



**Northwest**  
INVASIVE PLANT COUNCIL

# Invasive Plant Management Area Contractor Guide

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## INTRODUCTION

### Purpose

The goal of the Invasive Plant Management Area (IPMA) guide is to provide a succinct description of the role of a Northwest Invasive Plant Council (NWIPC) IPMA Contractor and to act as reference resource. While each contractor will conduct day-to-day operations as they see fit – within the scope of the workplan – this guide provides some general information and outlines required procedures to maintain consistency in invasive plant management and public messaging across the NWIPC operating area. The guide also provides details to ensure compliance to parameters set out by the NWIPC and provincial regulatory agencies.

### Description

The NWIPC Contractor Guide is an important tool for NWIPC Invasive Plant managers. It contains current information on the role and responsibilities of an IPMA Contractor, invasive plant treatment options, jurisdiction guidelines, critical site information, and contractor data entry.

### NWIPC Operating Principles

- Encourage the public to report invasive plant sightings. A very important part of this process is prompt and comprehensive feedback to persons who report invasive plants.
- Inform the public about invasive plant programs so they can participate and provide input.
- Use and maintain a shared invasive plant inventory – the BC *Invasive Alien Plant Program* (IAPP) database. <https://www.for.gov.bc.ca/hra/plants/application.htm>
- Assess problems and threats posed by various invasive plants to the environment and economy of the area.
- Categorize invasive plants and prioritize sites for control.
- 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 north west using Integrated Pest Management principles described in the *Invasive Plant Strategy for British Columbia* (2011).  
<https://bcinvasives.ca/documents/invasive-plant-strategy.pdf>

## INVASIVE PLANT MANAGEMENT AREAS

The NWIPC operating area is subdivided into eight invasive plant management areas (IPMA).

### Haida Gwaii

This IPMA encompasses the islands of Haida Gwaii.

### Stikine

Stikine IPMA is bounded to the west by the US border. The northern boundary is the Yukon border and the southern boundary is Meziadin Junction. The eastern boundaries are the Northern Rockies Regional Municipality and the Peace River Regional District.

## Skeena

This IPMA is bounded in the west by the Pacific Ocean and in the east, south of Moricetown at the Regional District Bulkley Nechako (RDBN) boundary. The northern boundary is Meziadin Junction. The southern boundary is comprised of the Skeena Queen Charlotte and Kitimat Stikine Regional Districts southern boundaries.

## Bulkley

This IPMA's western boundary is south of Moricetown at the RDBN western boundary and in the east near the rest area of Six-mile summit. It encompasses the RDBN electoral areas "A" and "G". The northern boundary is the RDBN boundary with the Stikine Region north of Takla Lake and the southern boundary is the RDBN boundary with the Central Coast and Cariboo Regional Districts.

## Lakes District

This IPMA is bounded to the west near the rest area of Six-Mile summit at the RDBN electoral area "G" boundary and to the east near Endako at the electoral area "B" boundary. This IPMA encompasses electoral areas "B" and "E". The northern boundary is along Babine Lake and the southern boundary is the RDBN boundary with the Cariboo Regional District south of Newstubb Lake.

## Nechako

The western boundary is near Endako at the RDBN electoral area "B" boundary and the eastern boundary is the RDBN boundary with the Fraser Fort George Regional District (FFGRD) west of Bednesti Resort. This IPMA encompasses electoral areas "C", "D" and "F". The northern boundary is the RDBN boundary with the Stikine Region and the southern boundary is the RDBN boundary with the Cariboo Regional District south of Newstubb Lake.

## Prince George

The western boundary is the boundary between the FFGRD and RDBN west of Bednesti Resort and the eastern boundary is the FFGRD electoral area "H" western boundary west of Dome Creek. This IPMA encompasses all FFGRD electoral areas except "H". The northern boundary is the northern boundary of the FFGRD in the Pine Pass near Azouzetta Lodge and the southern boundary is the FFGRD/ Cariboo Regional District boundary south of Hixon.

## Robson Valley

The western boundary is the FFGRD electoral area "H" western boundary west of Dome Creek and the BC/Alberta border to the east. The northern boundary is the FFGRD/ Peace River Regional District and the southern boundary is the FFGRD boundary with the Cariboo, Thompson Nicola and Columbia Shuswap Regional Districts south of Albreda.

## TREATMENT GUIDELINES

Note: See separate pesticide application rate chart handout – provided at the contractor pre-work

### Treatment Options and Treatment Methods

Treatment occurs only when a survey indicates thresholds have been reached and treatment is necessary as indicated by the IPMA Target Plant List. Several methods are selected to form an integrated treatment program. Accurate record keeping is a must. It acts as a record of environmental treatments and as a tool to measure treatment success. Survey, treatment and monitoring records are kept in the provincial IAPP: <http://www.for.gov.bc.ca/hra/Plants/application.htm>.

### Treatment Method

The integration of several treatment strategies into an IPM program has been shown to be more effective than using a single option alone. Generally, no individual method will control invasive plants in a single treatment. The success of different treatment methods depends on the type of invasive plant you are trying to control, as the choice of a treatment method(s) generally relates to specific plant characteristics. The choice of treatment, or combination of treatments, is based on the invasive plant and the site survey results (see Table 1). Other considerations include seasonality, weather conditions, financial and human resources, site accessibility, site conditions, target species composition and percent cover, and the consequences of not treating. The immediate and long-term goals for a site also influence the choice of pest management options.

Table 1. Types of treatments and conditions for use

TREATMENT	CONDITIONS FOR USE
<p><b>Prevention</b> Management of the resource to prevent invasive plant establishment; minimize seed disturbances; cleaning invasive plants off equipment and using invasive plant free feeds and seed; and early detection of invasive plants.</p>	<ul style="list-style-type: none"> <li>• No conditions, it is in everyone’s best interest to <b>always practice prevention techniques</b>.</li> </ul>
<p><b>Manual and Mechanical</b> Includes: cutting, digging/excavating, girdling, hand pulling, mowing, pruning, tilling, spot burning (flaming).</p>	<ul style="list-style-type: none"> <li>• New, small incursions generally readily available to equipment</li> <li>• Used to limit rhizomatous root spread and to prevent seed production</li> <li>• Generally applicable to all species, except knotweed species</li> <li>• Generally, requires restoration (to some extent) with native grasses or plant species</li> </ul>
<p><b>Biological</b> Systematic release of insects or disease that attack (stress) the targeted invasive plant species. The attack makes the host species less competitive; when the stress is significant enough population levels are reduced. Biocontrol does not eliminate invasive plant infestations.</p>	<ul style="list-style-type: none"> <li>• Older, more established incursions generally with widespread occurrences of target species beyond treatment site</li> </ul>

TREATMENT	CONDITIONS FOR USE
<p><b>Cultural</b> Altering the environment to make it less favourable for invasive plant survival and/or prevent further spread of an invasive plant.</p>	<ul style="list-style-type: none"> <li>• Incursion size is variable.</li> </ul>
<p><b>Chemical</b> Judicious, strategically targeted use of herbicides including. Applied with hand held sprayers, backpack sprayers, wick applicators, booms and hand-held power nozzles</p>	<ul style="list-style-type: none"> <li>• Incursion size is variable</li> <li>• Restricted use within proximity to: species at risk, domestic water intakes, water licenses, agricultural food production systems, environmentally sensitive or riparian areas, pesticide free zones (PFZ), no treatment zones (NTZ), or public use areas.</li> </ul>

See Table 2., next page, for types of treatments under each treatment choice category, DOs and DON'Ts and other operational details.

