



IAP Reference Guide Part IV - Appendices



*Version 5.0
Spring 2006*

IAP Reference Guide - Part IV

Resources



In this part, you will find a section for each of the following:

- Inventory Resources
- Guideline Resources
- Mechanical Treatment Resources
- Chemical Treatment Resources
- Biological Treatment Resources
- Code Resources
- Contract Resources
- Additional Resources

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Inventory Resources



In this section, you will find:

- Inventory Record
- PhotoPlot Record Form



MoFR Site IAP Inventory Record

The **MoFR Site & Invasive Plant Inventory Record** can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm



PhotoPlot Record Form

The **PhotoPlot Record Form** can be printed from the following website:
http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm

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Guideline Resources



In this section, you will find:

- Provincial Invasive Plant Guidelines - Draft

BRITISH COLUMBIA MINISTRY OF FORESTS

**INVASIVE PLANTS PREVENTION GUIDELINES
FOR *FOREST AND RANGE PRACTICES ACT*
OPERATIONAL PLANS
DRAFT**

**BC MINISTRY OF FORESTS
INVASIVE PLANTS ADVISORY COMMITTEE
APRIL 2005**

INTRODUCTION

The purpose of this guideline is to provide background to ministry staff and statutory decision-makers when reviewing operational plan content required under section 47 of the *Forest and Range Practices Act*. This guideline outlines suggested preventive measures that could be used to fulfill plan content requirements to prevent the introduction and spread of invasive plants. It also outlines various measures that may be taken to control invasive alien plants if preventive measures fail.

Section 47 of the *Forest and Range Practices Act* states:

47. A person carrying out a forest practice or a range practice must carry out measures that are
- (a) specified in the applicable operational plan, or
 - (b) authorized by the minister
- to prevent the introduction or spread of prescribed species of invasive plants.

2003-55-28, effective January 31, 2004 [B.C. Reg. 7/2004].

In support of this, section 15 of the *Range Planning and Practices Regulation* states:

15. For the purpose of section 47 [invasive plants] of the Act, a range agreement holder who is required to prepare a range use plan must specify measures in the plan to prevent the introduction or spread of species of plants prescribed in the *Invasive Plants Regulation*, if the introduction or spread is likely to be the result of the holder's range practices.

A nearly identical section exists in the *Forest Planning and Practices Regulation*:

17. For the purpose of section 47 [invasive plants] of the Act, a person who prepares a forest stewardship plan must specify measures in the plan to prevent the introduction or spread of species of plants prescribed in the *Invasive Plants Regulation*, if the introduction or spread is likely to be the result of the person's forest practices.

Activities that may cause the introduction or spread of invasive plants are:

For forestry:

- (a) road building and maintenance,
- (b) building landings and skid trails,
- (c) harvesting that exposes mineral soil,
- (d) post harvest site preparation,
- (e) movement of machinery related to the above activities, and
- (f) log hauling (seed dispersal).

For range:

- (a) grazing that creates early or mid seral plant communities,
- (b) trampling around salting sites and other congregation areas,
- (c) building of stock trails, water developments and corrals, and
- (d) herding livestock (trampling that creates exposed mineral soil and seed dispersal).

DEFINITIONS

- **Invasive plants**

The Invasive Plant Council of British Columbia defines invasive plants as:

“Any invasive alien plant species that has the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems.”

The *Invasive Plants Regulation* lists the plant species targeted for the purposes of Section 47 of the *Forest and Range Practices Act*.

- **Seed or plant propagule**
Any plant part that will grow into a plant.

INVASIVE PLANTS MANAGEMENT

The primary principle in managing invasive plants is that forest and range activities must be carried out in a manner that prevents the introduction or spread of invasive plants. Agreement holders required to submit range use plans, range stewardship plans, or forest stewardship plans must specify measures to address the invasive plants found in their plan areas. In some areas of the province, management of invasive plants may be strategically planned and co-ordinated by a regional invasive plants committee. Prior to developing plans, agreement holders may benefit from contacting the regional invasive plant committee in their area.

The following three sections outline general preventive actions that should be used as a *minimum* set of measures where operations on crown land may result in the establishment or spread of invasive plants.

INVENTORY

In addition to the resources provided by regional invasive plant committees, the Ministry of Forests maintains a searchable database that records the occurrence and distribution of invasive plants across the province (<http://www.for.gov.bc.ca/hfp/invasive/intro.htm>). This database should be consulted to identify the variety and distribution of invasive plants occurring in the area under a submitted plan. The database is constantly updated as new inventory information is entered.

Agreement holders should identify and map invasive plant infestations and keep records to track occurrence over the years. Reporting new invasive plant infestations annually to the Ministry of Forests will help keep the provincial database current.

PREVENTION

1. Minimize soil disturbance.
 - Through appropriate forest and range management maintain an invasive plant resistant plant community. Managing for a late seral plant community should be sufficient. Earlier seral stages are susceptible to colonization by alien invasive plants. Even so, some invasive plants will be able to establish in late seral or potential natural plant communities.
 - Manage grazing to prevent excessive soil disturbance at salting areas, watering sites, stock trails and corrals. Some disturbance is inevitable at these sites and they need to be checked often for invasive plant establishment.
 - Minimize areas of soil disturbance during construction and maintenance of roads, landings, skid trails, and site preparation for planting.
2. Re-establish vegetation on disturbed areas as soon as possible. Disturbed sites should be seeded within 2 weeks of disturbance if at all possible and checked the year following disturbance to ensure colonization with desirable species has occurred.
 - The seed mix should include fast, early growing species of grasses and legumes that consider local site characteristics and objectives for the area. Consult the *Soil Rehabilitation Guidebook* and regional guides for area-specific recommendations, where available.

All seed sold in Canada is subject to the federal *Seeds Act* and thus subject to tolerances for prohibited and primary noxious invasive plant seed. Section 3(1) of the *Seeds Act* states:

3. (1) Except as provided by the regulations, no person shall

- (a) sell, import into Canada or export from Canada any seed unless the seed conforms to the prescribed standard and is marked and packed and the package labelled as prescribed, or
 - (b) sell or advertise for sale in Canada or import into Canada seed of a variety that is not registered in the prescribed manner.
- As a minimum, ensure the seed used for revegetation is of the grade Canada Common #1 Forage Mixture (or better) or Canada No. 1 Ground Cover Mixture. If seed with another grading is used, it must be invasive plant free.
 - Consider appropriate seeding rates and the use of fertilizer to ensure successful revegetation is achieved. Monitor seeded sites and where the seeding has not established properly re-seed. This may require disturbance, fertilization, mulching or other techniques for a successful re-seeding.
3. Minimize invasive plant seed delivery to work sites and grazed areas.
- Ensure tree planters and other forest or range workers do not spread invasive plant seeds by checking and removing seeds from their clothing and equipment.
 - Refrain from driving through areas infested with invasive plants. Before moving equipment from an area infested with invasive plants to a non-infested area, wash the undercarriage of the equipment to dislodge any mud, dirt or plant parts..
 - Inspect the undercarriage of logging trucks and other vehicles and remove attached alien invasive plants prior to leaving an invasive plant-infested area.
 - Before machinery moves into an invasive plant-free area, or livestock are trailed to an invasive plant free area consider spraying, mowing or hand pulling, along the route to be travelled into the invasive plant-free area.
 - Ensure livestock is invasive plant-free when moving into a non-infested area. All seeds attached to the coat should be removed and seeds in the gut should be allowed to pass through the animal before moving to a non-infested area. This can usually be accomplished by holding the livestock for 3 days in an invasive plant free area. This area should be treated annually to prevent further spread of invasive plants.
 - Where possible, limit road maintenance to the road surface to retain the vegetated areas along roads.
 - Ensure the gravel used for a road construction contains no invasive plant seed or rhizomatous plant parts.
 - Ensure equipment yards and vehicle storage facilities are free of invasive plants.

EXTIRPATION

If the above prevention measures fail and alien invasive plants establish on new sites the alien invasive plants must be destroyed prior to them setting seed. If herbicides are used, their application must be in compliance with the *Integrated Pest Management Act*. If plants are hand-pulled, all propagules must be removed from the site and they must be disposed of in a way that does not allow the spread of seeds (i.e., burned not composted). The site must be visited the following year to ensure that the treatment measures were successful.

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Mechanical Treatment Resources



In this section, you will find:

- Treatment Record
- Monitoring Record



MoFR Invasive Plant Mechanical & Chemical Treatment Record

The MoFR Invasive Plant Mechanical & Chemical Treatment Record can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm



MoFR Invasive Plant Mechanical or Chemical Monitoring Record

The **MoFR Invasive Plant Mechanical or Chemical Monitoring Record** can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm

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Chemical Treatment Resources



In this section, you will find:

- Treatment Record
- Monitoring Record
- Calibration Record
- Control Measure Standards
- Vector Matrix Table



MoFR Invasive Plant Mechanical & Chemical Treatment Record

The MoFR Invasive Plant Mechanical & Chemical Treatment Record can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm



MoFR Invasive Plant Mechanical or Chemical Monitoring Record

The MoFR Invasive Plant Mechanical or Chemical Monitoring Record can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm

INVASIVE PLANT TREATMENT CALIBRATION RECORD

Ministry of
Forests



Date _____	Calibration # _____
Project _____	Company/Agency _____
Calibration Location _____	Supervisor _____

Instructions

(for 400L carrier / ha delivery rate)

Measure a 5m by 5m square on a representative piece of land at least 20 m away from any riparian area or watercourse. Using only water in equipment, measure the time taken with each piece of equipment to fill a measuring cup to 1.0 L under regular pump pressure. This time indicates the amount of time required for a piece of equipment to release 400 L of carrier to 1 hectare of area. Have every applicator evenly cover the 25m test square in the time allotted for each piece of spray equipment. Record equipment and applicator times below with each applicator understanding the swath speed for correct coverage with each piece of equipment. If the time taken to spray 25 m² is not equal to the time required to fill 1.0 L, then change the speed or dilution rate to get the 400L carrier/ha delivery rate. Each applicator will undergo three calibrations with each piece of equipment to ensure proper swath speed. Applicators will remember to apply calibrated swath speed at all times during field applications.

