Hills County

Communities

- City of Fort St. John
- City of Dawson Creek
- District of Chetwynd
- District of Tumbler Ridge
- District of Hudson’s Hope
- District of Taylor
- Village of Pouce Coupe
- City of Grande Prairie (Alberta)

Contractors – Invasive Plants

- K.A.M. Ventures
- Spectrum Resource Group Inc.
- Sunrise Environmental Inc.
- MGP Contracting Vegetation Management

Federation of BC Naturalists

- Timberline Trail and Nature Club

First Nations

- Prophet River First Nations
- Saulneau First Nations
- Treaty 8 Tribal Associations
- West Moberly First Nations
- Tsay Keh Dene Band
- Doig River First Nations

Government Partners

- Agriculture and Agri-Food Canada
- BC Hydro
- BC Oil & Gas Commission
- BC Transmission Corporation
- Ministry of Agriculture
- Ministry of Environment (BC Parks)
- Ministry of Forests, Lands and Natural Resource Operations
- Ministry of Transportation and Infrastructure
- National Energy Board
- Northwest Invasive Plant Council
- Invasive Species Council of BC
- Northern Rockies Invasive Plant Management Area
- School District No. 59 and 60

Transportation

- Caribou Road Services Ltd

Oil & Gas, Forestry, Mining Industry &

Related Partners

- Ace Vegetation Control Service Ltd.
- Anglo American plc.
- DOW Chemical
- Encana Corporation
- EWD Consulting Corp.
- Ghostpine Environmental Services ltd.
- Hemmera (Bear Mountain Wind Park Project)
- Heritage North Consulting Ltd.
- Louisiana Pacific Canada Ltd.
- Pathfinder Endeavours Ltd.
- Peace River Coal Inc.
- SemCAMS | Red Willow ULC
- Shell Canada Limited
- Spectra Energy Corp.
- Stantec Consulting Ltd.
- TERA Environmental Consultants
- Trend Mine | Northern Energy & Mining Inc.
- Walter Energy

APPENDIX 2 Terms of Reference for the Invasive Plant Committee

1. Goal

To complement the **Mission, Vision and Goals** of the Regional District by: “protecting our economy, environment and social values from invasive plants and ensuring that existing infestations are managed with integrated pest management.”

2. Purpose

The general purpose of the Invasive Plant Committee of the Peace River Regional District (IPCPRRD) will include, but not be limited to the following:

- a. To act as the conduit between the Strategic Plan and Profile of Invasive Plants Monitoring Committee (SPIP) and the Peace River Regional District Board regarding matters relating to noxious/invasive plants in the region

3. Accountability and Committee Organization

The committee will be comprised of:

- I. A minimum of three directors appointed by the Chair of the Regional Board
- II. The General Manager of Environmental Services
- III. The Manager of Invasive Plants

Provisions for a Standing Committee are provided for in By-Law No 1633, 2006
http://prrd.bc.ca/services/administration/documents/1633_2006_Board.pdf

4. Roles and Responsibilities

To ensure regulatory provisions are appropriate to program delivery and recommend amendments to the Board and staff.

- a. Strategic Plan and Profile of Invasive Plants
- b. Program delivery
- c. Compliance and Enforcement Policy
- d. Budget

The above are intended to be reviewed annually

APPENDIX 3: Terms of Reference for the Strategic Plan and Profile of Invasive Plants Monitoring Committee

Strategic Plan and Profile of Invasive Plants Monitoring Committee of the Peace River Regional District Terms of Reference March 2014

1. Goal

To complement the **Mission, Vision and Goals** of the Regional District by: “protecting our economy, environment and social values from invasive plants and ensuring that existing infestations are managed with integrated pest management.”

2. Purpose

To act as a forum to network and provide feedback to the Invasive Plant Committee of the Peace River Regional District (IPCPRRD) regarding:

- a. the Strategic Plan and Profile of Invasive Plants
- b. the effects of noxious/invasive plants in the region
- c. advice regarding best practices for industries operating within the Region
- d. noxious/invasive plant occurrences
- e. information on matters referred by the IPCPRRD
- f. any other matters related to noxious/invasive plants

3. Accountability

- a. Roberts Rules of Order apply
- b. Recommendations will be made to the IPCPRRD as required

4. Committee Organization

- a. A Chair and Vice Chair will be appointed by the IPCPRRD
- b. Secretarial services will be provided by the Peace River Regional District
- c. Members may be chosen to form an Advisory Committee and provide technical advice

5. Membership

Membership is open to all who are interested in in noxious/invasive plant management.

Membership will be continuous

APPENDIX 4: History of Weed Control in the Peace River Regional District

Invasive plants were first introduced to the northeast corner of BC with the arrival of fur traders, homesteaders, and agriculture. Fur traders were expected to live off the land and developed gardens and livestock pastures around their posts. Along with the garden and forage plants, invasive alien plants were introduced. As settlement and development of agriculture, resources, transportation and utilities continued, introduction and spread of invasive alien plants occurred. Invasive alien plants or weeds have long been recognized as indicated by the *Thistle Prevention Act* of 1877 followed by the *Noxious Weed Act* of 1888.