Table 2. Invasive plant control information

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p><u>Mechanical</u></p> <p>1. Hand pulling</p>	<p><u>Use for</u></p> <ul style="list-style-type: none"> <li>• Tap-rooted invasive plants</li> <li>• Small infestation area</li> <li>• Soils allow pulling (ex. not too hard)</li> <li>• Follow up for several years to eliminate infestation</li> <li>• If the top of the plant breaks off from the roots rogue/hoe small sites to dig out crowns</li> <li>• Pull plants before blooming – twist &amp; break stocks &amp; leave on site if appropriate</li> <li>• Use along with other control methods (ex. herbicides)</li> </ul> <p><u>Disposal</u></p> <ul style="list-style-type: none"> <li>• Bag flower heads or whole plants if the invasive plant is in bloom/seed</li> <li>• Ensure bagged invasive plants are buried at a landfill or burned completely</li> </ul> <p><u>Safety</u></p> <ul style="list-style-type: none"> <li>• Place “Workers on road” signs to warn traffic in both directions when working along roadsides</li> </ul> <p><u>Effects on Fish &amp; Wildlife</u></p> <ul style="list-style-type: none"> <li>• Control invasive plants along waterways with manual control techniques</li> <li>• Minimize soil disturbance on slopes</li> <li>• Consider re-seeding disturbed areas to prevent sloughing &amp; re-infestation of invasive plants</li> </ul>	<p>Don't pull rhizomatous species (ex. hawkweed &amp; Canada thistle); it will stimulate growth &amp; spread</p> <p>Don't disturb surrounding soil unnecessarily; established invasive plants have already gone to seed in previous years leaving viable seed stored in the soil</p> <p><u>Disposal</u></p> <ul style="list-style-type: none"> <li>• Don't leave dead plant material where it will be a hazard or an eyesore - urban areas</li> </ul> <p><u>Safety</u></p> <ul style="list-style-type: none"> <li>• Don't pull leafy spurge without protective gear (gloves, eye protection), the latex (milky sap) can cause irritation &amp; blindness</li> </ul> <p><u>Effects on Fish &amp; Wildlife</u></p> <ul style="list-style-type: none"> <li>• Don't pull plants on steep slopes with fine textured soils (e.g. silt &amp; clay). This can destabilize the slope, which can slough off providing exposed soil for re-infestation. Sloughing above waterways will increase siltation (suspended particle) in the water degrading fish habitat</li> </ul>	<p>PPE ex. gloves, eye protection</p> <p>Hand tools - picks, shovels, hoe, etc</p> <p>Heavy duty plastic bags for flower heads &amp; roots</p> <p>Truck to transport plant material or garbage bags to landfill or burn site</p>	<p>Variable, generally expensive compared to other methods – increased labour time</p> <p>IP seeds germinate throughout the growing season and seedlings bolt (start growing) at different times so timing of passes to manual control sites is critical</p>



Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p>2. Mowing &amp; Cutting plus over-seeding</p>	<p><u>USE</u></p> <ul style="list-style-type: none"> <li>Mowing invasive plants &amp;/or over-seed with desirable competitive species to reduce invasive plants.</li> <li>Cut invasive plants during the late bud to early bloom stage when the plants have used up most of their carbohydrate reserves in their roots.</li> <li>Use along with other control methods (ex. herbicides)</li> <li>Use tillage systems in the creation of the seedbed that kill the invasive plants present.</li> <li>Do use mechanical control to weaken the stand of invasive plants &amp; to reduce the spread to new sites.</li> </ul> <p><i>Understand the growth rate &amp; requirements of the replacement over-seeded species; otherwise, trying to replace invasive plants can have variable results from good control to worse situations. Sometimes the creation of a seedbed of desirable plants encourages the growth of the invasive plants (i.e. exposed ground, no competition) &amp; they dominate the site before the seeded species can establish.</i></p> <p><u>Worker and public safety</u></p> <ul style="list-style-type: none"> <li>Place “Workers on road” signs to warn traffic in both directions when working along roadsides.</li> <li>The use of mowing equipment presents risks of being cut by mower blades &amp; suffering back injury from repetitive use of slung mowers. Training on the safe operation of mowers is essential.</li> <li>Flaming can pose safety risks for workers, the public &amp; the environment.</li> </ul>	<p><u>DO NOT</u></p> <ul style="list-style-type: none"> <li>Expect mowing alone to eradicate an infestation. Repeatedly mowing over many years usually does not kill invasive plants.</li> <li>Expect control for every invasive plant, for some mowing encourages growth instead of weakening the plant. A mowing trial conducted on common tansy tested several mowing regimes and found limited affect on seed production and plants were shorter when they flowered.</li> <li>Practice zero tillage seeding (seeding without tilling under the current plant cover) without treating with herbicide first.</li> <li>Mow plants growing below the mower height, it can result in more stems being produced (because it cuts the tops of plants, allowing more buds to grow)</li> <li>Mow when flower-feeding biocontrol agents are working on a site</li> </ul>	<p>PPE gloves, eye protection, proper footwear etc.</p> <p>Seed (often grass)</p> <p>Hand held ‘weed whackers’ to mow or cut invasive plants on small sites</p> <p>Large sites = motorized brush cutters</p> <p>Very large sites = tractors with mowers</p> <p>Seeding = plows, discs &amp; seeders</p>	<p>Variable, generally less than hand pulling &amp; higher than other control options – labour costs.</p> <p>It takes many years of mowing to see small decreases in numbers.</p> <p>Costs are higher with hand held ‘weed whackers’ then with motorized mowers or tractor-mounted mowers - time required.</p> <p>The expense of creating a desirable seedbed to replace invasive plants depends on the size of area to be seeded &amp; the seed used.</p>

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p><u>Biological Control</u></p>	<p><u>USE</u></p> <ul style="list-style-type: none"> <li>• Preferred method when infestation levels are too high to control economically by other means</li> <li>• Consider that established agent will provide a long-term control option                             <ul style="list-style-type: none"> <li>○ for biocontrol to continue to be successful, some of the target invasive plants need to be left for habitat for the control agents; we do not want the agents to die off</li> </ul> </li> </ul> <p><u>DO</u></p> <ul style="list-style-type: none"> <li>• Contact the NWIPC Field Coordinator if considering biocontrol. The Ministry of Forests, Lands, Natural Resource Operations &amp; Rural Development (MFLNRORD) develops and tracks agents for invasive plant control and all NWIPC release work is done in conjunction with MFLNRORD.</li> <li>• Review the complete listing of available biocontrol agents, and those under development found at <a href="https://www.for.gov.bc.ca/hra/plants/what.htm">https://www.for.gov.bc.ca/hra/plants/what.htm</a></li> </ul> <p><i>Available biocontrol agents are not always suitable for all areas of the Province, be sure the agent you request is compatible.</i></p> <p><u>SAFETY</u></p> <ul style="list-style-type: none"> <li>• There are very few worker and public safety issues with biological control.</li> <li>• There have been reports of throat irritation when aspirating biocontrol agents for collection and monitoring.</li> </ul>	<p><u>DO NOT</u></p> <ul style="list-style-type: none"> <li>• Expect to see results for several years, agent populations need time to become established &amp; to increase to a level where significant damage can be done to the invasive plant population.</li> <li>• Expect biological control to eradicate the invasive plant</li> </ul>	<p>Specialized equipment is required for transporting, releasing, distributing &amp; monitoring biocontrol agents including: screened containers, ice packs, signs, sweep nets, shovels, etc.</p>	<p>The costs to develop agents for release in Canada, are very high.</p> <p>Field release of biocontrol agents are relatively inexpensive &amp; scheduling with other duties keeps release &amp; monitoring costs low.</p>

