



Northwest

INVASIVE PLANT COUNCIL

Invasive Plant Management Area

Contractor Guide

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NWIPC CONTRACTOR GUIDE

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, this guide outlines required procedures to ensure consistency across the NWIPC operating area and to ensure compliance to guidelines 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, 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 (IAPP).
- 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 Species Strategy for BC - 2018 to 2022](#)

IPMA DESCRIPTIONS

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

Haida Gwaii

This IPMA includes the islands of Haida Gwaii (Queen Charlotte Islands).

Stikine

The northern boundary is the Yukon border and the southern boundary is Meziadin Junction.

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 in the west near the rest area of Six-mile summit at the RDBN electoral area "G" boundary and in 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 Azousetta 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

See separate 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 mandatory. 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 Invasive Alien Plant Program (IAPP) database at: <http://www.for.gov.bc.ca/hra/Plants/application.htm>.

Treatment Method

The integration of several treatment strategies into an invasive plant management 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 is based on the invasive plant and the site survey results. 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. Control methods used in the IPM program

Treatment	Conditions for Use
<p><u>Prevention</u></p> <p>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>	<p>No conditions, it is in everyone’s best interest to always practice prevention techniques.</p>
<p><u>Manual and Mechanical</u></p> <p>Includes: cutting, digging/excavating, girdling, hand pulling, mowing, pruning, tilling, spot burning (flaming).</p>	<p>New, small incursions generally readily available to equipment</p> <p>Used to limit rhizomatous root spread and to prevent seed production</p> <p>Generally applicable to all species, except knotweed species</p> <p>Generally, requires restoration (to some extent)</p>

Treatment	Conditions for Use
	with native grasses or plant species
<p><u>Biological</u> (see Note, below)</p> <p>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>	<p>Older, more established incursions generally with widespread occurrences of target species beyond treatment site</p>
<p><u>Cultural</u></p> <p>Altering the environment to make it less favourable for invasive plant survival and/or prevent further spread of an invasive plant.</p>	<p>Incursion size is variable.</p>
<p><u>Chemical</u></p> <p>Judicious, strategically targeted use of herbicides including. Applied with hand held sprayers, backpack sprayers, wick applicators, booms and hand-held power nozzles</p>	<p>Incursion size is variable</p> <p>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.</p>

NOTE:

Most invasive plants arrived in North America as seeds and the biological control agents, (insects and diseases) that regulate the IP populations in its native range did not make the move to North America. Biological control involves bringing the specific pests of the invasive plants from their places of origin to North America. There are rigorous screening processes for biological control agents. There is a high degree of confidence that the biocontrol agents will attack the invasive plant species they are targeted for and no other species. Release sites are monitored to determine if the agents establish, if they disperse from the release point and if they have an impact on the host invasive plant species population. During the monitoring indications of attack on other plant species will be noted and if found forwarded to Agriculture Canada.

