

Vanderhoof Forest District



FSP Planning Procedures

APPENDIX 3:

BCTS Planning Process for the Management of Invasive Plants

July, 2008

Planning Process - Management of Invasive Plants

Background:

The location of known invasive plants within, or adjacent to BCTS development activities will be identified using information gathered from the MoFR Invasive Alien Plant Program (IAPP). BCTS staff and contractors will supplement this data with invasive plant reconnaissance during development planning, related inspections and post-harvest surveys (i.e. multi-phase activities, harvest/road inspections and silviculture surveys). The presence, or absence of invasive plants within 5km of proposed BCTS development activities, combined with the category of invasiveness and the proximity of high value crops will dictate subsequent BCTS management practices outlined in the FSP Planning Procedures.

Purpose

In order to schedule appropriate management practices to reduce the spread of invasive plants related to primary forest activities, the Stuart-Nechako Business Area desires a pro-active approach to locating the presence of invasive plants within, or adjacent to BCTS development activities. This specifically relates to

- (A) planning processes associated with harvesting, road construction and road deactivation,
- (B) post-harvest inspections related to BCTS roads, cut blocks and re-vegetation monitoring,
- (C) post-harvest silviculture surveys .

Scope

This planning process provides BCTS staff and related contractors with a consistent approach to locating invasive plants, relative to proposed BCTS development areas and implementing appropriate re-vegetation practices to reduce further spread of these invasive plants.

Procedure

BCTS staff, associated layout contractors and silviculture surveyors will use the MoFR Invasive Alien Plant Program (IAPP)

<http://www.for.gov.bc.ca/hra/Plants/index.htm>

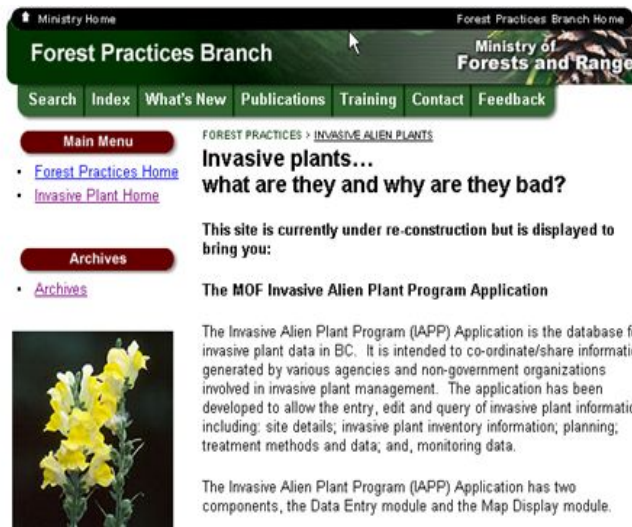
to :

1. Identify inventoried Invasive Plant sites within and adjacent to proposed BCTS development areas within the Stuart-Nechako Business Area (SNBA).
2. Update provincial invasive plant inventories as new occurrences are encountered during development planning, or subsequent monitoring.

1. Locating Inventoried Invasive Plant Sites

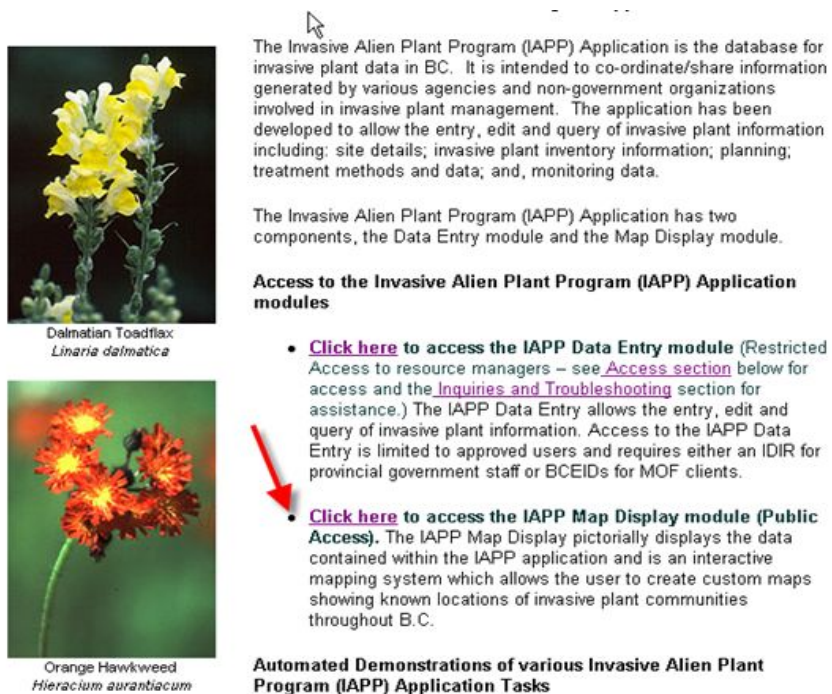
Link to the website above and utilize the following procedures to locate all inventoried invasive plant sites within 6km of the centre of the proposed harvest area, or any portion of the related access road proposed for construction.