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p><u>Biological Control</u> <i>cont.</i></p>	<p><u>EFFECTS ON FISH &amp; WILDLIFE</u></p> <ul style="list-style-type: none"> <li>• Biocontrol involves a release at one point that spreads across the landscape over time.</li> <li>• There is some risk of lasting &amp; spreading effects.</li> <li>• Rigorous screening is done during agent development.</li> </ul>			
<p><u>Herbicide</u> Selective &amp; spot application</p>	<p><u>USE</u></p> <ul style="list-style-type: none"> <li>• The proper use of herbicides results in excellent control of invasive plants as demonstrated by extensive testing</li> <li>• Application techniques will be selected that minimize damage to non-target plants &amp; soils through spray drift &amp; leaching in soils. Application by injection, wick/wipe on will be the used where practical.</li> <li>• Herbicides provide effective control at the rates recommended on the label.</li> <li>• Do consider herbicide applications along with other control methods (e.g. hand-pulling) to treat invasive plant infestations</li> </ul> <p><u>SAFETY</u></p> <ul style="list-style-type: none"> <li>• Exposure to herbicides presents a risk to workers, the public &amp; non-target species.</li> <li>• Herbicide applicators need to be trained &amp; certified in the application of pesticides</li> <li>• Including training in protective gear, techniques &amp; procedures to minimize exposure to herbicides.</li> <li>• Post signs at all sprayed sites to let the public know about herbicide applications.</li> </ul>	<p><u>DO NOT</u></p> <ul style="list-style-type: none"> <li>• Apply products containing picloram directly to any water bodies (including dry streams &amp; classified wetlands) or in areas where the runoff from treated areas will reach fish-bearing waters.</li> <li>• Apply products containing picloram in residential areas or where runoff could reach water wells.</li> <li>• At any time apply herbicides at rates higher than indicated on their respective labels.</li> <li>• Expect to kill all invasive plants in one visit; at least one follow-up application is generally required to give total control of most invasive plants (new germinants, missed plants, etc.).</li> </ul>	<p>Herbicides are applied using hand held &amp; backpack sprayers, motorized sprayers mounted on trucks or on ATVs.</p> <p>Wick &amp; stem injection applicators are also used.</p>	<p>When used as directed herbicides are an efficient &amp; effective in controlling invasive plants.</p> <p>The costs of herbicide control are higher than biocontrol but significantly lower than other treatment methods.</p>

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p><u>Herbicide cont.</u></p>	<ul style="list-style-type: none"> <li>• Selective application techniques &amp; / or selective herbicides are used to minimize impacts on non-target plants.</li> </ul> <p><u>PESTICIDE FREE ZONES (PFZ)</u></p> <ul style="list-style-type: none"> <li>• 10-meter zones are maintained adjacent to water bodies for all herbicides except Roundup (glyphosate).</li> <li>• Roundup can be applied within 1 meter of water with selective applicators.</li> </ul> <p><u>EFFECTS ON FISH &amp; WILDLIFE</u></p> <ul style="list-style-type: none"> <li>• Control with herbicides usually results in benefits to fish &amp; wildlife by minimizing invasive plant infestations and allowing native species to re-populate</li> <li>• Herbicides have low acute toxicity, i.e., they will not kill people or animals at the dosages used</li> <li>• Fish &amp; wildlife exposure to herbicides presents a risk. The main risk to fish is the active ingredient picloram. Picloram is residual &amp; moderately toxic to fish.</li> </ul>			

## HERBICIDE APPLICATION

### Strategies and Procedures to Protect Water Sources

#### DEFINITIONS

IPMR – *Integrated Pest Management Regulations*

[http://www.bclaws.ca/civix/document/id/complete/statreg/604\\_2004](http://www.bclaws.ca/civix/document/id/complete/statreg/604_2004)

NTZ – no treatment zone; an area of land that must not be treated with pesticides

PFZ – pesticide free zone; an area of land that (a) must not be treated with pesticide, and (b) must be protected from pesticide moving onto it

#### REGULATIONS SUMMARIZED

Tables 3 and 4 (next page), describe the minimum protective measures that must be implemented. Table 3 shows the standards for NTZs as specified in Sections 71(3) and 71(4) of the Integrated Pest Management Regulations. Table 4 shows the standards for PFZs as specified in Sections 73(1), 74(2)(a) and (b), and 77(2).

*Table 3. Minimum protective measures under the IPMR to protect domestic and agriculture water sources*

IPMR SECTION	USES*	PERMITTED APPLICATIONS	NTZ**
71(3)	All pesticide applications except bacterial pesticides	<u>General Rule</u> Must maintain a 30 m NTZ around a water supply intake or well used for domestic or agricultural purposes, including water for livestock and irrigation purposes	30 m NTZ
71(4)	All pesticide applications except bacterial pesticides	May reduce the NTZ under section 71(3) if reasonably satisfied that the smaller zone will ensure that pesticide from the use will not enter the water supply intake or well	NTZ at discretion of applicator

\* Before applying herbicide, applicators will make attempts to identify and locate unregistered domestic and agricultural water sources (visual observations and by contacting the land owner/occupier) before herbicide applications.

\*\* NTZs will be identified, marked/flagged prior to any herbicide application.

Table 4. PFZ requirements under the IPMR when applying herbicides for invasive plant control

IPMR SECTION	PERMITTED APPLICATION	PFZ
73(1)	<p><u>Non-glyphosate Applications</u></p> <p>Around or along a body of water or dry stream and classified wetland using any pesticide except glyphosate, subject to label restrictions and including all application methods</p>	10 m. PFZ
74(2)(a) and 77(2)	<p><u>Glyphosate Applications</u></p> <p>If the glyphosate product is applied by <b>selective application methods</b> up to but not below the high-water mark of temporary, free-standing bodies of water that are not fish-bearing at any time of the year and do not drain directly into a fish-bearing body of water</p>	1 m. PFZ above the high-water mark
74(2)(b)	<p><u>Glyphosate Applications</u></p> <p>If the glyphosate product is applied by <b>selective application methods</b> over a dry stream that is not fish-bearing at any time of the year and does not drain directly into a fish-bearing body of water</p>	0 m. PFZ

## Weather Monitoring

Herbicides applicators are responsible for checking each product label for guidelines for on applying herbicides under various weather conditions.

The following guidelines must be followed when herbicide application is deemed the best treatment option:

- Wind speed and temperature will be monitored at the treatment sites before and during herbicide application to ensure proper weather conditions for herbicide application.
- Wind speed and direction, precipitation, temperature and sky conditions (clear, overcast, cloudy, partly cloudy) will be recorded for herbicide applications using backpack sprayers.
- Temperature, precipitation, frost and dew conditions will be recorded for stem, wick/wipe-on applications.