Table 2. Invasive plant treatment options and tips

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p>Hand-pulling</p> <p><i>Continued...</i></p>	<p><u>Use</u></p> <p>Tap-rooted invasive plants</p> <p>Small infestation area</p> <p>Soils allow pulling (ex. not too hard)</p> <p>Follow up for several years to eliminate infestation</p> <p>If the top of the plant breaks off from the roots rogue/hoe small sites to dig out crowns</p> <p>Pull plants before blooming – twist & break stocks & leave on site if appropriate</p> <p>Use along with other control methods (ex. herbicides)</p> <p><u>Disposal:</u></p> <p>Bag flower heads or whole plants if the invasive plant is in bloom/seed</p> <p>Ensure bagged invasive plants are buried at a landfill or burned completely</p> <p><u>Safety:</u></p> <p>Place “Workers on road” signs to warn traffic in both directions when working along roadsides</p> <p><u>Effects on Fish & Wildlife:</u></p> <p>Control invasive plants along waterways with manual control techniques</p>	<p><u>Precautions</u></p> <p>Don’t pull rhizomatous species (ex. hawkweed & Canada thistle), it will stimulate growth & 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> <p>Don’t leave dead plant material where it will be a hazard or an eyesore - urban areas</p> <p><u>Safety</u></p> <p>Don’t pull leafy spurge without protective gear (gloves, eye protection), the latex (milky sap) can cause irritation & blindness</p> <p><u>Effects on Fish & Wildlife</u></p> <p>Don’t pull plants on steep slopes with fine textured soils (e.g. silt & clay). This can de-stabilize 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</p>	<p>PPE e.g., gloves, eye protection</p> <p>Hand tools - picks, shovels, hoe etc.</p> <p>Heavy duty plastic bags for flower heads & roots</p> <p>Truck to transport plant material or garbage bags to landfill or bun 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
...Hand-pulling	<p>Minimize soil disturbance on slopes</p> <p>Consider re-seeding disturbed areas to prevent sloughing & re-infestation of invasive plants</p>			
<p>Mowing & Cutting plus Over-Seeding</p> <p>(flaming has similar results to mowing cutting)</p> <p>Continued...</p>	<p><u>Use</u></p> <p>Mowing invasive plants &/or over-seed with desirable competitive species to reduce invasive plants.</p> <p>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.</p> <p>Use along with other control methods (ex. herbicides)</p> <p>Use tillage systems in the creation of the seedbed that kill the invasive plants present.</p> <p>Do use mechanical control to weaken the stand of invasive plants & to reduce the spread to new sites.</p> <p>Understand the growth rate & 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) & they dominate the site before the seeded species can establish.</p> <p><u>Worker and Public Safety</u></p> <p>Place “Workers on road” signs to warn traffic in both directions when</p>	<p><u>Precautions</u></p> <p>Don't expect mowing alone to eradicate an infestation. Repeatedly mowing over many years usually does not kill invasive plants.</p> <p>Don't 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 effect on seed production and plants were shorter when they flowered.</p> <p>Don't practice zero tillage seeding (seeding without tilling under the current plant cover) without treating with herbicide first.</p> <p>Don't 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)</p> <p>Don't mow when flower-feeding biocontrol agents are working on a site</p>	<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 & seeders</p>	<p>Variable, generally less than hand pulling & 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’ than 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 & the seed used.</p>

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p>...Mowing & Cutting</p>	<p>working along roadsides.</p> <p>The use of mowing equipment presents risks of being cut by mower blades & suffering back injury from repetitive use of slung mowers. Training on the safe operation of mowers is essential.</p> <p>Flaming can pose safety risks for workers, the public & the environment.</p>			
<p>Biological Control</p> <p><i>continued...</i></p>	<p><u>Use</u></p> <p>Contact the NWIPC Field Coordinator if considering biocontrol. The Ministry of Forests, Lands, Natural Resource Operations & Rural Development (MFLNRORD) develops and tracks agents for invasive plant control and all NWIPC release work is done in conjunction with MFLNRORD.</p> <p>A complete listing of available biocontrol agents, and those under development is available on-line at:</p> <p>https://www.for.gov.bc.ca/hra/plants/Agent-Plant_Matrix.htm</p> <p>Preferred method when infestation levels are too high to control economically by other means</p> <p>Do not expect biological control to eradicate the invasive plant, for biocontrol by infest agents some invasive plants need to be left for habitat for the control agents.</p> <p>Consider that established agent will provide a long-term control option</p> <p><u>Safety</u></p> <p>There are very few worker and public safety issues with biological</p>	<p><u>Precautions</u></p> <p>Available biocontrol agents are not always suitable for all areas of the Province, be sure the agent you request is compatible.</p> <p>Don't expect to see results for several years, agent populations need time to become established & to increase to a level where significant damage can be done to the invasive plant population.</p>	<p>Specialized equipment is required for transporting, releasing, distributing & 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 is relatively inexpensive & scheduling with other duties keeps release & monitoring costs low</p>