Equipment and Applicator Summary

Applicator	Spray equipment	Correct Time (sec)	Calibration attempts (sec)
			1
			2
			3
			1
			2
			3
			1
			2
			3
			1
			2
			3
			1
			2
			3

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British Columbia Ministry of Forests: Invasive Alien Plants Program

Control Measures Standards – Interim for 2005

1 Planning Phase:

- 1.1.1 An inventory, consistent with the Ministry of Forests (MoF) Invasive Alien Plants Program Inventory Standards - Interim for 2005, will have been conducted prior to developing a control plan.
- 1.1.2 Invasive plants control plans must be developed in consideration of current strategic plans such as those held by provincial and regional government agencies (e.g., MoF).
- 1.1.3 Invasive plants control plans must clearly state goals and objectives.
- 1.1.4 An invasive plants control plan will contain a rationale for determining target species consistent with those listed in the *Invasive Plants Regulation* and the *Weed Control Regulation*.
- 1.1.5 All planned herbicide applications must be consistent with all relevant acts, regulations and associated permits and plans.
- 1.1.6 Control plans using a containment strategy will design containment fronts consistent with the “Potential spread distance per year” indicated under column F in the *Vector Matrix Table* (Appendix #1).
- 1.1.7 Control plans will be co-ordinated with the activities of other agencies. Consultation will take place with adjoining planning groups to ensure compatibility of objectives.
- 1.1.8 The MoF’s Regional Invasive Plants staff will be consulted during the planning phase to ensure that plan objectives are consistent with biological control agent development or research activities.

2 Implementation Phase

2.1 Objective: – Extirpation / Initial Attack

- 2.1.1 One hundred percent (100%) of all known target invasive plant sites within the plan area will be treated prior to seed set, if seed drop is the main spread vector as indicated under column B of the *Vector Matrix Table* (Appendix #1), or the plants will be prevented from developing seed. All treatment information will be entered onto a *Chemical and Mechanical Treatment Record* (Appendix #3).
- 2.1.2 All treated sites will be checked in a two-pass system allowing a minimum of two weeks between passes. Additional treatment information will be entered onto a *Chemical and Mechanical Treatment Record* (Appendix #3).
- 2.1.3 Invasive plant site treatments will include checking the area beyond the last treated plant for immature plants according to the “Weed treatment search radius beyond last plant” distance prescribed under column G of the *Vector Matrix Table* (Appendix #1).
- 2.1.4 The acceptable level of missed plants within the treatment area is zero percent (0%).
- 2.1.5 Acceptable level of treated plants surviving at the end of the growing season is zero percent (0%).
- 2.1.6 Annual monitoring completed as per the “Inventory search distance around known sites” as prescribed under column E of the *Vector Matrix Table* (Appendix #1).
- 2.1.7 Treatment monitoring will consist of inspecting all target invasive plant species within the site to determine mortality.
- 2.1.8 One hundred percent (100 %) of plants not killed in the year of treatment will be prevented from setting seed.
- 2.1.9 The percentage of sites that will be monitored for efficacy of treatment is set according to the requirements of the relevant Pesticide Use Permit or Pest Management Plan. If not specified, at

least 20% of the treated sites will be monitored for that treatment year. All monitoring information will be entered onto a *Chemical and Mechanical Monitoring Record* (Appendix #4).

- 2.1.10 If during monitoring, treated or missed plant survival is found to be in excess of one percent (1%), all treated sites under that contract will be monitored.
- 2.1.11 Monitoring records will be kept on file for future evaluation.
- 2.1.12 At the end of the field season a program effectiveness evaluation will take place to determine if plan objectives were achieved. Extirpation is often a multiyear objective for a specific invasive plant site requiring annual application of control standards 2.1.1 to 2.1.12 until the invasive plant seed bank resources have been exhausted and extirpation has been demonstrated for several years.

2.2 Objective: Containment

- 2.2.1 One hundred percent (100 %) of the known target invasive plant sites beyond the containment boundary will be treated. All treatment information will be entered onto a *Chemical and Mechanical Treatment Record* (Appendix #3).
- 2.2.2 All treated sites will be checked in a two-pass system allowing a minimum of two weeks between passes. Additional treatment information will be entered onto a *Chemical and Mechanical Treatment Record* (Appendix #3).
- 2.2.3 Invasive plant site treatments will include checking the “Weed treatment search radius beyond last plant” for the distance prescribed under column G in the *Vector Matrix Table* (Appendix #1).
- 2.2.4 The acceptable level of missed plants within the treatment area is zero percent (0%) for the treatment year.
- 2.2.5 The acceptable percentage level of plants surviving on a site at the end of the growing season is zero percent (0%), unless otherwise specified in the control plan.
- 2.2.6 The percentage of sites that will be monitored for efficacy of treatment is set according to the requirements of the relevant Pesticide Use Permit or Pest Management Plan. If not specified, at least 20% of the treated sites will be monitored for that treatment year. All monitoring information will be entered onto a *Chemical and Mechanical Monitoring Record* (Appendix #4).
- 2.2.7 Annual monitoring completed as per the “Inventory search distance around known sites” as prescribed under column E in the *Vector Matrix Table* (Appendix #1).
- 2.2.8 Monitoring will include of inspecting all target plants within the site to determine mortality.
- 2.2.9 Monitoring records will be kept on file for future evaluation.
- 2.2.10 At the end of the field season a program effectiveness evaluation will take place to determine if the containment objective was achieved.
- 2.2.11 Biocontrol agents will be used in a containment program when available, to reduce the seed bank in areas that cannot be effectively treated by other means.

2.3 Objective: Rehabilitation

- 2.3.1 The standard for rehabilitation of infested sites will be the use of good resource management practices and the encouragement of healthy biological control agent populations, where available, unless the use of other treatment techniques can be justified with a long-term cost/benefit analysis. Biological release treatment information must be recorded on a *Biological Control Release Record* (Appendix #5).
- 2.3.2 Disturbed soils will be re-vegetated with ecologically suitable species as soon as possible, but no later than 2 years, after a soil disturbance (*Forest Planning and Practices Regulation*, sec 40).

**British Columbia Ministry of Forests
Invasive Alien Plants Program**

**Appendix #1
Vector Matrix Table**

	A	B	C	D	E	F	G	H	I
1	Common Name	Main Vectors of Spread	Dominant reproductive mechanism	Annual (A), Biennial (B), Perennial (P)	Inventory search distance around known sites	Potential spread distance per year	Treatment search radius beyond last plant	General Comments	Comments on Survival %
2	Anchusa	Seed drop	Heavy seed	B or P	50 m.	3 m.	25 m.	Often suspected of deliberate human movement	
3	Baby's breath	Seed drop	Heavy seed	P	50 m.	> 100 m.	50 m.	Seeds require little or no dormancy to germinate.	
4	Black knapweed	Seed drop	Heavy seed	P	100 m.	3 m.	50 m.		
5	Blueweed	Seed drop	Heavy seed	A,B, or P	50 m.	3 m.	25 m.	Predominantly moved by vehicles.	
6	Brown knapweed	Seed drop	Heavy seed	P	100 m.	3 m.	50 m.		
7	Bull Thistle	Wind	Pappussed seed	B	2 km.	> 2 km.	100 m.	Generally only treated with biocontrol agents and preventative measures. Rarely will containment be effective given it's wide spread.	
8	Canada Thistle	Wind	Pappussed seed	P	1 km.	> 2 km.	100 m.	Also moved by root fragments.	
9	Common Burdock	On animals	Burred seed	B	50 m.	> 10 km.	50 m.	Burs can stay on animals several weeks.	
10	Common Tansy	Wind	Tufted seed	P	100 m.	> 0.5 km	50 m.	Also moved by root fragments.	
11	Dalmatian Toadflax	Seed drop	Small seed	P	50 m.	5 m.	50 m.	Often moved in soil on machinery.	
12	Diffuse Knapweed	Seed drop and wind	Heavy seed	B or P	50 m.	> 100 m.	50 m.	Plants can break off and tumble, spreading seeds. Also moved by vehicles.	
13	Field Scabious	Seed drop	Heavy seed	P	250 m.	10 m.	100 m.	Likely moving longer distances by machinery.	Very difficult to control in one year.
14	Giant Knotweed	Water and soil movement	Rhizome	P	25 m.	2 m.	10 m.	If site occurs along an erodible channel dispersal distance > 1 km.	Normally requires several years of treatment.
15	Gorse	Shoots seeds	Heavy seed	P	25 m.	5 m.	10 m.	Secondary vector, soil movement	Normally requires several years of treatment.
16	Hoary Alyssum	Seed drop	Small seed	P	25 m.	5 m.	10 m.		
17	Hoary Cress	Seed drop	Small seed	P	25 m.	5 m.	10 m.	Secondary vector: Root fragments in soil	Difficult to control on one year.
18	Hound's-tongue	On animals	Burred seed	B	100 m.	> 10 km.	50 m.	Most burs fall off within 4 days.	
19	Japanese Knotweed	Water and soil movement	Rhizome	P	25 m.	2 m.	10 m.	If site occurs along an erodible channel dispersal distance > 1 km.	Normally requires several years of treatment.
20	Leafy Spurge	Shoots seeds	Heavy seed	P	50 m.	5 m.	25 m.	Seeds also float to disperse along waterways.	Difficult to control on one year.