## Stop Treatment Conditions

The certified pesticide applicator has the final authority on when herbicide applications should be stopped due to inclement weather or adverse site conditions. Backpack herbicide operations will be stopped when the parameters are surpassed according to the herbicide manufacturer’s label.

Applicators will stop when:

- Conditions prevent the herbicide from being applied effectively according to label instructions (e.g., rain or snow).
- Wind speed and/or direction causes herbicide to drift and/or miss the target invasive plants.

- Ground wind velocity is over 8 km/hour (for backpack application).
- The maximum temperature stated on the herbicide label is exceeded (roughly 28 degrees).
- There is ice or frost on the vegetation.

## Qualifications and Responsibilities of Persons Applying Herbicides

The transportation, storage, handling, application and disposal of pesticides are governed by federal and provincial legislation. Contractors will follow safe handling practices including workplace requirements for Workplace Hazardous Materials Information System (WHMIS) labeling and worker education. The required practices for pesticide applicators are detailed in:

- *Workers Compensation Act – Occupational Health and Safety Regulation: B.C. Reg.296/97, Sec 6.70 through Sec. 6.109*  
[http://www.bclaws.ca/civix/document/id/crbc/crbc/296\\_97\\_multi](http://www.bclaws.ca/civix/document/id/crbc/crbc/296_97_multi)
- *Canadian Pesticide Education Program Applicator Core Manual: British Columbia Edition (2011)*
- *WorkSafeBC Standard Practices for Pesticide Applicators*  
<https://www.worksafebc.com/en/resources/health-safety/books-guides/standard-practices-for-pesticide-applicators>

All herbicide applications shall be performed by:

- A person who holds a valid Pesticide Applicator Certificate endorsed for Industrial Vegetation Application, or
- A person holding a valid Pesticide Applicator Certificate who directly supervises up to four(4) individuals who have completed the Pesticide Applicator Assistant training
  - Supervisor must always be within 500 m of each Assistant Applicator

## Procedures for Safely Transporting Herbicides

The [Transport of Dangerous Goods Act](#) regulates the handling and transportation of poisonous substances that may include herbicides.

- Herbicides will be carried in a compartment that is secured against spillage and unauthorized removal. The secure compartment shall be separate from food and drinking water, safety gear, spill containment equipment and people.
- Herbicide containers will be inspected for defects before transport.
- Herbicides will be kept in their original containers and with original labels. If original labels are not available, the herbicides will be placed in appropriate containers that have the trade name, active ingredient concentration and pesticide registration number attached to the outside of the container;
- The transport vehicle will have a first aid kit, fire extinguisher, spill contingency plan and kit, and operator has been trained on how to handle spills;
- All documents and placards are carried in, or placed on, transport vehicles as required under the Transportation of Dangerous Goods Act.
- The vehicle operator will have read and understood the herbicide labels and the product Material Safety Data Sheet (MSDS) for all herbicides being transported.

- The MSDS sheets will be carried in the vehicle and the operator will produce them on the request of the NWIPC Field Coordinator or another program representative.

### Procedures for Safely Storing Herbicides

Herbicides will be stored in accordance with the [Integrated Pest Management Act](#), [Integrated Pest Management Regulations](#) and the WorkSafeBC document [Standard Practices for Pesticide Applicators](#);

- Keep herbicides in their original containers and with original packaging. If original packaging is not available, the herbicides shall be placed in appropriate containers that have the trade name, active ingredient concentration and pesticide registration number attached to the outside of the container;
- Storage facilities will be locked when left unattended, ventilated to the outside atmosphere, are entered only by persons authorized to do so, and that there is a placard affixed and maintained on the outside of each door leading into the storage area bearing, in block letters that are clearly visible, the words "WARNING – CHEMICAL STORAGE – AUTHORIZED PERSONS ONLY";
- Keep storage facilities separate from work and living areas, and away from food, flammable materials, bodies of water and water sources;
- The storage facility will be equipped with necessary spill equipment, first aid kits, and the appropriate Material Safety Data Sheets of herbicides stored;
- The person responsible for the storage area is responsible for notifying the appropriate fire department of the presence of herbicides on the premises;
- Herbicides that release vapors and bear a "poison" symbol on the label will be stored in a facility that is not attached to or within a building used for living accommodation.
- The contractor's vehicle is considered a mobile storage unit. Persons responsible for the herbicide storage shall ensure that all herbicides are stored in a locked canopy or similar arrangement, separate from the driver and personal protective gear.
- The MSDS sheets will be carried in the vehicle and the operator will produce them on the request of the NWIPC Field Coordinator or another program representative.

The contractor's vehicle is considered a mobile storage unit. Persons responsible for the herbicide storage shall ensure that all herbicides are stored in a locked canopy or similar arrangement, separate from the driver and personal protective gear.



## NWIPC CONTRACTOR TRACKING SHEETS

Enter all tracking data on the Data tab of the tracking sheet. Training on correct completion of the contractor tracking sheets will be covered at the pre-work or contractor training sessions.

You may split costs (supplies, hours and km) on the tracking sheet to fairly spread the cost of invasive plant management among NWIPC partners, if the IP infestation covers more than one jurisdiction.

### Tracking sheet column headings explained

#### *IPMA, Contractor, Field Jurisdiction*

These are mandatory fields. They are populated automatically by choosing the appropriate detail from the drop-down pick lists (purple cell). DO NOT ENTER MANUALLY.

#### *Expenses*

This field must be used for all expenses. Costs for herbicides and materials such as NWIPC approved seed, must be coded to a field jurisdiction and IAPP site on the date the materials were used. Record equipment costs, boats, ferries, etc. in this field. Copies of receipts (digital) must be submitted to NWIPC when the tracking form is submitted.

#### *Inventory & Monitoring (hrs and kms)*

Includes field time and travel related to:

- survey of existing and new sites
- herbicide use notice sign removal
- planned field inspections on a partner's jurisdiction to determine presence/absence of invasive target plants; includes all jurisdictions, particularly MOTI gravel pits and associated with existing IAPP sites, BC Hydro, Oil and Gas pipelines, and other utility corridors.

#### *Treatment (hrs and kms)*

Includes time in the field applying treatments, as well as preparation:

- flagging Pesticide Free Zone (PFZ) prior to treatment
- digging, mowing, pulling, spraying, etc.
- bagging and disposing of plants when required
- mixing chemicals
- cleaning tools

#### *Awareness (hrs and kms)*

- Note: Jurisdiction field pick must be "AWARE"
- Includes time spent:
- talking to the public about the program while doing field work
- hotline call responses up to the point of giving them a landowner rebate application
- meetings with agencies involved with the program
- helping at awareness events like Garden Blitz, farmers markets, etc. outside of volunteer hours

- representing NWIPC during presentations, tours, etc.
- contacting partners and landowners regarding treatment

#### *Planning and Preparation “P&P” (hrs and kms)*

Contractors must spend some time preparing for the season and these activities include:

- mapping and crew work plans etc.
- Time spent on planning and preparation prior to field work will be coded to a field jurisdiction (i.e., MOTI, MFLNRO, BNRD, etc). You can split (average) P&P time across two or more jurisdictions.