Control Method	DO	DON'T	Equipment Needed	Cost of Treatment
<p>... <i>Biological Control</i></p>	<p>control. There have been reports of throat irritation when aspirating biocontrol agents for collection and monitoring.</p> <p><u>Effects on Fish & Wildlife</u></p> <p>Biocontrol involves a release at one point that spreads across the landscape over time. There is some risk of lasting & spreading effects. Rigorous screening is done during agent development.</p>			
<p>Herbicide: Selective & Spot Application</p> <p><i>Continued...</i></p>	<p><u>Use</u></p> <p>The proper use of herbicides results in excellent control of invasive plants as demonstrated by extensive testing</p> <p>Application techniques will be selected that minimize damage to non-target plants & soils through spray drift & leaching in soils.</p> <p>Application by injection, wick/wipe on will be the used where practical.</p> <p>Herbicides provide effective control at the rates recommended on the label.</p> <p>Do consider herbicide applications along with other control methods (e.g. hand-pulling) to treat invasive plant infestations</p> <p><u>Safety:</u></p> <p>Exposure to herbicides presents a risk to workers, the public & non-target species.</p> <p>Herbicide applicators need to be trained & certified in the application of pesticides. Including training in protective gear, techniques & procedures to minimize exposure to herbicides.</p> <p>Post signs at all sprayed sites to let the public know about herbicide</p>	<p><u>Precautions</u></p> <p>Don't apply products containing picloram directly to any water bodies (including dry streams & classified wetlands) or in areas where the runoff from treated areas will reach fish-bearing waters.</p> <p>Don't apply products containing picloram in residential areas or where runoff could reach water wells.</p> <p>At no time will herbicides be applied at rates higher than indicated on their respective labels.</p> <p>Don't 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.).</p>	<p>Herbicides are applied using hand held & backpack sprayers, motorized sprayers mounted on trucks or on ATVs.</p> <p>Wick & stem injection applicators are also used.</p>	<p>When used as directed herbicides are an efficient & effective in controlling invasive plants.</p> <p>The costs for 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><i>...Herbicide</i></p>	<p>applications.</p> <p>Selective application techniques & / or selective herbicides are used to minimize impacts on non-target plants.</p> <p>10-meter zones are maintained adjacent to water bodies for all herbicides except Roundup (glyphosate).</p> <p>Roundup can be applied within 1 meter of water with selective applicators.</p> <p><u>Effects on Fish & Wildlife</u></p> <p>Damaged caused by invasive plant infestations & control with herbicides usually results in benefits to fish & wildlife. Herbicides have low acute toxicity, i.e., they will not kill people or animals at the dosages used</p> <p>Fish & wildlife exposure to herbicides presents a risk. The main risk to fish is the active ingredient picloram. Picloram is residual & moderately toxic to fish.</p>			

Strategies and Procedures to Protect Water Sources

The table below describes the minimum protective measures that shall be implemented. The NTZs in this table reflect the standards as specified in Sections 71(3) and 71(4) of the IPMR.

No-treatment zone (NTZ) – an area of land that must not be treated with pesticides. NTZs will be identified, marked/flagged prior to any herbicide application.

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

IPMR Section	Uses	Permitted Applications	NTZ
71(3)	All pesticide applications except bacterial pesticides	General Rule – 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

Table 4. PFZ requirements under the IPMR when applying herbicide

Permitted Application	PFZ	Regulation Section
<u>Non-glyphosate Applications</u> 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	10 meter PFZ	73(1)
<u>Glyphosate Applications</u> If the glyphosate product is applied by selective application methods 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	1 meter PFZ above the high water mark	74(2)(a) and 77(2)
If the glyphosate product is applied by selective application methods over a dry stream that is not fish-bearing at any time of the year and do not drain directly into a fish-bearing body of water	0 meter PFZ	74(2)(b)

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.

Weather Monitoring

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.

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

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:

- *Work Safe BC Occupational Health and Safety Regulation – BC Regulation 296/97 as amended by BC Regulation 185/99 – Sections 6.70 to 6.109;*

- Canadian Pesticide Education Program Applicator Core Manual (2011).; and,
- Work Safe BC *Standard Practices for Pesticide Applicators*.

All herbicide applications will be completed by a person who holds a Pesticide Applicator Certificate endorsed for Industrial Vegetation Application.

Procedures for Safely Transporting Herbicides

The Transport of Dangerous Goods Act regulates the handling and transportation of poisonous substances that may include herbicides. A summary of those regulations, follows:

- 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 *IPMA*, *IPMR* and the Work Safe BC 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.

CONTRACTOR TRACKING FORMS

Please read the definitions and explanations carefully. Incorrect data entry can delay processing your invoice. If you have questions, contact the NWIPC Field Coordinator or Program Manager.

All contractors will fill in the tracking form using the template provided by the NWIPC. The tracking form is customized to each Contractor’s contract (rates, number of crew, etc.) and consists of labelled worksheets. The “Data” worksheet is the ONLY worksheet in which you will enter data.