British Columbia Ministry of Forests
Invasive Alien Plants Program

Appendix #1
Vector Matrix Table

	A	B	C	D	E	F	G	H	I
21	Marsh Thistle	Wind	Pappussed seed	B	15 km.	15 km.	100 m.		Critical to ensure no seed set but impossible to find all rosettes.
22	Meadow Hawkweed	Wind	Pappussed seed	P	2 km.	> 2 km.	100 m.		Very difficult to control in one year.
23	Meadow Knapweed	Seed drop	Heavy seed	P	50 m.	> 100 m.	50 m.		
24	Nodding Thistle	Wind	Pappussed seed	B	1 km.	> 5 km.	100 m.		
25	Orange Hawkweed	Wind	Pappussed seed	P	2 km.	> 2 km.	100 m.	Narrow window of visibility during flowering	Very difficult to control in one year.
26	Oxeye Daisy	Seed drop	Heavy seed	P	25 m.	2 m.	10 m.		
27	Perennial Pepperweed	Seed drop	Small seed	P	100 m.	5 m.	50 m.		Very difficult to control in one year.
28	Plumeless Thistle	Wind	Pappussed seed	B	1 km.	> 5 km.	100 m.		
29	Puncuture vine	Seed drop	Heavy seed	A	50 m.	1 m.	50 m.		
30	Purple Loosestrife	Water	Small seed	P	200 m.	5 m.	100 m.	Birds and mammals also move the seeds	Very difficult to control in one year.
31	Rush Skeletonweed	Wind	Pappussed seed	P	2 km.	> 1 km.	100 m.		Very difficult to control in one year.
32	Russian Knapweed	Seed drop	Heavy seed	P	100 m.	5 m.	25 m.	Root fragments also a vector	
33	Scentless Chamomile	Seed drop	Small seed	A,B, or P	100 m.	5 m.	25 m.	Also moved in soil or seed mixes.	
34	Scotch Broom	Shoots seeds	Heavy seed	P	100 m.	5 m.	25 m.		
35	Scotch Thistle	Wind	Pappussed seed	P	1 km.	> 1 km.	100 m.		
36	Spotted Knapweed	Seed drop	Heavy seed	P	100 m.	3 m.	50 m.		
37	St. John's-wort	Seed drop	Heavy seed	P	100 m.	3 m.	25 m.	Birds also move the seeds	
38	Sulphur Cinquefoil	In animals and seed drop	Small seed	P	100 m.	5 m.	25 m.	Extremely hard to inventory except during flowering. Seed readily moves in animal gut. Narrow window of visibility during flowering.	Very difficult to control in one year.
39	Tansy Ragwort	Wind	Pappussed seed	P	1 km.	> 1 km.	100 m.	Can also disperse on animals.	
40	Teasel	Seed drop	Heavy seed	B	100 m.	5 m.	25 m.		
41	Yellow Iris	Water	Rhizome	P	100 m.	> 25 m.	25 m.	Root fragments float. Moved by people.	
42	Yellow Starthistle	Seed drop, animals and vehicles	Heavy seed with fine barbs	A	1 km.	3 m.	50 m.		At the present time containment should not be an option.
43	Yellow Toadflax	Soil movement	Rhizome	P	100 m.	1 m.	25 m.		

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Biological Treatment Resources



In this section, you will find:

- Biological Control Agent Release & Monitoring Record
- Biological Control Agent Intensive Monitoring Record
- Biological Control Agent Dispersal Record



MoFR Biological Control Agent Release & Monitoring Record

The MoFR Biological Control Agent Release & Monitoring Record can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm



MoFR Biological Control Agent Intensive Monitoring Record

The MoFR Biological Control Agent Intensive Monitoring Record can be printed from the following website:

http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm



MoFR Biological Control Agent Dispersal Record

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Code Resources



In this section, you will find:










- Code Index

Code Index

Agency
The following agency code list is current to April 2005.
Description
Agriculture and Agri-Food Canada
Alberni-Clayoquot Regional District
Apollo Forest Products Ltd.
BC Hydro
BC Rail
Boundary Weed Management Committee
Bulkley-Nechako Regional District
Burlington Northern Santa Fe
Canadian Forest Service
Capital Regional District
Cariboo Regional District
Cariboo Weed Committee
Cascadia Forest Products
Central Coast Regional District
Central Fraser Valley Regional District
Central Kootenay Invasive Plant Committee
Central Kootenay Regional District
Central Okanagan Regional District
CN Rail
Columbia-Shuswap Regional District
Comox-Strathcona Regional District
Cowichan Valley Regional District
CP Rail
Department of National Defense
Dewdney-Alouette Regional District
Duke Energy Gas Transmissions
East Kootenay Invasive Plant Pilot Project
East Kootenay Regional District
East Kootenays Weed Committee
Fort Nelson-Liard Regional District
Fraser-Chean Regional District
Fraser-Fort George Regional District
Greater Vancouver Regional District
Kitimat-Stikine Regional District
Kootenay-Boundary Regional District
Ministry of Agriculture, Food and Fisheries
Ministry of Energy and Mines
Ministry of Forests

Agency
Ministry of Transportation
Ministry of Water, Land and Air Protection
Mount Waddington Regional District
Nanaimo Regional District
North Okanagan Regional District
Northeast Invasive Plant Committee
Northwest Invasive Plant Council
Okanagan-Similkameen Regional District
Osoyoos Indian Band
Pacific Northern Gas
Parks Canada
Peace River-Liard Regional District
Powell River Regional District
Private Land
Range Tenures
Rush Skeletonweed Working Group
Skeena-Queen Charlotte Regional District
Southern Interior Weed Management Committee
South Okanagan – Similkameen Invasive Plant Society
Squamish-Lillooet Regional District
Sunshine Coast Regional District
Telus
Terasen
Thompson-Nicola Regional District
TransCanada Pipelines
University of British Columbia
Western Forest Products Inc.
Woodlots

Site Priority Codes	
Code	Description
1	Extremely High Risk
2	High Risk
3	Moderate Risk
4	Low Risk

Distribution Codes		
Code	Image	Description
1		Rare individual, a single occurrence
2		Few sporadically occurring individuals
3		Single patch or clump of a species
4		Several sporadically occurring individuals
5		A few patches or clumps of a species
6		Several well-spaced patches or clumps
7		Continuous uniform occurrence of well-spaced individuals
8		Continuous occurrence of a species with a few gaps in the distribution
9		Continuous dense occurrence of a species

Density Codes	
Code	Description
1	<= 1 plant/m ² (Low)
2	2-5 plants/m ² (Med)
3	6-10 plants/m ² (High)
4	>10 plants/m ² (Dense)

Weed Site Priority - Definition
“Priority of site based on size of site, susceptability, of adjacent sites, and expectation of control.”

Mechanical Treatment Methods
Description
Burning
Cultivation or till
Digging
Hand pulling
Mowing
Mulching

Chemical Treatment Method
Description
ATV
Back Pack
Boomless Nozzle
Fixed Boom
Hand Gun
Wich

Herbicides
Description
2,4-D
DyVel
DyVel DS
Escort
Grazon
Lontrel
Round-up
Tordon 22K
Tordon 101
Transline
Vanquish

Efficacy Rating Codes	
Code	Description
1	0% to 19% efficacy
2	20% to 29% efficacy
3	30% to 39% efficacy
4	40% to 49% efficacy
5	50% to 59% efficacy
6	60% to 69% efficacy
7	70% to 79% efficacy
8	80% to 89% efficacy
9	90% to 99% efficacy
10	100% efficacy

Biological Agent	
Description	Code
Aceria chondrillae	ACER CHO
Aceria malherbae (Nuzzaci)	ACER MAL
Agapeta zoegana (L.)	AGAP ZOE
Agrilus hyperici (Creutzer)	AGRI HYP
Altica carduorum	ALTI CAR
Aphis chloris (Koch)	APHI CHL
Aphthona cyparissiae (Koch)	APHT CYP
Aphthona czwalinae (Weise)	APHT CZW
Aphthona flava (Guill.)	APHT FLA
Aphthona lacertosa (Rosh.)	APHT LAC
Aphthona nigricutis (Foudras)	APHT NIG
Aphthona species	APHT SPP
Apion fuscirostre	APIO FUS
Aplocera plagiata (L.)	APLO PLA
Brachyterolus pulicarius (L.)	BRAC PUL
Bruchidius villosus	BRUC VIL
Calophasia lunula (Hufn.)	CALO LUN
Ceutorhynchus litura	CEUT LIT
Chaetorellia acrolophi White & Marq.	CHAE ACR
Chirida guttata (Oliver)	CHIR GUT
Chrysolina hyperici (Forster)	CHRY HYP
Chrysolina quadrigemina (Suffrain)	CHRY QUA
Chrysolina species	CHRY SPP
Chrysolina varians	CHRY VAR
Cochylis atricapitana (Stephens)	COCH ATR
Cyphocleonus achates (Fahr)	CYPH ACH
Cystiphora schmidti	CYST SCH
Cystophora sonchi	CYST SON
Eteobalea intermediella (Riedl)	ETEO INT
Eteobalea serratella (Treit.)	ETEO SER
Galerucella calmariensis (Linne)	GALE CAL