#### *Data Entry (hrs)*

Data entry includes entering data into your tracking sheets and into IAPP and is an activity that can span numerous jurisdictions during a single session. The time spent on entering data on the tracking sheet must be coded to a field jurisdiction. Keep it simple; that is, record the most common jurisdiction during a session, and over the season, spread the tracking sheet data entry hours across all jurisdictions you did work for.

#### ACTIVITIES NOT INCLUDED ON THE TRACKING SHEET

The following activity(ies) in the 2018 contract are to be billed separately:

- pre-work with NWIPC
- contractor training sessions

These costs are not included in your contract jurisdiction budget. **Do not put them on your tracking sheets for payment.** Invoice NWIPC separately for these activities and as soon as possible after the costs are incurred. Do not refer to your IPMA contract number on your invoice. Do include:

- date of work
- description of activity e.g., “attended contractor training in Terrace”
- hours, kms and expenses; use contract rates and provide receipts

## NWIPC POLICY ON HERBICIDE TREATMENT WITHIN MUNICIPAL BOUNDARIES & RESIDENTIAL AREAS

### PURPOSE AND SCOPE

This policy addresses herbicide use on non-crown land.

The NWIPC provides invasive plant treatment through contractors. They follow the current provincial government Pest Management Plan (PMP) developed to meet obligations under the Weed Control Act and Forest and Range Practices Act, and in accordance with the Integrated Pest Management Act and its regulations. The PMP applies only to Crown Land.

This Policy & Procedure directs treatment operations on all other lands – non-crown, residential and local government-controlled lands. While not strictly required, NWIPC directs their contractors to operate in the spirit of the PMP on all lands.

### POLICY

NWIPC uses an integrated pest management approach that includes public awareness, reporting, inventory, planning, prevention, and biological, cultural, manual, mechanical and herbicide treatments. Treatment includes assessment of a site following the current strategic plan, establishing injury levels and treatment thresholds, and treatment options. All the contractors and crews have certified pesticide applicators in the Industrial Vegetation category that includes invasive plants. Contractors must follow the herbicide product label as it is a legal document.

### PROCEDURE

As is stated in the Services section of each Invasive Plant Management Area contract, when a decision has been made to use herbicides, the contractor will notify local area residents of herbicide application if working immediately adjacent to private land. This will include door-to-door written and/or verbal notification to discuss treatment, as well as any water well and creek locations. This is not a legal requirement, but a courtesy, and is the procedure used to prevent or minimize public complaints about the work done by NWIPC. Before treating a site with herbicides, NWIPC contractors must consider the timing of use of public spaces with unrestricted access as well as the extent of their use.

From time to time there may be inquiries about the invasive plant management program. The contractor will respond courteously to reasonable requests for information. If someone opposes herbicide application at the site and demands that no spraying is done, the contractor will cease spraying, refer that person to the Program Manager and, if possible, get the person's contact information for follow-up purposes. The contractor will contact the Program Manager as soon as possible.

Spraying will not resume until the Program Manager has given the contractor approval.

### CONSEQUENCES

Should an incident occur, the Program Manager and NWIPC Directors will investigate, mitigate the incident and determine consequences. If the contractor is deemed to be in contravention of their contract, consequences may include; loss of the contract holdback and/or termination of the contract.

## REFERENCE MATERIALS

### IAPP Codes

#### Treatment Codes

Table 5. IAPP Treatment Codes

MECHANICAL TREATMENT METHODS		CHEMICAL TREATMENT METHODS	
Code	Description	Code	Description
BR	Burning	ATV	ATV
CU	Cultivation or till	BP	Back Pack
DI	Digging	BN	Boomless Nozzle
HP	Hand pulling	FB	Fixed Boom
MW	Mowing	HG	Hand Gun
SV	Salt water / vinegar	SI	Stem injection
TG	Targeted grazing	W	Wick
MU	Mulching		





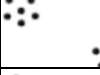
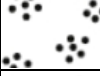
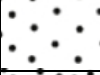
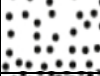

#### Herbicide Codes

Table 6. IAPP Codes for Herbicide (commercial name)

CODE	DESCRIPTION
<b>24D</b>	2 4-D
<b>B</b>	Banvel II
<b>C</b>	Clearview
<b>D</b>	DyVel
<b>DS</b>	DyVel DS
<b>E</b>	Escort
<b>GU</b>	Garlon 4 Ultra
<b>G</b>	Grazon
<b>L</b>	Lontrel
<b>L26</b>	Lontrel 360
<b>M</b>	Milestone
<b>RC</b>	Reclaim
<b>RS</b>	Restore
<b>R</b>	Round-Up
<b>T</b>	Tordon 101
<b>TK</b>	Tordon 22K
<b>TR</b>	Transline
<b>V</b>	Vanquish
<b>VP</b>	Vantage Plus Max

Plant Distribution

Table 7. IAPP Plant 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

Plant Density

Table 8. IAPP Plant Density Codes

CODE	DESCRIPTION
1	<= 1plant/m2 (Low)
2	2-5 plants/m2 (Med)
3	6-10 plants/m2 (High)
4	>10 plants/m2 (Dense)

## Invasive Plant Codes

Table 9. Plant Latin and Common Names and IAPP Code

LATIN NAME	COMMON NAME	IAPP CODE
<i>Peganum harmala</i>	African rue / harmal	AR
<i>Ammophila breviligulata</i>	American beachgrass	AB
<i>Rorippa amphibian</i>	Amphibious yellow cress	YC
<i>Crepis tectorum</i>	Annual hawkbeard	HB
<i>Sonchus oleraceus</i>	Annual sow thistle	AS
<i>Gypsophila paniculata</i>	Baby's breath	BY
<i>Centaurea cyanus</i>	Bachelor's button	BB
<i>Echinochloa crusgalli</i>	Barnyard grass	BA
<i>Centaurea macrocephala</i>	Bighead knapweed	KB
<i>Vinca major</i>	Bigleaf periwinkle / large periwinkle	BP
<i>Hyoscyamus niger</i>	Black henbane	BH
<i>Centaurea nigra</i>	Black knapweed	BL
<i>Robinia pseudoacacia</i>	Black locust	RB
<i>Silene vulgaris</i>	Bladder campion	BC
<i>Echium vulgare</i>	Blueweed	BW
<i>Schoenoplectus mucronatus</i>	Bog bulrush / ricefield bulrush	RI
<i>Fallopia x bohemicum</i>	Bohemian knotweed	BO
<i>Egeria densa</i>	Brazilian waterweed	ED
<i>Robinia hispida</i>	Bristly locust / rose acacia	RA
<i>Centaurea jacea</i>	Brown knapweed	BK
<i>Cirsium vulgare</i>	Bull thistle	BT
<i>Anthriscus caucalis</i>	Bur chervil	CB
<i>Arctium spp</i>	Burdock species	BU
<i>Buddleja davidii</i>	Butterfly bush	BD
<i>Alhagi maurorum</i>	Camel thorn	AM
<i>Cirsium arvense</i>	Canada thistle	CT
<i>Carum carvi</i>	Caraway	CA
<i>Soliva sessilis</i>	Carpet burweed	CG
<i>Bromus tectorum</i>	Cheatgrass / downy brome	DB
<i>Prunus laurocerasus</i>	Cherry laurel	LC
<i>Cichorium intybus</i>	Chicory	CY
<i>Madia sativa</i>	Chilean tarweed	CH
<i>Salvia sclarea</i>	Clary sage	CE
<i>Tussilago farfara</i>	Coltsfoot	CF
<i>Anchusa officinalis</i>	Common bugloss	AO
<i>Symphytum officinale</i>	Common comfrey	CO
<i>Crupina vulgaris</i>	Common crupina	CC