It is important to fill the data in correctly. DO NOT overwrite any cell formats!

All your activities, including expenses are captured on this worksheet. Three things occur when the data is entered:

1. All contractor activities (hours, kilometers, expenses and so on) are compiled based on IPMA and jurisdiction and downloaded to the NWIPC’s tracking database.
2. Contractor invoices (InvALL) are generated directly from the data, which eliminates any room for error and allows the NWIPC to verify activities and costs for each jurisdiction.
3. Individual jurisdiction costs (e.g., BC Hydro tab) are automatically populated and for use by the NWIPC.

Tracking Form Field (Column) Headings – Definitions

Invoice

CANNOT BE BLANK. Enter your company invoice number.

IPMA

No entry required. This field is automatically generated prior to you receiving the form.

Contractor

No entry required. This field is automatically generated prior to you receiving the form.

Date

CANNOT BE BLANK. Enter the date in format shown. It will convert to an accepted date format.

Paper ID or IAPP Site ID

Can be blank if activity is related to planning and prep or other non, field-related activity, or an expense.

Gravel Pit #

Enter MOTI Gravel Pit number as provided in your work plan for MOTI gravel pits/quarries.

Area Surveyed (ha)

CANNOT BE BLANK if you entered a Gravel Pit #. For Gravel Pits only.

Location

Description is copied from IAPP data.

Crew Size

Enter number of crew (cannot be more than agreed upon in your contract; usually 2 people)

Field Jurisdiction

CANNOT BE BLANK.

Choose from the drop-down list. This may be copied down once you've made the first pick.

There are two "jurisdictions" which are not partner-based. They are AWARE and REDRR. See AWARENESS field definition.

Note: You may split costs (supplies, hours and km) on the NWIPC Tracking Form to fairly spread the cost of invasive plant management across Jurisdictions, ONLY if the IP infestation covers more than one jurisdiction, e.g., MOTI RoW adjacent to FLNRO jurisdiction, Municipal land, or other Jurisdiction

Expenses

This field must be used for all expenses. Costs for herbicides and materials, e.g. NWIPC approved seed, must be coded to the Jurisdiction and IAPP site on the date the materials were used.

Note: Record equipment costs, boats, ferries, etc. in this field. Provide copies of receipts; scan and email or hardcopy via mail.

Inventory & Monitoring Hrs/Kms (aka Surveys)

a) enter the total time the whole crew took to do the site survey; not time for each member of the crew (# of crew already entered under Crew Size)

b) enter kilometers from home-base to first site; or when moving from site to site, enter only the kilometers between those sites.

Includes field time 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/Kms

Crew hours and kilometers – same as for Inventory & Monitoring

Hours include time spent:

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

Awareness Hrs/Kms

Make sure you have picked "AWARE" under Jurisdiction field code

Crew hours and kilometers – same as for Inventory & Monitoring

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. only if requested by the NWIPC; DOES NOT INCLUDE volunteer hours outside of volunteer hours or hours for continuing education or professional association credits
- representing NWIPC during presentations, tours, etc.
- contacting partners and landowners regarding treatment and scheduling of treatment timing e.g., municipal managers, gravel pit managers, road maintenance managers, etc.

Note: There is a limited allowance for Awareness. See your contract budget allocations.

P & P Hrs

Planning and prep for the season. These activities include office work such as:

- Mapping sites
- Crew scheduling etc.

P & P hours must be coded to the applicable jurisdiction(s). AS with

P & P Kms

Claim only if your crew or crew supervisor is required to travel to do any of the above under P & P Hrs.

Time spent on planning and preparation prior to field work should be coded to a field jurisdiction (i.e., MOTI, MFLNRO, BNRD, etc). You can spread the time over two or more jurisdictions (see Jurisdiction) but it must be reasonable. For example, if a small town or municipality budget allocation is \$1,000, then we don't expect to see the same amount of hours for P & P than we would for a large budget allocation such as FLNRO or MOTI.

Data Entry Hrs

Your time spent entering data on the tracking form.

DOES NOT INCLUDE SURVEY/TREATMENT DATA UPLOAD TO IAPP DATABASE.

Data transfer from field work is done by the NWIPC after you submit your IAPP survey and treatment data to the NWIPC Field Coordinator.