Biological Agent	
Description	Code
Galerucella pusilla	GALE PUS
Gymnetron antirrhini (Paykull)	GYMN ANT
Gymnetron linariae	GYMN LIN
Gymnetron netum	GYMN NET
Hyles euphorbiae (L.)	HYLE EUP
Hylemya seneciella (Meade)	HYLE SEN
Hylobius transversovittatus	HYLO TRA
Larinus minutus Gyll.	LARI MIN
Larinus obtusus Gyll.	LARI OBT
Larinus planus (F.)	LARI PLA
Larinus species	LARI SPP
Lobesia euphorbiana (Freyer)	LOBE EUP
Longitarsus flavicornis (Steph.)	LONG FLA
Longitarsus jacobaeae (Waterhouse)	LONG JAC
Longitarsus quadriguttatus (Pont.)	LONG QUA
Mecinus janthinus (Germar)	MECI JAN
Metriona bicolor (Fabricius)	METR BIC
Metzneria paucipunctella (Zellar)	METZ PAU
Microplontus edentulus	MICR EDE
Microlarinus laeynii	MICR LAR
Minoa murinata (Scop.)	MINO MUR
Mogulones cruciger (Hbst.)	MOGU CRU
Omphalapion hookeri	OMPH HOO
Pelochrista medullana (Strig.)	PELO MED
Pterolonche inspersa (Strig.)	PTER INS
Puccinia acroptili (P. & H. Syd)	PUCC ACR
Puccinia chondrillina	PUCC CHO
Puccinia jaceae (Oth.)	PUCC JAC
Rhinocyllus conicus (Froelich)	RHIN CON
Rhopalomyia tripleurospermi	RHOP TRI
Sclerotinia sclerotium	SCLE SCL
Sphenoptera jugoslavica (Obend.)	SPHE JUG
Spurgia esula (Gagne)	SPUR ESU
Subanguina picridis	SUBA PIC
Terellia ruficauda	TERE RUF
Terellia virens (Loew.)	TERE VIR
Trichosirocalus horridus (Panzer)	TRIC HOR
Tyria jacobaeae (L.)	TYRI JAC
Urophora affinis (Frauenfeld)	UROP AFF
Urophora cardui (F.)	UROP CAR
Urophora jaceana	UROP JAC
Urophora quadrifasciata (Meigan)	UROP QUA
Urophora solstitialis (L.)	UROP SOL
Urophora species	UROP SPP
Urophora stylata (L.)	UROP STY
Zeuxidiplosis giardi	ZEUX GIA

Species			
Common Name	Latin Name	Map Symbol	Genus/Species Code
Annual sow thistle	<i>Sonchus oleraceus</i>	AS	SONC/OLE
Barnyard grass	<i>Echinochloa crusgalli</i>	BA	ECHI/CRU
Batchelor buttons	<i>Centaurea cyanus</i>	BB	CENT/CYA
Black Knapweed	<i>Centaurea nigra</i>	BL	CENT/NIG
Bladder campion	<i>Silene cucubalus</i>	BC	SILE/CUC
Blueweed	<i>Echium vulgare</i>	BW	ECHI/VUL
Bog rush	<i>Juncus effusus</i>	BR	JUNC/EFF
Broad-leaved plantain	<i>Plantago major</i>	BP	PLAN/MAJ
Brown Knapweed	<i>Centuarea jacea</i>	BK	CENT/JAC
Bull thistle	<i>Cirsium vulgare</i>	BT	CIRS/VUL
Burdock species	<i>Arctium spp</i>	BU	ARCT/SPP
Canada thistle	<i>Cirsium arvense</i>	CT	CIRS/ARV
Caraway	<i>Carum carvi</i>	CA	CARU/CAR
Chicory	<i>Cichorium intybus</i>	CY	CICH/INT
Chilean tarweed	<i>Madia sativa</i>	CH	MADI/SAT
Cleavers	<i>Galium aparine</i>	CV	GALI/APA
Cluster tarweed	<i>Amsinckia intermedia</i>	CE	AMSI/INT
Cluster tarweed	<i>Madia glomerata</i>	CW	MADI/GLO
Common bugloss	<i>Anchusa officinale</i>	AO	ANCH/OFF
Common burdock	<i>Arctium minus</i>	CB	ARCT/MIN
Common chickweed	<i>Stellaria media</i>	CK	STEL/MED
Common crupina	<i>Crupina vulgaris</i>	CC	CRUP/VUL
Common hawkweed	<i>Hieracium vulgatum</i>	CX	HEIR/VUL
Common mallow	<i>Malva neglecta</i>	CM	MALV/NEG
Common tansy	<i>Tanacetum vulgare</i>	TC	TANA/VUL
Corn spurry	<i>Spergula arvensis</i>	CO	SPER/ARV
Cow parsnip	<i>Heracleum lanatum</i>	CP	HERA/LAN
Creeping buttercup	<i>Ranunculus repens</i>	CR	RANU/REP
Cudweed	<i>Gnaphalium uliginosum</i>	CU	GNAP/ULI
Curled dock	<i>Rumex crispus</i>	CD	RUME/CRI
Cypress spurge	<i>Euphorbia cyprissiae</i>	CS	EUPH/CYP

Species			
Common Name	Latin Name	Map Symbol	Genus/Species Code
Dalmatian toadflax	<i>Linaria dalmatica</i>	DT	LINA/DAL
Dame's rocket	<i>Hesperis matronalis</i>	DR	HESP/MAT
Diffuse knapweed	<i>Centaurea diffusa</i>	DK	CENT/DIF
Dodder	<i>Cuscuta</i> spp.	DO	CUSC/SPP
English ivy	<i>Hedera helix</i>	EI	HEDE/HEL
European hawkweed	<i>Hieracium sabaudum</i>	EH	HIER/SAB
Eyebright	<i>Euphrasia nemorosa</i>	EY	EUPH/NEM
Field bindweed	<i>Convolvulus arvensis</i>	FB	CONV/ARV
Field horsetail	<i>Equisetum arvense</i>	FH	EQUI/ARV
Field scabious	<i>Knautia arvensis</i>	FS	KNAU/ARV
Foxtail barley	<i>Hordeum jubatum</i>	FT	HORD/JUB
Giant burdock	<i>Arctium lappa</i>	GB	ARCT/LAP
Giant hogweed	<i>Heracleum mantegazzianum</i>	GH	HERA/MAN
Giant knotweed	<i>Polygonum sachalinense</i>	GK	POLY/SAC
Gorse	<i>Ulex europaeus</i>	GO	ULEX/EUR
Greater knapweed	<i>Centaurea scabiosa</i>	GN	CENT/SCA
Green foxtail	<i>Setaria viridis</i>	GF	SETA/VIR
Gronovius hawkweed	<i>Hieracium gronovii</i>	GW	HIER/GRO
Groundsel	<i>Senecio vulgaris</i>	GS	SENE/VUL
Hawksbeard	<i>Crepis tectorum</i>	HB	CREP/TEC
Hawkweed species	<i>Hieracium</i> spp	HS	HIER/SPP
Hemp-nettle	<i>Galeopsis tetrahit</i>	HN	GALE/TET
Henbit	<i>Lamium amplexicaule</i>	HE	LAMI/AMP
Himalayan blackberry	<i>Rubus discolor</i>	HI	RUBI/DIS
Himalayan knotweed	<i>Polygonum polystachyum</i>	PO	POLY/POL
Hoary alyssum	<i>Berteroa incana</i>	HA	BERT/INC
Hoary cress	<i>Cardaria draba</i>	HC	CARD/DRA
Hound's-tongue	<i>Cynoglossum officinale</i>	HT	CYNO/OFF

Species			
Common Name	Latin Name	Map Symbol	Genus/Species Code
Japanese and giant knotweed hybrid	Polygonum X Bohemicum	PB	POLY/BOH
Japanese knotweed	Polygonum cuspidatum	JK	POLY/CUS
Jointed goatgrass	Aegilops cylindrica	JG	AEGI/CYL
King devil hawkweed	Hieracium floribundum	KH	HIER/FLO
Knapweed species	Centaurea spp.	KS	CENT/SPP
Kochia	Kochia scoparia	KO	KOCH/SCO
Lady's-thumb	Polygonum persicaria	LT	POLY/PER
Lamb's quarters	Chenopodium album	LQ	CHEN/ALB
Leafy spurge	Euphorbia esula	LS	EUPH/ESU
Leafy thistle	Cirsium foliosum	CF	CIRS/FOL
Marsh plume thistle/Marsh thistle	Cirsium palustre	MT	CIRS/PAL
Meadow buttercup	Ranunculus acris	MB	RANU/ACR
Meadow goats-beard	Tragopogon pratensis	MG	TRAG/PRA
Meadow hawkweed	Hieracium caespitosum	MH	HIER/CAE
Meadow knapweed	Centaurea debeuxii	MK	CENT/DEB
Mountain bluet	Centaurea montana	MO	CENT/MON
Mouse ear hawkweed	Hieracium pilosella	ME	HIER/PIL
Mullein	Verbascum thapsis	MU	VERB/THA
Narrowleaf hawkweed	Hieracium umbellatum	NH	HIER/UMB
Night-flowering catchfly	Silene noctiflora	NC	SILE/NOC
Nightshade	Solanum spp	NI	SOLA/SPP
Nodding beggar-ticks	Bidens cernua	NB	BIDE/CER
Nodding thistle	Carduus nutans	NT	CARD/NUT
Orange hawkweed	Hieracium aurantiacum	OH	HIER/AUR
Oxeye daisy	Leucanthemum vulgare	OD	LEUC/VUL
Perennial pepperweed	Lepidium latifolium	PP	LEPI/LAT
Perennial sow thistle	Sonchus arvensis	PS	SONC/ARV