<b><i>Hydrocharis morsus-ranget</i></b>	Common frogbit	FC
<b><i>Hieracium lanchenalii</i></b>	Common hawkweed	CX
<b><i>Vinca minor</i></b>	Common periwinkle	CP
<b><i>Phragmites australis subsp. australis</i></b>	Common reed	RC
<b><i>Tanacetum vulgare</i></b>	Common tansy	TC
<b><i>Ranunculus repens</i></b>	Creeping buttercup	CR
<b><i>Gnaphalium uliginosum</i></b>	Cudweed	CU
<b><i>Rumex crispus</i></b>	Curled dock	CD
<b><i>Potamogeton crispus</i></b>	Curly leaf pondweed	UP
<b><i>Rubus laciniatus</i></b>	Cutleaf blackberry	CL
<b><i>Euphorbia cyparissias</i></b>	Cypress spurge	CS
<b><i>Linaria dalmatica</i></b>	Dalmatian toadflax	DT
<b><i>Hesperis matronalis</i></b>	Dame's rocket	DR
<b><i>Daphne laureola</i></b>	Daphne / spurge laurel	SL
<b><i>Spartina densiflora</i></b>	Dense-flowered cordgrass	DC
<b><i>Didymosphenia geminata</i></b>	Didymo	DI
<b><i>Centaurea diffusa</i></b>	Diffuse knapweed	DK
<b><i>Cuscuta spp.</i></b>	Dodder	DO
<b><i>Zostera japonica</i></b>	Dwarf eelgrass	DE
<b><i>Isatis tinctoria</i></b>	Dyer's woad	DW
<b><i>Euphorbia oblongata</i></b>	Eggleaf spurge	ES
<b><i>Spartina anglica</i></b>	English cordgrass	EC
<b><i>Ilex aquifolium</i></b>	English holly	HO
<b><i>Hedera helix</i></b>	English ivy	EI
<b><i>Myriophyllum spicatum</i></b>	Eurasian watermilfoil	EW
<b><i>Ammophila arenaria</i></b>	European beachgrass	EB
<b><i>Hieracium sabaudum</i></b>	European hawkweed	EH
<b><i>Carex acutiformis</i></b>	European lake sedge	EL
<b><i>Marsilea quadrifolia</i></b>	European water clover	MQ
<b><i>Nymphaea alba</i></b>	European waterlily	WE
<b><i>Euphrasia nemorosa</i></b>	Eyebright	EY
<b><i>Brachypodium sylvaticum</i></b>	False brome	BF
<b><i>Cabomba caroliniana</i></b>	Fanwort	FW
<b><i>Azolla pinnata</i></b>	Feathered mosquito-fern	FM
<b><i>Convolvulus arvensis</i></b>	Field bindweed	FB
<b><i>Knautia arvensis</i></b>	Field scabious	FS
<b><i>Lathyrus sylvestris</i></b>	Flat pea / flat peavine	FP
<b><i>Butomus umbellatus</i></b>	Flowering rush	FR
<b><i>Nymphaea odorata subsp. odorata</i></b>	Fragrant water lily	FL
<b><i>Genista monspessulana</i></b>	French broom	GM
<b><i>Lysimachia vulgaris</i></b>	Garden yellow loosestrife	GL

<b><i>Alliaria petiolata</i></b>	Garlic mustard	AP
<b><i>Myosoton aquaticum</i></b>	Giant chickweed	MA
<b><i>Heracleum mantegazzianum</i></b>	Giant hogweed	GH
<b><i>Fallopia sachalinensis</i></b>	Giant knotweed	GK
<b><i>Glyceria maxima</i></b>	Giant mannagrass / reed sweetgrass	SW
<b><i>Arundo donax</i></b>	Giant reed / giant cane	AD
<b><i>Salvinia molesta</i></b>	Giant salvinia	SV
<b><i>Galega officinalis</i></b>	Goat's rue / french lilac	RG
<b><i>Ulex europaeus</i></b>	Gorse	GO
<b><i>Aegopodium podagraria</i></b>	Goutweed / bishop's weed	GW
<b><i>Chelidonium majus</i></b>	Greater celandine	GC
<b><i>Centaurea scabiosa</i></b>	Greater knapweed	GN
<b><i>Setaria viridis</i></b>	Green foxtail / green bristlegrass	GF
<b><i>Senecio vulgaris</i></b>	Groundsel	GS
<b><i>Hypochaeris radicata</i></b>	Hairy cat's-ear	HR
<b><i>Hieracium spp</i></b>	Hawkweed species	HS
<b><i>Calystegia sepium</i></b>	Hedge false bindweed	BI
<b><i>Cynosurus echinatus</i></b>	Hedgehog dogtail	HD
<b><i>Geranium robertianum</i></b>	Herb robert	GR
<b><i>Rubus armeniacus</i></b>	Himalayan blackberry	HI
<b><i>Polygonum polystachyum</i></b>	Himalayan knotweed	PO
<b><i>Berteroa incana</i></b>	Hoary alyssum	HA
<b><i>Cardaria draba</i></b>	Hoary cress	HC
<b><i>Cynoglossum officinale</i></b>	Hound's-tongue	HT
<b><i>Hydrilla verticillata</i></b>	Hydrilla	HY
<b><i>Centaurea iberica</i></b>	Iberian starthistle	IS
<b><i>Carduus pycnocephalus</i></b>	Italian plumeless thistle	IT
<b><i>Fallopia japonica</i></b>	Japanese knotweed	JK
<b><i>Sargassum muticum</i></b>	Japanese wireweed	JW
<b><i>Sorghum halepense</i></b>	Johnsongrass	GJ
<b><i>Aegilops cylindrica</i></b>	Jointed goatgrass	JG
<b><i>Hieracium floribundum</i></b>	King devil hawkweed	KH
<b><i>Centaurea spp.</i></b>	Knapweed species	KS
<b><i>Kochia scoparia</i></b>	Kochia	KO
<b><i>Pueraria montana</i></b>	Kudzu	KU
<b><i>Polygonum persicaria</i></b>	Lady's-thumb	LT
<b><i>Lysimachia punctata</i></b>	Large yellow loosestrife / spotted loosestrife	LL
<b><i>Euphorbia esula</i></b>	Leafy spurge	LS
<b><i>Ranunculus ficaria</i></b>	Lesser celandine / fig buttercup	RF
<b><i>Cenchrus longispinus</i></b>	Longspine sandbur	LO
<b><i>Lagarosiphon</i></b>	Major oxygen weed	OW