Data entry into your Contractor Tracking Form is an activity that can span numerous jurisdictions during a single session. The time spent on data entry 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 data entry hours among all jurisdictions you did work for. Be reasonable - your hours should reflect the size and budget allocation for the jurisdictions.

Do not enter or change any data past the Data Entry Hrs column.

BILLABLE ACTIVITIES NOT INCLUDED IN YOUR SERVICE AGREEMENT

Pre-work meetings or training provided by the NWIPC are not included in your contract budget.

Prepare a normal company invoice as soon as possible after the costs have been incurred.

Do not refer to the NWIPC contract number on your invoice. Do include:

- date of work
- description of activity; e.g. attended contractor training in Terrace
- use your contract specified rate for hours and kms
- provide receipts for accommodation, food and out-of-pocket expenses; these are reimbursed at cost

NWIPC POLICY ON HERBICIDE TREATMENT

Within Municipal Boundaries and 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

The 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 of 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 the NWIPC. Before treating a site with herbicides, NWIPC contractors must consider the timing of treatment relative to the 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.

IAPP CODES

Treatment Method Codes

Table 5. Treatment methods and codes

Mechanical Treatment Methods

Code	Description
BR	Burning
CU	Cultivation or till
DI	Digging
HP	Hand pulling
MW	Mowing
SV	Salt water / vinegar
TG	Targeted grazing
MU	Mulching

Chemical Treatment Methods

Code	Description
ATV	ATV
BP	Back Pack
BN	Boomless Nozzle
FB	Fixed Boom
HG	Hand Gun
SI	Stem injection
W	Wick

Table 6. Herbicide codes

Herbicide Codes

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

Table 7. Area Estimator

APPROXIMATE DIMENSIONS	AREA (HA)
1m x 5m	0.0005
1m x 3m	0.0003
1m x 1m	0.0001
2m x 5m	0.0010
2m x 3m	0.0006
2m x 1m	0.0002
3m x 5m	0.0020
3m x 3m	0.0009
3m x 1m	0.0003
4m x 5m	0.0020
4m x 3m	0.0010
4m x 1m	0.0040
5m x 200m	0.1000
5m x 150m	0.0800
5m x 100m	0.0500
5m x 50m	0.0300
5m x 25m	0.0100
5m x 10m	0.0050
5m x 5m	0.0030
10m x 200m	0.2000
10m x 150m	0.1500
10m x 100m	0.1000
10m x 50m	0.0500
10m x 25m	0.0300
10m x 10m	0.0100
10m x 5m	0.0050
15m x 200m	0.3000
15m x 150m	0.2000
15m x 100m	0.1000
15m x 50m	0.0800
15m x 25m	0.0400
15m x 10m	0.0200
15m x 5m	0.0080
20m x 200m	0.4000
20m x 150m	0.3000
20m x 100m	0.2000
20m x 50m	0.1000
20m x 25m	0.0500
20m x 10m	0.0200
20m x 5m	0.0100

Table 8. Plant distribution codes

Plant Distribution Codes

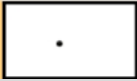
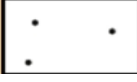

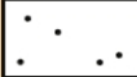





Distribution Codes		Image Description
1		Rare individual, a single occurrence
2		Few sporadically occurring individuals
3		Single patch or clump of a species
4		Several sporadically occurring individuals
5		A few patches or clumps of a species
6		Several well-spaced patches or clumps
7		Continuous uniform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

Table 9. Plant density codes

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)