In 1973, the *Noxious Weed Act* was replaced by the *Weed Control Act* which imposes “a duty on all land occupiers to control designated noxious plants.” It also provides for regional districts and government agencies to appoint weed inspectors; this led to the formation of the Peace River Regional District Weed Control Committee in 1973.

1977-1997 – PRRD’s Weed Control Program Summary:

- Delivered according to the *B.C. Weed Control Act* and Regulations
- Varied from one or two inspectors and up to fourteen inspectors working in three different regions –North Peace, South Peace and West Peace
- In the latter years, summer employees were hired to inspect within designated areas throughout the Peace, with weed notices being issued to the land occupier to control and subsequent enforcement, if there was no compliance.
- The Ministry of Agriculture was a key player in the program, whereby the Field Crop Agrologist was required to provide the technical advice for the means of control on agriculture properties.
- A Weed Control Committee, made up of five members, designated according to the *Weed Control Act* with various representatives from regional agriculture associations, municipalities, railways, Crown Lands, and the resource sector (forestry, oil and gas) developed recommendations that guided the program.
- Program files are archived by the Peace River Regional District (PRRD).
- The Weed Control Program was discontinued in 1997 by the PRRD due to a lack of provincial funding.

1998-2008 - Invader Weed Control Program and Weed Warrior Program

- The Ministry of Agriculture, in conjunction with the PRRD, initiated the “*New Invader Weed Control Program*” to ensure that known sites of new invasive weed species, such as knapweeds and hawkweeds, would be controlled. It not only involved the control of invasive plants, but included the release of biological agents for scentless chamomile, identification of weeds, displays at the local fairs, and coordinating a Weed Warrior Program.
- The main objectives of the program were accomplished through contracts to appoint spray contractors and a coordinator.

2003-2011 – Formation of the Northeast Invasive Plant Committee (NEIPC)

- Development of a shared regional strategic plan between the Fort Nelson and Regional district boundaries resulted in the formation of NEIPC
- The first “pooled resource delivery model,” established for the Pine Pass, brought together key stakeholders to integrate funding, awareness, reporting of sites, inventory work and treatments based on a common strategic approach across land jurisdictions.
- This model involves the various stakeholders contributing to a funding pool that is used to integrate awareness, reporting of sites, inventories and treatments based on a strategic approach across land jurisdictions, previously managed by environmental departments within each jurisdiction.
- Leveraging the success of the Pine Pass project model, the Fort Nelson Invasive Plant Management Area Steering Committee was developed to address the susceptible habitats and expansion of resource industry activities in the area.
- NEIPC continued developing the pooled resource delivery model and as of 2011 there were four IPMAs: Fort Nelson, North Peace, South Peace and Pine Pass.

2011-2013 - Peace River Regional District: Invasive Plant Program Manager Position

- In May 2011, the PRRD created a full-time position to manage the Invasive Plant Program, under its Environmental Services function.
- In the spring of 2012 an invasive plant disposal pilot was established. Disposal bins were set up at the Chetwynd, Bessborough and North Peace landfills and tipping fees were waived for private land owners. In the fall of 2013, this was made a regular service for the public.
- In the fall of 2011, the Fort Nelson area was encouraged to become independent and the NEIPC was dismantled. The PRRD delivers an independent weed management program within their boundaries while continuing to collaborate with the Fort Nelson group.
- In the fall of 2012, the NEIPC made a recommendation to the board of the PRRD to re-name the advisory committee to the Invasive Plant Committee of the Peace River Regional District (IPCPRRD). The recommendation was adopted.

2014- The Peace River Regional District explores a Progressive Compliance and Enforcement Regime

- In 2013, the Regional District’s Agriculture Advisory Committee expressed concern over invasive plants and noxious weeds on agriculture settings in 2013.
- The pooled delivery model was reviewed by the PRRD staff to ensure broad objectives of the program were being accomplished.
- A bylaw was proposed using powers from the *Local Government Act* which will allow issuance of a warning ticket and a monetary penalty to be available as enforcement tools prior to engaging the authority of the *Weed Control Act*.
- Education and Outreach will remain the focus of the program in order to achieve prevention through increased awareness.
- The structure of the committee was altered to create a Standing Committee (IPCPRRD) to guide operational delivery of the program. Member representing stakeholders within the Region remain an integral part of the program and will continue to monitor the landscape for new species, share knowledge and have input regarding the strategic plan, the broad group is the Peace River Regional District Strategic Plan and Profile of Invasive Plants Monitoring Committee (Monitoring Committee).
Municipalities are supported and encouraged to partner with the Regional District for assistance in identifying invasive plants, determining appropriate treatments and to employ regulatory powers to create invasive plant bylaw.