<i>Cirsium palustre</i>	Marsh plume thistle/Marsh thistle	MT
<i>Ranunculus acris</i>	Meadow buttercup	MB
<i>Salvia pratensis</i>	Meadow clary	MC
<i>Tragopogon pratensis</i>	Meadow goats-beard	MG
<i>Hieracium caespitosum</i>	Meadow hawkweed	MH
<i>Centaurea debeauxii</i>	Meadow knapweed	MK
<i>Salvia aethiopsis</i>	Mediterranean sage	MS
<i>Taeniatherum caput-medusae</i>	Medusahead	TM
<i>Silybum marianum</i>	Milk thistle	MI
<i>Centaurea montana</i>	Mountain bluet	MO
<i>Hieracium pilosella</i>	Mouse ear hawkweed	ME
<i>Verbascum thapsis</i>	Mullein	MU
<i>Silene noctiflora</i>	Night-flowering catchfly	NC
<i>Solanum spp</i>	Nightshade	NI
<i>Carduus nutans</i>	Nodding thistle	NT
<i>Ventenata dubia</i>	North africa grass	NA
<i>Clematis vitalba</i>	Old man's beard / traveller's joy	OM
<i>Hieracium aurantiacum</i>	Orange hawkweed	OH
<i>Leucanthemum vulgare</i>	Oxeye daisy	OD
<i>Myriophyllum aquaticum</i>	Parrot feather	PF
<i>Lepidium latifolium</i>	Perennial pepperweed	PP
<i>Sonchus arvensis</i>	Perennial sow thistle	PS
<i>Carduus acanthoides</i>	Plumeless thistle	PT
<i>Conium maculatum</i>	Poison hemlock	PH
<i>Hieracium atratum</i>	Polar hawkweed	PA
<i>Impatiens glandulifera</i>	Policeman's helmet / himalayan balsam	IM
<i>Prunus lusitanica</i>	Portugese laurel	LP
<i>Cytisus striatus</i>	Portuguese broom	PR
<i>Symphytum asperum</i>	Prickly comfrey	PC
<i>Tribulus terrestris</i>	Puncturevine	PV
<i>Lamium purpureum</i>	Purple deadnettle	PD
<i>Lythrum salicaria</i>	Purple loosestrife	PL
<i>Cyperus rotundus</i>	Purple nutsedge	PN
<i>Centaurea calcitrapa</i>	Purple starthistle	PU
<i>Daucus carota</i>	Queen anne's lace / wild carrot	QA
<i>Hieracium praealtum</i>	Queen devil hawkweed	QH
<i>Odontites serotina</i>	Red bartsia	BR
<i>Amaranthus retroflexus</i>	Redroot amaranth / rough pigweed	RP
<i>Chondrilla juncea</i>	Rush skeletonweed	RS
<i>Acroptilon repens</i>	Russian knapweed	RK
<i>Elaeagnus angustifolia</i>	Russian olive	RO

<b><i>Salsola kali</i></b>	Russian thistle	RT
<b><i>Spartina patens</i></b>	Salt-meadow cord grass	SN
<b><i>Tamarix ramosissima</i></b>	Saltcedar / tamarisk	TA
<b><i>Halogeton glomeratus</i></b>	Saltlover / halogeton	AH
<b><i>Spartina alterniflora</i></b>	Saltwater cord grass	SA
<b><i>Matricaria perforata</i></b>	Scentless chamomile	SH
<b><i>Cytisus scoparius</i></b>	Scotch broom	SB
<b><i>Onopordum acanthium</i></b>	Scotch thistle	ST
<b><i>Rumex acetosella</i></b>	Sheep sorrel	SS
<b><i>Capsella bursa-pastoris</i></b>	Shepherd's-purse	SP
<b><i>Geranium lucidum</i></b>	Shiny geranium	SG
<b><i>Centaurea nigrescens</i></b>	Short-fringed knapweed	CN
<b><i>Ulmus pumila</i></b>	Siberian elm	SE
<b><i>Solanum elaeagnifolium</i></b>	Silverleaf nightshade	NS
<b><i>Alopecurus myosuroides</i></b>	Slender meadow foxtail	FT
<b><i>Hypochaeris glabra</i></b>	Smooth cat's ear	HG
<b><i>Hieracium laevigatum</i></b>	Smooth hawkweed	SM
<b><i>Sonchus species</i></b>	Sowthistle species	SO
<b><i>Hyacinthoides hispanica</i></b>	Spanish bluebells	BS
<b><i>Spartium junceum</i></b>	Spanish broom	SI
<b><i>Hieracium maculatum</i></b>	Spotted hawkweed	SX
<b><i>Centaurea biebersteinii</i></b>	Spotted knapweed	SK
<b><i>Milium vernale</i></b>	Spring millet grass	MV
<b><i>Thymelaea passerina</i></b>	Spurge flax	TP
<b><i>Centaurea virgata ssp. squarrosa</i></b>	Squarrose knapweed	CV
<b><i>Hypericum perforatum</i></b>	St. John's wort/Saint John's wort/ Goatweed	SJ
<b><i>Potentilla recta</i></b>	Sulphur cinquefoil	SC
<b><i>Foeniculum vulgare</i></b>	Sweet fennel	SF
<b><i>Zygophyllum fabago</i></b>	Syrian bean-caper	SY
<b><i>Hieracium piloselloides</i></b>	Tall hawkweed	TH
<b><i>Senecio jacobaea</i></b>	Tansy ragwort	TR
<b><i>Fagopyrum tataricum</i></b>	Tartary buckwheat	TB
<b><i>Dipsacus fullonum</i></b>	Teasel	TS
<b><i>Helianthus ciliaris</i></b>	Texas blueweed	TX
<b><i>Ailanthus altissima</i></b>	Tree of heaven	AA
<b><i>Myriophyllum heterophyllum</i></b>	Variable leaf milfoil	LM
<b><i>Abutilon theophrasti</i></b>	Velvet leaf	VL
<b><i>Hieracium murorum</i></b>	Wall hawkweed	WA
<b><i>Lythrum virgatum</i></b>	Wand loosestrife	WL
<b><i>Trapa natans</i></b>	Water chestnut	TN
<b><i>Eichhornia crassipes</i></b>	Water hyacinth	WH

<b><i>Pistia stratiotes</i></b>	Water lettuce	LW
<b><i>Stratiotes aloides</i></b>	Water soldier	AQ
<b><i>Nasturtium officinale</i></b>	Watercress	NO
<b><i>Tragopogon dubius</i></b>	Western goat's-beard	WG
<b><i>Hieracium flagellare</i></b>	Whiplash hawkweed	WP
<b><i>Lychnis alba</i></b>	White cockle	WC
<b><i>Polygonum convolvulus</i></b>	Wild buckwheat	WB
<b><i>Anthriscus sylvestris</i></b>	Wild chervil	WI
<b><i>Mirabilis nyctaginea</i></b>	Wild four o'clock	WF
<b><i>Sinapis arvensis</i></b>	Wild mustard	WM
<b><i>Avena fatua</i></b>	Wild oats	WO
<b><i>Carduus tenuiflorus</i></b>	Winged thistle / slender-flowered thistle	WT
<b><i>Salvia nemorsa</i></b>	Wood sage	WS
<b><i>Artemisia absinthium</i></b>	Wormwood	WW
<b><i>Lamiaeum galeobdolon</i></b>	Yellow archangel	YA
<b><i>Hieracium glomeratum</i></b>	Yellow devil hawkweed	YD
<b><i>Nymphoides peltata</i></b>	Yellow floating heart	YF
<b><i>Hieracium pratense</i></b>	Yellow hawkweed	YH
<b><i>Iris pseudachorus</i></b>	Yellow iris	YI
<b><i>Cyperus esculentus</i></b>	Yellow nutsedge	YN
<b><i>Centaurea solstitialis</i></b>	Yellow starthistle	YS
<b><i>Linaria vulgaris</i></b>	Yellow/common toadflax	YT