IAPP Plant Codes

Table 10. IAPP Plant codes

Latin Name	Common Name	Code
<i>Crepis tectorum</i>	Annual hawksbeard	HB
<i>Gypsophila paniculata</i>	Baby's breath	BY
<i>Centaurea cyanus</i>	Bachelor's button	BB
<i>Centaurea macrocephala</i>	Bighead knapweed	KB
<i>Centaurea nigra</i>	Black knapweed	BL
<i>Silene vulgaris</i>	Bladder campion	BC
<i>Echium vulgare</i>	Blueweed	BW
<i>Fallopia x bohemicum</i>	Bohemian knotweed	BO
<i>Centaurea jacea</i>	Brown knapweed	BK
<i>Cirsium vulgare</i>	Bull thistle	BT
<i>Arctium spp</i>	Burdock species	BU
<i>Cirsium arvense</i>	Canada thistle	CT
<i>Cichorium intybus</i>	Chicory	CY
<i>Anchusa officinalis</i>	Common bugloss	AO
<i>Symphytum officinale</i>	Common comfrey	CO
<i>Hieracium lanchenalii</i>	Common hawkweed	CX
<i>Tanacetum vulgare</i>	Common tansy	TC
<i>Ranunculus repens</i>	Creeping buttercup	CR
<i>Rumex crispus</i>	Curled dock	CD
<i>Rubus laciniatus</i>	Cutleaf blackberry	CL
<i>Euphorbia cyparissias</i>	Cypress spurge	CS
<i>Linaria dalmatica</i>	Dalmatian toadflax	DT
<i>Hesperis matronalis</i>	Dame's rocket	DR
<i>Centaurea diffusa</i>	Diffuse knapweed	DK
<i>Ilex aquifolium</i>	English holly	HO
<i>Hedera helix</i>	English ivy	EI
<i>Euphrasia nemorosa</i>	Eyebright	EY
<i>Knautia arvensis</i>	Field scabious	FS
<i>Lysimachia vulgaris</i>	Garden yellow loosestrife	GL
<i>Fallopia sachalinensis</i>	Giant knotweed	GK
<i>Ulex europaeus</i>	Gorse	GO
<i>Aegopodium podagraria</i>	Goutweed / bishop's weed	GW
<i>Centaurea scabiosa</i>	Greater knapweed	GN
<i>Senecio vulgaris</i>	Groundsel	GS
<i>Hieracium spp</i>	Hawkweed species	HS

Latin Name	Common Name	Code
<i>Rubus armeniacus</i>	Himalayan blackberry	HI
<i>Polygonum polystachyum</i>	Himalayan knotweed	PO
<i>Berteroa incana</i>	Hoary alyssum	HA
<i>Cynoglossum officinale</i>	Hound's-tongue	HT
<i>Fallopia japonica</i>	Japanese knotweed	JK
<i>Centaurea</i> spp.	Knapweed species	KS
<i>Euphorbia esula</i>	Leafy spurge	LS
<i>Cirsium palustre</i>	Marsh plume thistle/Marsh thistle	MT
<i>Tragopogon pratensis</i>	Meadow goats-beard	MG
<i>Centaurea debeauxii</i>	Meadow knapweed	MK
<i>Centaurea montana</i>	Mountain bluet	MO
<i>Hieracium pilosella</i>	Mouse ear hawkweed	ME
<i>Verbascum thapsis</i>	Mullein	MU
<i>Solanum</i> spp	Nightshade	NI
<i>Carduus nutans</i>	Nodding thistle	NT
<i>Hieracium aurantiacum</i>	Orange hawkweed	OH
<i>Leucanthemum vulgare</i>	Oxeye daisy	OD
<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>Impatiens glandulifera</i>	Policeman's helmet /Himalayan balsam	IM
<i>Lythrum salicaria</i>	Purple loosestrife	PL
<i>Daucus carota</i>	Queen anne's lace / wild carrot	QA
<i>Acroptilon repens</i>	Russian knapweed	RK
<i>Salsola kali</i>	Russian thistle	RT
<i>Matricaria perforata</i>	Scentless chamomile	SH
<i>Cytisus scoparius</i>	Scotch broom	SB
<i>Onopordum acanthium</i>	Scotch thistle	ST
<i>Sonchus</i> species	Sowthistle species	SO
<i>Hieracium maculatum</i>	Spotted hawkweed	SX
<i>Centaurea biebersteinii</i>	Spotted knapweed	SK
<i>Hypericum perforatum</i>	St. John's wort/Saint John's wort/ Goatweed	SJ
<i>Potentilla recta</i>	Sulphur cinquefoil	SC
<i>Hieracium piloselloides</i>	Tall hawkweed	TH
<i>Senecio jacobaea</i>	Tansy ragwort	TR
<i>Tragopogon dubius</i>	Western goat's-beard	WG
<i>Hieracium flagellare</i>	Whiplash hawkweed	WP

Latin Name	Common Name	Code
<i>Anthriscus sylvestris</i>	Wild chervil	WI
<i>Sinapis arvensis</i>	Wild mustard	WM
<i>Artemisia absinthium</i>	Wormwood	WW
<i>Lamium galeobdolon</i>	Yellow archangel	YA
<i>Hieracium glomeratum</i>	Yellow devil hawkweed	YD
<i>Hieracium pratense</i>	Yellow hawkweed	YH
<i>Iris pseudachorus</i>	Yellow iris	YI
<i>Linaria vulgaris</i>	Yellow/common toadflax	YT

NWIPC PAPER FILE CODES

These codes MUST be used!