APPENDIX 5 BC Provincially Prohibited Weeds

The following invasive plant species are not present in BC or are present but extremely limited in extent, and pose a significant threat to BC's environment, economy and/or human health. These species have been identified as a result of an extensive review that considered their regulation and status in BC and bordering jurisdictions, presence elsewhere in similar environments to those that occur in BC, and listing under federal regulations. These invasive plant species are proposed BC Prohibited Weeds and candidates for the BC Early Detection Rapid Response Program.

Common Name	Scientific Name	Type
African-rue	<i>Peganum harmala</i> L.	Terrestrial
Black Henbane	<i>Hyoscyamus niger</i> L.	Terrestrial
Brazilian Elodea/ Waterweed	<i>Egeria densa</i> Planch.	Aquatic - submerged, rooted
Camel Thorn	<i>Alhagi maurorum</i> Medik.	Terrestrial
Common Crupina	<i>Crupina vulgaris</i> Cass.	Terrestrial
Common Reed, European	<i>Phragmites australis</i> (Cav.) Trin. ex Steud. <i>subsp. australis</i>	Semi aquatic - emergent
Cordgrass, Dense-flower	<i>Spartina densiflora</i> Brongn.	Semi-aquatic - tidal
Cordgrass, Salt Meadow	<i>Spartina patens</i> (Aiton) Muhl.	Semi-aquatic - tidal
Cordgrass, Smooth	<i>Spartina alterniflora</i> Loisel.	Semi-aquatic - tidal
Cordgrass, Common	<i>Spartina anglica</i> C.E. Hubbard	Semi-aquatic - tidal
Dyer's Woad	<i>Isatis tinctoria</i> L.	Terrestrial
Eggleaf Spurge	<i>Euphorbia oblongata</i> Griseb.	Terrestrial
False-brome, Slender	<i>Brachypodium sylvaticum</i> (Huds.) P. Beauv.	Terrestrial
Foxtail, Slender/Meadow	<i>Alopecurus myosuroides</i> Huds.	Terrestrial
Goatsrue	<i>Galega officinalis</i> L.	Terrestrial
Halogeton/Saltover	<i>Halogeton glomeratus</i> (M. Bieb.) C.A. Mey.	Terrestrial
Hawkweed, Mouse-ear	<i>Hieracium pilosella</i> L.	Terrestrial
Hyacinth, Water	<i>Eichhornia crassipes</i> (Mart.) Solms	Aquatic - semi- emergent
Hydrilla	<i>Hydrilla verticillata</i> (L. f.) Royle	Aquatic – submerged, rooted
Johnsongrass	<i>Sorghum halepense</i> L.	Terrestrial
Jointed Goatgrass	<i>Aegilops cylindrica</i> Host	Terrestrial
Knapweed, Squarrose	<i>Centaurea virgata</i> Lam. ssp. <i>squarrosa</i> (Boissier) Gugler	Terrestrial
Kudzu	<i>Pueraria montana</i> (Lour.) Merr. var. <i>lobata</i> (Willd.) Maesen & S. Almeida	Terrestrial
Meadow Clary	<i>Salvia pratensis</i> L.	Terrestrial



B.C. Proposed Prohibited Weeds

Common Name	Scientific Name	Type
Medusahead	<i>Taeniatherum caput-medusae</i> (L.) Nevski	Terrestrial
Nightshade, Silverleaf	<i>Solanum elaeagnifolium</i> Cav.	Terrestrial
North Africa Grass	<i>Ventenata dubia</i> (Leers) Coss.	Terrestrial
Nutsedge, Purple	<i>Cyperus rotundus</i> L.	Terrestrial
Nutsedge, Yellow	<i>Cyperus esculentus</i> L.	Terrestrial
Pepperweed, Perennial	<i>Lepidium latifolium</i> L.	Terrestrial
Red Bartsia	<i>Odontites serotina</i> Dum.	Terrestrial
Reed, Giant	<i>Arundo donax</i> L.	Terrestrial
Sage, Clary	<i>Salvia sclarea</i> L.	Terrestrial
Sage, Mediterranean	<i>Salvia aethiopsis</i> L.	Terrestrial
Spring Milletgrass	<i>Milium vernale</i> M. Bieb.	Terrestrial
Spurge Flax	<i>Thymelaea passerina</i> (L.) Coss. & Germ.	Terrestrial
Starthistle, Iberian	<i>Centaurea iberica</i> Trev. ex Sprengel	Terrestrial
Starthistle, Purple	<i>Centaurea calcitrapa</i> L.	Terrestrial
Starthistle, Yellow	<i>Centaurea solstitialis</i> L.	Terrestrial
Syrian Bean-Caper	<i>Zygophyllum fabago</i> L.	Terrestrial
Texas Blueweed	<i>Helianthus ciliaris</i> DC.	Terrestrial
Thistle, Italian	<i>Carduus pycnocephalus</i> L.	Terrestrial
Thistle, Slenderflower	<i>Carduus tenuiflorus</i> W. Curtis	Terrestrial
Velvetleaf	<i>Abutilon theophrasti</i> Medik.	Terrestrial
Water soldier	<i>Stratiotes aloides</i> L.	Aquatic – submerged/emergent, rooted