Species			
Common Name	Latin Name	Map Symbol	Genus/Species Code
Pineappleweed	Matricaria matricariodes	PI	MATR/MAT
Plumeless thistle	Carduus acanthoides	PT	CARD/ACA
Poison hemlock	Conium maculatum	PH	CONI/MAC
Polar hawkweed	Hieracium atratum	PA	HIER/ATR
Puncturevine	Tribulus terrestris	PV	TRIB/TER
Purple loosestrife	Lythrum salicaria	PL	LYTH/SAL
Purple nutsedge	Cyperus rotundus	PN	CYPE/ROT
Quackgrass	Agropyron repens	QG	AGRO/REP
Queen devil hawkweed	Hieracium praealtum	QH	HIER/PRE
Redroot pigweed	Amaranthus retroflexus	RP	AMAR/RET
Rush skeletonweed	Chondrilla juncea	RS	CHON/JUN
Russian knapweed	Acroptilon repens	RK	ACRO/REP
Russian thistle	Salsola kali	RT	SALS/KAL
Scentless chamomile	Matricaria perforata	SH	MATR/PER
Scotch Broom	Cytisus scoparius	SB	CYTI/SCO
Scotch thistle	Onopordum acanthium	ST	ONOP/ACA
Sheep sorrel	Rumex acetosella	SS	RUME/ACE
Shepherd's-purse	Capsella bursa-pastoris	SP	CAPS/BUR
Showy milkweed	Asclepias speciosa	MW	ASCL/SPE
Smooth hawkweed	Hieracium laevigatum	SM	HIER/LAE
Sowthistle species	Sonchus species	SO	SONC/SPP
Spotted hawkweed	Hieracium maculatum	SX	HIER/MAC
Spotted knapweed	Centaurea biebersteinii	SK	CENT/BIE
St. John's wort/Saint John's wort/	Hypericum perforatum	SJ	HYPE/PER

Species			
Common Name	Latin Name	Map Symbol	Genus/Species Code
Goatweed			
Stinkweed	<i>Thlaspi arvense</i>	SW	THLA/ARV
Sulphur cinquefoil	<i>Potentilla recta</i>	SC	POTE/REC
Tall hawkweed	<i>Hieracium piloselloides</i>	TH	HIER/OID
Tansy ragwort	<i>Senecio jacobaea</i>	TR	SENE/JAC
Tartary buckwheat	<i>Fagopyrum tataricum</i>	TB	FAGO/TAT
Teasel	<i>Dipsacus fullonum</i>	TS	DIPS/FUL
Thistle species	<i>Cirsium species</i>	CI	CIRS/SPP
Toadflax species	<i>Linaria Species</i>	TP	LINA/SPP
Velvet leaf	<i>Abutilon theophrasti</i>	VL	ABUT/THE
Wall hawkweed	<i>Hieracium murorum</i>	WA	HIER/MUR
Water hemlock	<i>Cicuta douglasii</i>	WH	CICU/DOU
Western goat's-beard	<i>Tragopogon dubius</i>	WG	TRAG/DUB
Western stickseed	<i>Lappula occidentalis</i>	LO	LAPP/OCC
Whiplash hawkweed	<i>Hieracium flagellare</i>	WP	HIER/FLA
White cockle	<i>Lychnis alba</i>	WC	LYCH/ALB
Wild buckwheat	<i>Polygonum convolvulus</i>	WB	POLY/CON
Wild chervil	<i>Anthriscus sylvestris</i>	WI	ANTH/SYL
Wild mustard	<i>Sinapsis arvensis</i>	WM	SINA/ARV
Wild oats	<i>Avena fatua</i>	WO	AVEN/FAT
Witchgrass	<i>Panicum capillare</i>	WT	PANI/CAP
Wormwood	<i>Artemisia absinthium</i>	WW	ARTE/ABS
Yellow devil hawkweed	<i>Hieracium glomeratum</i>	YD	HIER/GLO
Yellow evening-primrose	<i>Oenothera villosa</i>	YP	OENO/VIL
Yellow hawkweed	<i>Hieracium pratense</i>	YH	HIER/PRA
Yellow iris	<i>Iris pseudochoris</i>	YI	IRIS/PSE

Species			
Common Name	Latin Name	Map Symbol	Genus/Species Code
Yellow nutsedge	Cyperus esculentus	YN	CYPE/ESC
Yellow starthistle	Centaurea solstitialis	YS	CENT/SOL
Yellow/common toadflax	Linaria vulgare	YT	LINA/VUL

Jurisdictions	
Description	Code
BC Hydro	HYDR
BC Rail	BCR
British Columbia Transmission Corporation	
Burlington Northern Santa Fe	BNSF
CN Rail	CNR
CP Rail	CPR
Department of National Defense	DND
Duke Energy Gas Transmissions	DUKE
Federal Parks	
Grazing Lease	GL
Independent First Nations Reserves	IR
Military Reserves	
Mining Companies	MN
Ministry of Forests	MOF
Ministry of Transportation	MOT
Municipality-Owned Private Land	MOP
Oil & Gas Commission	
Other in BC Ministry of Water, Land and Air Protection	
Pacific Northern Gas	PNG
Parks Canada	PCAN
Private Land	P
Provincial Parks	PP
Telus	TEL
Terasen	TER
TransCanada Pipelines	TRP

Districts	
Description	Code
100 Mile House Forest District	DMH
Arrow Boundary Forest District	DAB
Campbell River Forest District	DCR
Cascades Forest District	DCS
Central Cariboo Forest District	DCC
Chilcotin Forest District	DCH
Chilliwack Forest District	DCK
Columbia Forest District	DCO
Fort Nelson Forest District	DFN
Fort St. James Forest District	DJA
Headwaters Forest District	DHW
Kalum Forest District	DKM
Kamloops Forest District	DKA
Kootenay Lake Forest District	DKL
MacKenzie Forest District	DMK
Nadina Forest District	DND
North Coast Forest District	DNC
North Island - Central Coast Forest District	DIC
Okanagan Shuswap Forest District	DOS
Peace Forest District	DPC
Prince George Forest District	DPG
Queen Charlotte Islands Forest District	DQC
Quesnel Forest District	DQU
Rocky Mountain Forest District	DRM
Skeena Stikine Forest District	DSS
South Island Forest District	DSI
Squamish Forest District	DSQ
Sunshine Coast Forest District	DSC
Vanderhoof Forest District	DVA

Site Soil Categories - Definitions	
Term	Definition
Coarse grained soils	These contain particle sizes that are large enough to be visible to the naked eye. They include gravels and sands and are generally referred to as cohesionless or non-cohesive soils. Strictly defined, coarse grained soils have more than 50% of the dry weight larger than particle size 0.075mm.
Fine grained soils	These contain particle sizes that are not visible to the naked eye. They are identified primarily on the basis of their behavior in a number of simple indicator tests. They include silts and clays, the latter of which are generally referred to as cohesive soils. The term “cohesive” indicates stickiness in soils. Strictly defined, fine grained soils are soils having more than 50% of the dry weight smaller than particle size 0.075mm.
Organic soils	These soils have a high (80%) natural organic content.

IAP Reference Guide - Part IV

Contract Resources



In this section, you will find:

- Sample Schedule A – Inventories
- Sample Schedule A – Treatment
- Sample Attachment – Treatment Contract
- Sample Attachment – Herbicide Selection & Application Rates
- Sample Schedule A – Biological Monitoring

SCHEDULE A

SERVICES

Sample Schedule A - Inventories

+This SCHEDULE A – SERVICES is attached to and forms part of the SERVICE CONTRACT with _____ for the Headwaters Invasive Plant Inventories - 2004.