Table 11. NWIPC Paper File IDs

PARTNER	SITE PAPER FILE ID	SURVEY / TREATMENT PAPER FILE ID
BC Hydro	BC_HYDRO	BCH_YDRO_(year)
BC Parks	PARKS_(name of Park)	PARKS_(year)
Bio Release	BIO_(2 letter species code)	BIO (year)
Burns Lake	VIL_BL	VIL_BL_(year)
CN Rail	CN	CN_(year)
FLNRO - Crown lands	FLNRO	FLNRO_(year)
FLNRO - Resource roads	FLNRO_(road name)_FSR	FLNRO_(year)
FLNRO - Conservancies	FLNRO_CONSERV	FLNRO_(year)
Fortis	FORTIS	FORTIS_(year)
Hazleton	VIL_HAZ	VIL_HAZ_(year)
Houston	DIST_HOU	DIST_HOU_(year)
Kinder Morgan	KINDER_MORGAN	KINDER_MORGAN_(year)
Kitimat	DIST_KIT	DIST_KIT_(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_BRAKE_CHECK_(name of brake check)	MOTI_BRAKE_CHECK_(year)
MOTI - Gavel pits	GP_MOTI_(Pit Number)	GP_MOTI_(Pit Number)
MOTI - Off highway	MOTI_(road name)	MOTI_(year)
MOTI - On highway	MOTI_HWY_(Hwy #)	MOTI_HWY_(year)
MOTI - Rest areas	MOTI_REST_AREA_(rest area name)	MOTI_REST_AREA_(year)
MOTI - Weigh scales	MOTI_Weigh_Scale_(weigh scale name)	MOTI_Weigh_Scale_(year)
Nature Trust BC	NTBC_(property name)	NTBC_(year)

PARTNER	SITE PAPER FILE ID	SURVEY / TREATMENT PAPER FILE ID
North West Community College	NWCC	NWCC_(year)
Port Edward	DIST_PE	DIST_PE_(year)
Prince George	CITY_PG	CITY_PG_(year)
Prince Rupert	CITY_PR	CITY_PR_(year)
Private Property Municipal	Private_(Municipality)	
Private Property Rural	Private_(Rural District)	
Rec Sites	FLNRO_REC_SITE_(rec site name)	FLNRO_REC_(year)
Smithers	TO_SMI	TO_SMI_(year)
Telkwa	VIL_TEL	VIL_TEL_(year)
Terrace	CITY_TER	CITY_TER_(year)
Trails	FLNRO_TRAILS_(trail names)	FLNRO_TRAILS_(year)
Valemount	VIL_VA	VIL_VA_(year)
Vanderhoof	DIST_VAN	DIST_VAN_(year)
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 no longer have High Priority target plants on the 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 be kept; sites with this paper file ID will be deleted after the move is entered in IAPP.	
Next Survey (year)	Species on site do not need monitoring again until the year indicated.	

SAMPLE CALIBRATION FORM

CALIBRATING SPRAYERS

Even small backpack sprayers require calibrating. Accuracy and knowledge of the sprayer output is essential for proper application of herbicides. Knowing the sprayer output will ensure correct rates of herbicide are being applied so as 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:

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. (on boom sprayer it is the between the two outer spray nozzles + the distance between two nozzles.
- 3) 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) Begin spraying the tank mixture over selected/measured test area. (Variation in speed and pumping pressure will change the output)
- 5) Accurately measure the amount of water required to refill the tank to the mark established in step. 3. Always return the sprayer to the same location to refill tank.
- 6) Calibrate the sprayer delivery rate (output) by using the following formula.

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

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

Secondly, calculate the area that can be treated with a full tank.

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

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

Thirdly, calculate the amount of herbicide to add to the backpack sprayer tank as follows:

$$\text{Amount of herbicide to add to tank} = \text{application rate} \times \text{area sprayed by one tank}$$

$$\text{Amount of product to add to tank} = \text{L/ha} \times \text{ha.} = \text{litres}$$