## NWIPC Paper File ID Codes

Table 10. NWIPC Paper File IDs

<b>PARTNER</b>	<b>SITE PAPER FILE CODE</b>	<b>SURVEY OR TREATMENT</b>
BC Hydro	BCHYDRO	BCHYDRO (year)
BC Parks	PARKS	PARKS (year)
Bio Release	BIO	BIO (year)
Burns Lake	VILBL	VILBL (year)
CN Rail	CN	CN (year)
FLNRO - Crown lands	FLNRO	FLNRO (year)
FLNRO - Resource roads	FLNRO (road name)_FSR	FLNRO (road name)_FSR (year)
FLNRO - Conservancies	FLNRO CONSERV	FLNRO CONSERV (year)
Fortis	FORTIS	FORTIS (year)
Hazelton	VILHAZ	VILHAZ (year)
Houston	DISTHOU	DISTHOU (year)
Kinder Morgan	KM	KM (year)
Kitimat	DISTKIT	DISTKIT (year)
Landfill or transfer station within BNRD	BNRD LANDFILL	BNRD LANDFILL (year)
Landfill or transfer station within FFGRD	FFGRD LANDFILL	FFGRD LANDFILL (year)
MOTI - Brake checks	MOTI HWY (Hwy #) BRAKE CHECK (name of brake check)	MOTI HWY (Hwy #) BRAKE CHECK (name of brake check and year)
MOTI - Gavel pits	GP-MOT-(Pit Number)	GP-MOT-(Pit Number)
MOTI - Off highway	MOTI (road name)	MOTI (year)
MOTI - On highway	MOTI HWY (Hwy #)	MOTI HWY (Hwy # and year)
MOTI - Rest areas	MOTI REST AREA (rest area name)	MOTI REST AREA (rest area name and year)
MOTI - Weigh scales	MOTI Weigh Scale (weigh scale name)	MOTI Weigh Scale (weigh scale name)
Nature Trust BC	NTBC	NTBC (year)
North West Community College	NWCC	NWCC (year)
Port Edward	DISTPE	DISTPE (year)
Prince George	CITYPG	CITYPG (year)
Prince Rupert	CITYPR	CITYPR (year)
Private Property Municipal	Private (Municipality)	
Private Property Rural	Private (Rural District)	
Rec Sites	FLNRO REC SITE	FLNRO REC (year)
Smithers	TOSMI	TOSMI (year)

<b>PARTNER</b>	<b>SITE PAPER FILE CODE</b>	<b>SURVEY OR TREATMENT</b>
Telkwa	VILTEL	VILTEL (year)
Terrace	CITYTER	CITYTER (year)
Trails	FLNRO TRAILS	FLNRO TRAILS (year)
Valemount	VILVA	VILVA (year)
Vanderhoof	DISTVAN	DISTVAN (year)

## Other Paper File IDs

Table 11. Other Paper File IDs

Bad Data Delete	The IAPP entry (site, survey, or treatment) was entered in error and will be removed from IAPP.
Clean	Site is deemed to longer have High Priority target plants on site. Data will be kept in IAPP but the IPMA contractor will not be responsible for continuing to monitor this site.
Combine (site to keep)	IAPP data should be moved from this site to the site to keep. Sites with this paper file ID will be deleted after the move.
Next Survey (year)	Species on site do not need monitoring again until the year indicated.

## Guide to Estimating Area for Infestations

(based on formula:  $\text{length}(m) \times \text{width}(m) / 10,000 (m^2)$ )

Table 12. Area Estimation Guide

APPROXIMATE DIMENSIONS	AREA EQUIVALENT (HA)
20m x 200m	0.4
20m x 150m	0.3
20m x 100m	0.2
20m x 50m	0.1
20m x 25m	0.05
20m x 10m	0.02
20m x 5m	0.01
15m x 200m	0.3
15m x 150m	0.2
15m x 100m	0.1
15m x 50m	0.08
15m x 25m	0.04
15m x 10m	0.02
15m x 5m	0.008
10m x 200m	0.2
10m x 150m	0.15
10m x 100m	0.1
10m x 50m	0.05
10m x 25m	0.03
10m x 10m	0.01
10m x 5m	0.005
5m x 200m	0.1
5m x 150m	0.08
5m x 100m	0.05
5m x 50m	0.03
5m x 25m	0.01
5m x 10m	0.005
5m x 5m	0.003
4m x 5m	0.002
4m x 3m	0.001
4m x 1m	0.004
3m x 5m	0.002
3m x 3m	0.0009
3m x 1m	0.0003
2m x 5m	0.001
2m x 3m	0.0006
2m x 1m	0.0002
1m x 5m	0.0005
1m x 3m	0.0003
1m x 1m	0.0001

## CALIBRATION GUIDE

### Calibrating Backpack Sprayers

Even small backpack sprayers require calibrating. Accuracy and knowledge of the prayer output is essential for proper application of herbicides. Knowing the sprayer output will ensure correct rates of herbicide are being applied to achieve the required level of control.

#### Before calibration

1. Make sure the tank is clean to prevent clogging of hoses and nozzles.
2. Check that all hoses and fittings are not leaking.
3. Ensure the nozzle is not worn or damaged.

These inconsistencies will certainly affect the output.

#### Calibrating

- A. First, measure the delivery rate or the output of your backpack sprayer by:
  1. Accurately measure and mark a test strip in the field. For example, a 100-metre strip
  2. Measure the width of the spray swath. Be aware that the spray width varies with the type of nozzle used and the height of the nozzle above the ground
  3. On boom sprayer it is the between the two outer spray nozzles + the distance between two nozzles.
  4. Fill the sprayer half full of water and mark this level on the tank. Select spray speed and select desired pressure (3 - point hitch sprayers will select and maintain constant RPM on pump drive).
  5. Begin spraying the tank mixture over selected/measured test area
  6. Variation in speed and pumping pressure will change the output
  7. Accurately measure the amount of water required to refill the tank to the mark established in Step 3.
  8. Always return the sprayer to the same location to refill tank.
  9. Calibrate the sprayer delivery rate (output) by using the following formula.

$$\text{Sprayer Delivery Rate (L/ha)} = \frac{\text{Litres used in test} \times 10,000 \text{ (m}^2\text{/hectare)}}{\text{Spray width (m)} \times \text{Test Distance (m)}}$$

$$\frac{\text{L} \times 10,000}{\text{m} \times \text{m}} = \frac{\text{L}}{\text{m}^2} = \text{L/ha}$$

- B. Second, calculate the area that can be treated with a full tank.

$$\text{Area sprayed by 1 tank} = \frac{\text{Volume of spray mixture in tank (tank capacity)}}{\text{Sprayer Delivery Rate (L/ha)}}$$

$$\frac{\text{L}}{\text{L/ha}} = \text{ha}$$

- C. Third, calculate the amount of herbicide to add to the backpack sprayer tank as follows:

**Amount of herbicide to add to tank = application rate X area sprayed by one tank**

Amount of product to add to tank = \_\_\_ L/ha X \_\_\_ ha = \_\_\_ litres