SERVICES

The Contractor shall:

- 1) Survey for and record infestation size and UTM coordinates for the following target species on the Invasive Plant Inventory Spreadsheet (Attachment A): (known or expected presence of species in Headwaters district indicated in bold)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Family</u>	<u>Plant Code</u>
Field scabious	<i>Knautia arvensis</i>	Teasel	FS
Leafy Spurge	<i>Euphorbia esula</i>	Spurge	LS
Orange Hawkweed	<i>Hieracium auranticum</i>	Compositae	OH
Spotted knapweed	<i>Centaurea maculosa</i>	Compositae	SK
Sulphur cinquefoil	<i>Potentilla recta</i>	Rose	SC
Blueweed	<i>Echium vulgare</i>	Borage	BW
Common Tansy	<i>Tanacetum vulgare</i>	Compositae	CT
Hoary Alyssum	<i>Berteroa incana</i>	Mustard	HA
Hound's-tongue	<i>Cynoglossum officinale</i>	Borage	HT
Dalmatian Toadflax	<i>Linaria dalmatica</i>	Scrophulariaceae	DT
Marsh Thistle	<i>Cirsium palustre</i>	Compositae	MT
Plumeless thistle	<i>Carduus acanthoides</i>	Compositae	PT
Russian knapweed	<i>Acroptilon repens</i>	Compositae	RK
Scentless Chamomile	<i>Matricaria perforata</i>	Compositae	MP
Yellow hawkweed	<i>Hieracium pratense</i>	Compositae	YH
Anchusa	<i>Anchusa officinalis</i>	Borage	AO
Black knapweed	<i>Centaurea nigra</i>	Compositae	BL
Brown knapweed	<i>Centaurea jacea</i>	Compositae	BK
Meadow knapweed	<i>Centaurea pratensis</i>	Compositae	MK
Perennial pepperweed	<i>Lepidium latifolium</i>	Mustard	PP
Rush Skeletonweed	<i>Chondrilla jacea</i>	Compositae	RS
Tansy ragwort	<i>Senecio jacobaea</i>	Compositae	TR
Yellow starthistle	<i>Centaurea solstitialis</i>	Compositae	YS

- 2) Record species and size of infestations using codes provided in Attachment B.
- 3) Attend a conference on the first day of Services with the Ministry Representative to review correct protocol outlined in this agreement.
- 4) Conduct a systematic inventory of target species on Crown Land areas as follows:
 - a) Survey only the following biogeoclimatic zones unless occurrence of target species warrants continued reconnaissance into bordering higher/wetter zones:
 - Bunchgrass
 - Ponderosa Pine

SERVICES (Continued)

- Interior Douglas-fir
 - Zones prescribed by Ministry
- b) Travel at speeds less than 30 Km/hr during surveys.
- c) Recce areas prescribed for detailed surveys with the following further instructions
- i) Survey infestations on prescribed areas only, which are not accessible by truck such as trails, deactivated roads, grasslands and disturbed areas by means of foot, bicycle, or all-terrain vehicle.
 - ii) Mark infestations with ribbon that are more than ten (10) metres off roadway or vehicle access point, or if plants are not easily visible. Where there is more than one infestation requiring ribbon, mark the centre of each patch and GPS each ribbon tie point.
- d) In mapbook provided, highlight roads and areas covered and provide:
- i) Circle around road systems covered with corresponding date.
- 5) Provide a preliminary recommendation for Spotted Knapweed biocontrol on sites as follows:
- Infestation is too large for chemical control (greater than 1.0 ha), and
 - Site conditions do not allow herbicide application.
- Mark a "B" in the Recommended Treatment column on the Spreadsheet.
- 6) Cease surveys of a particular species on any one road or trail under the following conditions:
- biological control (for Spotted Knapweed only) is the only option for control due to site conditions.
 - habitat requirements of species surveyed are no longer met.
- 7) Cease surveys on foot of a target species infestation if it is greater than one (1) hectare of continuous coverage.
- 8) Cease all services upon closure of work area due to threat of forest fires until written permission has been obtained from the Ministry of Forests to continue with work.
- 9) Prevent further spread of invasive plants by following all regulations in the Weed Control Act.

DELIVERABLES

The Contractor Shall Provide:

- 10) All deliverables to the Ministry of Forests by August 23, 2004 as follows below:
- Completed, legible Invasive Plant Inventory Spreadsheet field copies and Site and Invasive Plant Inventory Records.
 - Electronic copy of all entered field data in Microsoft Excel format.
 - Completed requirements in Mapbook(s)
 - Final report upon completion of prescribed services outlining survey results, further recommendations, changes in species priority and rationale, and/or any other pertinent information pertaining to invasive plant infestations and establishment.

SERVICES (Continued)

KEY PERSONNELThe Services shall be performed by the following “Key Personnel”:

- 1.
- 2.

and there shall be no substitution for the person(s) listed above without the prior consent of the Province.

SCHEDULE A

SERVICES

Sample Schedule A - Treatments

File: 10005-40/_____

Attachment to the Agreement with _____ for the _____ Invasive Plant Treatments 2005.

ARTICLE 1: SERVICES

The Contractor shall:

- 1.01 Designate a contact to liaise with the Ministry Official and the Designated Auditor;
- 1.02 Complete all treatments in accordance to this agreement, the Ministry of Forests, _____ Forest District **Pest Management Plan / Pesticide Use Permit # _____** and all pesticide labels;
- 1.03 Comply with all conditions of the _____ Invasive Plant Treatments 2005 Invitation to Tender Package;
- 1.04 Calibrate applicators once per week (five days) of operations following instructions on Attachment E;
- 1.05 Report to the designated contract monitor every morning prior to 7:00 AM that operations are planned by leaving a brief message on **250 828-4558** reporting the crew members and area intended to be covered for that day;
- 1.06 Complete all treatments of first pass and any required retreatments prior to initial flowering of plants;
- 1.07 Complete all treatments of second pass and any required retreatments prior to termination of contract;
- 1.08 Treat and/or remove all target invasive plant seed sources in areas prescribed for treatment following priorities outlined in Attachment A, **upon finding any new site or retreating a site, and any areas that may be prescribed by the Ministry Official;**
- 1.09 Post *Herbicide Application Signs*, where directed by the Ministry Official and/or Contract Monitor, prior to treatment along public access routes;
- 1.10 Treat and inventory all new found sites of target species during travels between prescribed sites or in areas designated for inventory by the Ministry Representative providing UTM coordinates for new sites in NAD 83 datum;
- 1.11 Complete Invasive Plant Treatment Record (Attachment B) following all guidelines listed on Record Completion Directions (Attachment C) before leaving the treatment site;
- 1.12 Refer public inquiries to the Ministry Official regarding spraying operations. If the potential for conflict arises, cease spraying. The Ministry Official will provide permission to resume work;
- 1.13 Cease all services upon closure of work area due to the threat of forest fires until written permission has been obtained from the Ministry of Forest Official;
- 1.14 Provide on site to all those working under this Agreement:
 - a) A copy of this agreement;
 - b) Material Safety Data Sheet(s) [MSDS] of the chemical(s) being applied;
 - c) A copy of a contingency plan of action for chemical spills and/or accidents;
 - d) A copy of the approved Pest Management Plan or Pesticide Use Permit(s) of the project area;
- 1.15 Ensure each uncertified applicator is supervised within visual sight by a Certified Applicator;

SERVICES (Continued)

ARTICLE 2: DELIVERABLES

The Contractor shall submit:

- 2.01 Completed Treatment Record Forms for all days prior to present at any time upon request of Ministry Representative;
- 2.02 Completed Treatment Record Forms and from first pass treatments by August 1st, 2005;
- 2.03 Completed record forms from second pass treatments by October 1st, 2005;

ARTICLE 3: HANDLING AND APPLYING HERBICIDES

The Contractor shall:

- 3.01 Deliver to the project area(s) only sufficient quantities of herbicide required to treat areas prescribed.
- 3.02 Ensure mixing of chemicals is done in locations such that any spilled herbicide, additive, or other chemicals do not enter pesticide free zones.
- 3.03 Test soil prior to any broadleaf herbicide application to ensure there is no more than 70% sand in a possible herbicide treatment site in which case an alternate treatment method will be chosen;
- 3.04 Treat plants using the correct chemical formulation and application rate (as in Calibration), as specified by the label;
- 3.05 Apply herbicides using flat fan, wide angle nozzles at low nozzle pressure of 150 to 300 kpa and delivering a coarse droplet size with no solid stream deployed;
- 3.06 Select herbicide for application as follows:
 - a) Apply Transline on sites where only knapweed and/or Rush Skeletonweed is targeted in spring and early summer while plant growth is still occurring, and to those compositae targets that grow under trees.
 - b) Apply Tordon 22K on sites containing non-compositae target species or a mixture of non-compositae and those listed in a), prior to flowering, only on suitable soil types upon direction from MOF.
 - c) Apply Grazon on sites containing any target species, only on suitable soil types, in late summer and fall.
 - d) Apply 2-4, D Amine on sites containing any target species where soil type is too coarse for application of residual herbicide.
 - e) Apply Dyvel DS on sites where Hoary Alyssum is targeted. Other species targeted must be treated independently with separate herbicide.
 - f) Apply Round-up by means of wick or roller application in areas unsuitable for previous listed herbicides.
 - g) Add surfactant to herbicide carrier, mixed at label rate, when treating sites containing Leafy Spurge and/or Blueweed;
- 3.07 Ensure no herbicides reach Pesticide Free Zones by including suitable buffer around such zones. The Herbicide Guidelines (Attachment D) shall serve as a guideline for applicators although the herbicide label takes precedent over any inconsistencies;
- 3.08 Treat individual plants and clumps with a two (2) metre overspray radius surrounding all plant or clumps when using a residual herbicide to reduce seed germination and increase efficacy;
- 3.09 Cease spraying under any of the following conditions. (NOTE: Herbicide label takes precedent over those listed here only where label restrictions are more stringent:
 - a) Wind velocity exceeds 8 Km/Hr;

SERVICES (Continued)

- b) Temperature is below 0 degrees Centigrade or above 27 degrees Centigrade;
- c) Snow, ice, or heavy rain covers plants;
- d) Precipitation is occurring or expected to occur within four hours following application of herbicide.

ARTICLE 4: MONITORING AND RETREATMENT

The Contractor shall:

- 4.01 Retreat sites upon notification from the Contract Monitor where missed plants exceed 2% of total target plants at the expense of the Contractor;

The Ministry shall:

- 4.02 Inspect a number of sites within the prescribed area for the purpose of determining quality of treatments;
- 4.03 Instruct to have calibration performed at any time or review any procedures required by this Schedule A;
- 4.04 Assess operations and inspect any equipment to ensure conformity to all parts of this agreement. The designated Monitor will evaluate treated sites and record keeping for the following:
- a) Compliance with Agreement and applicable Pest Management Plans and Pesticide Use Permits.
 - b) Missed target plants.
 - c) Treatment of non-target species.
 - d) Maintenance of pesticide-free zones.
 - e) Compliance with Conditions of this Agreement and those within the Conditions of Tender.
 - f) Further sites will be audited if non-compliance issues arise on more than 10% of treated sites;

ARTICLE 5: GENERAL TERMS AND CONDITIONS

- 5.01 The Contractor is solely responsible for any leaks and/or spills, and shall clean up and dispose of contaminated materials in accordance with provincial and federal laws;
- 5.02 The Ministry Official responsible for the administration of this Agreement will be:

Percy Folkard
Ministry of Forests
Southern Interior Forest Region
515 Columbia Street, Kamloops V2C 2T7
250 828-4558

The Ministry shall:

- 5.03 Reserve the right to review the process of this Agreement and terminate it at any time if the success of this project is not meeting the goals and objectives of the Ministry of Forests - Southern Interior Region Invasive Plant Program;
- 5.04 Determine and notify contractor of start dates for each pass prior to commencement of treatments;
- 5.05 Inspect the Contractor's spill kit and Contingency Plan of Action for Chemical Spills and/or Accidents;
- 5.06 The Ministry shall supply the following:
- a) Garbage bags
 - b) Marking Ribbon
 - c) Blank record forms

SERVICES (Continued)

- d) Field maps of the treatment area showing known invasive plant sites
- e) *Herbicide Application* Signs and wire frames
- f) A Copy of the applicable Pest Management Plan and/or Pesticide Use Permit;

Non-compliance with Agreement Conditions

- 5.06 If, in the opinion of the Province, the Contractor fails to observe, perform, or comply with any provisions of this Agreement the Province may, at its sole discretion:
 - a) permit the Services to continue, giving the Contractor a time limit for compliance, rectification or both; or
 - b) suspend all or part of the operation of this Agreement including payments in whole or in part to the Contractor, giving the Contractor a time limit for compliance, rectification, or both.
- 5.07 In the event a Contractor does not retreat a site to the to the satisfaction of the Ministry Official following a second audit, 50% of the fees billed will not be paid for the original treatment of that site.
- 5.08 The Ministry reserves the right to withhold payment until further audits can be conducted on the Services and reporting procedures as described below:
 - a) the Contractor submits an incomplete or inaccurate Work Progress Report
or,
 - b) if, in the opinion of the Province, the Contractor has not provided the Services summarized in the Work Progress Report in an efficient, cost-effective, and/or safe manner.
- 5.09 Where the Province has set a time limit for compliance, rectification or both, and, in the opinion of the Province, the Contractor fails to meet the time limit, the Province may employ whatever means necessary to rectify the non-compliance, which may include performance of the obligations on the Contractor's behalf, and the Contractor shall, on demand, pay the Province an amount of money equal to the costs reasonably incurred by the Province in rectifying the non-compliance;

Invasive Plant Treatment Recording Procedures for MOF Contracts

Each Treatment Record will serve to record all treatment data from one or more sites on one road, one road system, or area. A new record must be filled out if one of the following parameters are met:

- Treatments started for a new day, or after a break in operation has been taken.
- Treatments started on new road.
- Change in Mapsheet and/or District
- Eight sites have been treated on one treatment record.

The following table defines parameters required in each field:

Field	Data Requirement
Date	Mandatory
Mapsheet	Mandatory - Field 1:20,000 mapsheet for current location
District	Mandatory using District Code
Road Name/Location	Mandatory – Road system name or general location
Humidity	Mandatory
Windspeed	Mandatory
Delivery Rate	Mandatory
Start Time	Mandatory – Time of arrival at first site
End Time	Mandatory – Time of completed treatment on last site on record
New Site	Check box if site is not previously recorded on field mapsheet, UTM, Easting and Northing is mandatory on new sites as well as location and temporary site number drawn on field mapsheet. A new site is one which has at least 100 meters of no target weeds away from last site.
No Targets	Check box if no target species are found growing on site; all other information other than Site Number is not required
Site #	Mandatory, site number from field mapsheet or temporary number designated by contractor which corresponds to site drawn on field mapsheet.
Jurisdiction	Mandatory from code sheet
Species 1	Mandatory using two-letter Species Codes
Species 2, 3	Mandatory if more than one target species treated on one site
%	Corresponding percentage of each target species adding to total of 100 ie 75% Spotted knapweed and 25% sulphur cinquefoil would be: SK 75 SC 25
Pass #	1, 2, or 3 depending on number of treatments prescribed on a site in one growing season.
Control Method	Control used to manually or chemically treat site from code sheet
Herbicide Type	Herbicide used on site as per code sheet
Amount Used	Amount of herbicide used on one site
Application Rate	Rate of application of Herbicide (L/Ha)
Area treated	Estimated area of treatment
Temperature	Mandatory for Chemical Treatments
Km Mark	Distance up the Road listed in Road Name/ Location Field or from comments
UTM Zone, Easting, Northing	Only mandatory if site was previously unknown or unrecorded and new site check box has been marked and new site drawn on map.
Comments	Not mandatory, helpful if site is hidden

MOF HERBICIDE SELECTION INSTRUCTIONS FOR CHEMICAL TREATMENT

Chemical	Treatment Site
<p>Tordon</p> <p>Grazon</p> <p>Escort</p>	<p>Don't apply under tree canopy (within the dripline) or within plantations. Within Christmas Tree Plantations don't spray within 3m of dripline.</p> <p>Don't apply to coarse texture soils (greater than 70% sand).</p> <p>Don't apply to roadside ditches where they drain directly or indirectly into creeks even if the watercourse is dry at the time application.</p> <p>Can be applied to ditches where there is no natural watercourse past the ditch (crosses road to open or forested areas and a minimum 10 meter pesticide free zone from adjacent creeks can be maintained).</p> <p>Don't apply where groundwater or shallow aquifers are within 1.8 meters of the surface unless there is at least 50cm of soil finer than loamy sand.</p> <p>Spray a 2-meter radius around individual plants or outer edge of a patch of plants.</p>
Transline	<p>Can be applied under tree canopy.</p> <p>Don't apply to coarse texture soils (greater than 70% sand).</p> <p>Can be applied to roadside ditches where they don't drain directly into a fish bearing waters (dry creek is not fish bearing) and a 10 meter pesticide free zone can be maintained along the fish stream and/or natural watercourse.</p> <p>Where directed, apply on Knapweed when its in the flowering stage rather than Tordon for more effective control.</p>
2, 4-D Amine	<p>Don't apply under tree canopy (within the dripline) or within plantations.</p> <p>Don't apply where groundwater or shallow aquifers are within 1.8 meters of the surface.</p> <p>Can be applied to coarse textured soils (greater than 70% sand).</p> <p>Can be applied to all roadside ditches where there is no standing water and a 10-meter pesticide free zone can be maintained on all creeks.</p>
Round-Up	<p>Don't spray sites unless you want all plants to die.</p> <p>Can be wicked under tree canopy.</p> <p>Can be wicked within 2 metres of the high water mark of water bodies provided that the streams are not seasonal fish habitat or will not increase stream bank erosion.</p> <p>A 5 m pesticide-free zone from the high water mark must be maintained for wet or dry streams that are season fish habitat.</p>

General Guidelines:

- Utilize Tordon 22K on all fine to medium textured soils in openings and roadsides. Don't use Tordon 22K or Grazon on coarse textured soils, under tree canopy or non-contained ditches.
- Escort solution must be used within 1 or 2 days of mixing. Surfactant must be used at 2% of carrier rate.
- Utilize Transline on only Diffuse and Spotted Knapweed when under tree canopy and in non-contained ditches that drain into NON-fish bearing creeks.
- Utilize 2,4-D Amine on coarse textured soils and in non-contained ditches. Don't spray under tree canopy.
- Only utilize Round-up in the 10m riparian buffer zone as specified above.
- Only utilize Grazon were directed by MOF.
- A minimum 10-meter spray buffer zone should be maintained to ensure the 10-meter pesticide free zone. The spray buffer zone should be increased as the slope increases.
- Don't apply any chemical in standing water or within 30m of domestic water intakes or wells.

HERBICIDE APPLICATION RATES USED BY MOF ON SELECTED INVASIVE PLANT SPECIES

Chemical	Tordon		Grazon*		Transline*		2, 4-D Amine*		Round-up		Escort	
Active Ingredient	Picloram		Picloram / 2,4-D		Clopyralid		2, 4-D		Glyphosate		Metsulfuron methyl	
Product Concentration	240 g/lit		65 / 240 g/lit		360 g/lit		470 g/lit		356 g/lit		60%	
Carrier Rate	650 lit/ha		200 lit/ha		110-120 lit/ha		100 lit/ha		Wick 33% solution		100 lit/ha	
Persistence in Soil	Active for up to 3 years		Short residual		Non active/40 day ½ life		Very short residual		Non active		Non active	
Weed Species	Spray	Rate	Spray	Rate	Spray	Rate	Spray	Rate	Spray	Rate	Spray	Rate
Blueweed	Yes	4.5 l/ha	No	N/A	No	N/A	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Canada Thistle	Yes	4.5 l/ha	Yes	3.8 l/ha	Yes*	0.83 l/ha	Yes	4.5 l/ha	Yes	4.75 l/ha	No	N/A
Common Burdock	Yes	2.25 l/ha	No	N/A	No	N/A	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Common Tansy*	Yes	2.25 l/ha	Yes	3.8 l/ha	No	N/A	No	N/A	Yes	2.25 l/ha	Yes	20 g/ha
Dalmatian Toadflax	Yes	4.5 l/ha	No	N/A	No	N/A	Yes	4.5 l/ha	Yes	2.5 l/ha	No	N/A
Diffuse Knapweed	Yes	2.25 l/ha	Yes	3.8 l/ha	Yes*	0.83 l/ha	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Hound's-tongue	Yes	2.25 l/ha	No	N/A	No	N/A	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Leafy Spurge	Yes	4.5 l/ha	No	N/A	No	N/A	Yes	4.5 l/ha	No	N/A	No	N/A
Rush Skeletonweed	Yes	2.25 l/ha	Yes	3.8 l/ha	Yes*	0.83 l/ha	No	N/A	No	N/A	No	N/A
Scotch Thistle	Yes	2.25 l/ha	No	N/A	No	N/A	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Spotted Knapweed	Yes	2.25 l/ha	Yes	3.8 l/ha	Yes*	0.83 l/ha	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Sulphur Cinquefoil	Yes	2.25 l/ha	Yes	3.8 l/ha	No	N/A	Yes	4.5 l/ha	Yes	2.25 l/ha	No	N/A
Scotch Broom	Yes	2.25 l/ha	No	N/A	No	N/A	No	N/A	Yes	2.25 l/ha	No	N/A
Field Scabious	Yes	2.25 l/ha	No	N/A	No	N/A	No	N/A	Yes	2.25 l/ha	Yes	20 g/ha

*** Notes:**

- Common Tansy will be sprayed with Escort. Where directed by MOF Tordon can also be utilised
- Tordon is more effective on Canada Thistle than Transline, which only provides top-growth control at 0.83 lit/ha.
- Label rate for Grazon is 7 lit/ha, but 3.8 lit/ha will provide good control on Knapweed species. Only use Grazon where directed by MOF.
- 2, 4-D Amine is effective on broad-leafed perennials during the active growth period, but the effectiveness drops off as the plants flower.
- Transline only provides partial control of Rush Skeletonweed whereas Tordon provides more complete control.
- Transline provides better control on Knapweed when in the flower stage than Tordon. However, Tordon can provide up to 3 years residual control.

Mixing Instructions for Escort:

Application rate: 20 grams per hectare
Carrier Rate: 100 litres per hectare
Surfactant: 2% of Carrier rate

10 Litre Back-Pack:
Escort 2/3 Teaspoon (2 grams)
Surfactant 200 ml of Agral 90

Only mix what can be used in 1 or 2 days, as the chemical is only effective for a few days once in solution.

SCHEDULE A

SERVICES

Sample Schedule A – Biological Monitoring

File: 10005-40/BIO 2004-003

Attachment to the Agreement with _____ for [Boundary Monitoring Biocontrol Release Sites 2005](#)

THE SERVICES

The Contractor shall provide the following Services:

1. Monitor biocontrol release sites in the South Okanagan according to the procedures described by Ministry of Forests in the "Field Guide for Releasing and Monitoring Bioagents in the Southern Interior Forest Region" by J. Craig and V. Miller 2003.
2. Monitor sites for all agents outlined in Attachment A providing all services specific to each site as prescribed. Site prescriptions vary between sites
3. Monitor previous release sites for diffuse and spotted knapweed and Dalmatian toadflax. Fill out the appropriate monitoring form (Attachment B) for each release site. Provide recommendations for other bioagents to be released at that site.
4. For sites that have vague location descriptions, ask local residents and District staff for location information. Spend at least one hour trying to locate each site before noting that it is "unable to find". Take UTMs (in NAD 83 datum to within 10 metres accuracy) at each site located, or approximate UTMs when locating the exact site is not possible.
5. Where site location is known, take one or two digital non-cardinal photos of the site. Label all photos with the site number and location at the completion of the contract, and attach them to the relevant release monitoring record.
6. Release insects at previously identified release sites or suitable release sites without previous presence of same agent and follow all procedures described in the "Field Guide for Releasing and Monitoring Bioagents in the Southern Interior Forest Region" by J. Craig and V. Miller 2003.
7. Complete the Biological Agent Release Record (Attachment B) for each release and take two photos of the release site
8. While travelling between sites, recommend biocontrol release sites for *Mecinus janthinus*, *Larinus planus*, *Larinus minutus*, *Larinus obtusus*, *Cyphocleonus achates*, and *Agapeta zoegana*. Search thoroughly for presence of all related bioagents (according to procedures outlined in "Field Guide for Releasing and Monitoring Bioagents in the Southern Interior Forest Region"). Provide site location description and GPS coordinates for each site. Sites must be at least 2 km from any past release site

SERVICES (Continued)

9. While conducting field work on Crown Land, identify weed species present and fill out a site inventory forms for the following species if they are encountered: Field Scabious (*Knautia arvensis*), Common Bugloss (*Anchusa officinalis*), Brown knapweed (*Centaurea jacea*), Meadow Knapweed (*Centaurea pratensis*), Russian Knapweed (*Acroptilon repens*), Orange hawkweed (*Hieracium auranticatum*), Rush skeletonweed (*Chondrilla juncea*), Scotch broom (*Cytisus scoparius*), Gorse (*Ulex europaeus*), Japanese knotweed (*Polygonum cuspidatum*), Giant knotweed (*Polygonum sachalinense*), Yellow Iris (*Iris pseudacorus*), Leafy spurge (*Euphorbia esula*), Tansy ragwort (*Senecio jacobaeae*), Yellow starthistle (*Centaurea solstitialis*), Blueweed (*Echium vulgare*), Common teasel (*Dipsacus fullonum*) and Perennial pepperweed (*Lepidium latifolium*). If more than three patches of one species are discovered within one road system, do not continue to inventory that species.
10. Provide bi-weekly written updates via email to report progress, potential release sites identified to date, and any of the above-listed weed species discovered to Percy Folkard (Invasive Plant Program Technician).
11. Upon completion of field work, provide a final report that outlines number of mapsheets and road systems covered, number of release sites monitored, results of site monitoring, and the locations of weed species listed.
12. Upon completion of field work, provide an excel spreadsheet of potential release sites that includes suggested bioagent, bioagents present, general location, and UTM coordinates with 10 metre accuracy.
13. Upon completion of field work, supply all completed monitoring records.

DELIVERABLES

The Contractor shall submit the following by August 31st, 2005:

1. Completed, legible record forms of all release sites, monitored sites, and identified potential release sites;
2. All data entered in to the database by the contractor to the URL provided upon commencement of the contract
3. Digital file containing all photo points taken from release sites.

SERVICES (Continued)

GENERAL TERMS AND CONDITIONS

The Ministry Shall:

1. Supply the contractor with the following:
 - a) Map(s) showing all sites to be monitored and
 - b) record forms
 - c) stakes and ribbon for release points
 - d) insects for release.
2. Reserve the right to review any or all procedures in the Agreement and make necessary provisions and changes in accordance with Procedures and Policies of the Invasive Plant Program;
3. Reserve the right to withhold payment of services performed on a site or any number of sites in the event the contractor does not follow conditions described in this Agreement or provides services considered to be unsatisfactory upon review of site by Ministry Representative.

KEY PERSONNEL

The Services shall be performed by the following "Key Personnel":

- 4.
- 5.
- 6.

and there shall be no substitution for the person(s) listed above without the prior consent of the Province.

IAP Reference Guide - Part IV

Additional Resources



In this section, you will find:

- Web Resources

Web Resources

Additional information about Invasive Plants in BC can be found at the following websites:

Website	URL
Invasive Plant Council of BC	http://www.invasiveplantcouncilbc.ca
Ministry of Forests – Invasive Alien Plants	http://www.for.gov.bc.ca/hfp/invasive/index.htm
Ministry of Agriculture and Lands – Integrated Weed Management Site	http://www.agf.gov.bc.ca/cropprot/weedman.htm#PHYSICAL
Ministry of Agriculture and Lands	http://www.weedsbc.ca
<i>Forest and Range Practices Act</i> (Section 47)	http://www.for.gov.bc.ca/tasb/legsregs/frpa/frpa/part5.htm#section47
Forest Planning and Practices Regulation (Section 17)	http://www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/forplanprac/fppr.htm#section17
Range Planning and Practices Regulation (Section 15)	http://www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/rangeplanprac/rppr.htm#section15
Invasive Plants Regulation	http://www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/invplants/ipr.htm
FIA Land-Base Investment Program	http://www.for.gov.bc.ca/hcp/fia/landbase/approved_treatments.htm