- A. The embedded link should bring you to the MoFR Invasive Plant homepage and the MOF Invasive Alien Plant (IAPP) Application Module.



The screenshot shows the Forest Practices Branch website. The header includes "Ministry Home" and "Forest Practices Branch Home" with the "Ministry of Forests and Range" logo. A navigation menu contains "Search", "Index", "What's New", "Publications", "Training", "Contact", and "Feedback". Below the menu is a "Main Menu" with links to "Forest Practices Home" and "Invasive Plant Home". An "Archives" section contains a link to "Archives". The main content area is titled "Invasive plants... what are they and why are they bad?" and includes a notice that the site is under re-construction. It describes the MOF Invasive Alien Plant Program Application as a database for invasive plant data in BC, intended for co-ordinating and sharing information. A photograph of a yellow flower is shown on the left.

- B. Click on the Public Invasive Alien Plant Program (IAPP) map display



The screenshot shows the IAPP application page. It features two photographs of plants: a yellow Dalmatian Toadflax (*Linaria dalmatica*) and an orange Orange Hawkweed (*Hieracium aurantiacum*). The text describes the IAPP Application as a database for invasive plant data in BC, intended for co-ordinating and sharing information. It also mentions that the application has two components: the Data Entry module and the Map Display module. A red arrow points to a link in the text that says "Click here to access the IAPP Map Display module (Public Access)".

The Invasive Alien Plant Program (IAPP) Application is the database for invasive plant data in BC. It is intended to co-ordinate/share information generated by various agencies and non-government organizations involved in invasive plant management. The application has been developed to allow the entry, edit and query of invasive plant information including: site details; invasive plant inventory information; planning; treatment methods and data; and, monitoring data.

The Invasive Alien Plant Program (IAPP) Application has two components, the Data Entry module and the Map Display module.

Access to the Invasive Alien Plant Program (IAPP) Application modules

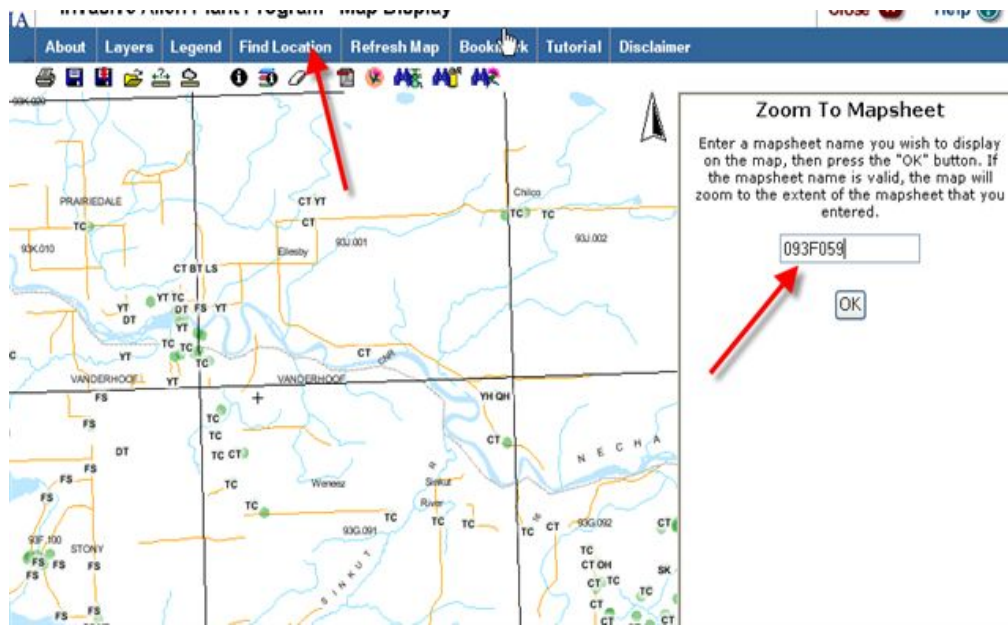
- [Click here](#) to access the IAPP Data Entry module (Restricted Access to resource managers – see [Access section](#) below for access and the [Inquiries and Troubleshooting](#) section for assistance.) The IAPP Data Entry allows the entry, edit and query of invasive plant information. Access to the IAPP Data Entry is limited to approved users and requires either an IDIR for provincial government staff or BCEIDs for MOF clients.
- [Click here](#) to access the IAPP Map Display module (Public Access). The IAPP Map Display pictorially displays the data contained within the IAPP application and is an interactive mapping system which allows the user to create custom maps showing known locations of invasive plant communities throughout B.C.

Automated Demonstrations of various Invasive Alien Plant Program (IAPP) Application Tasks

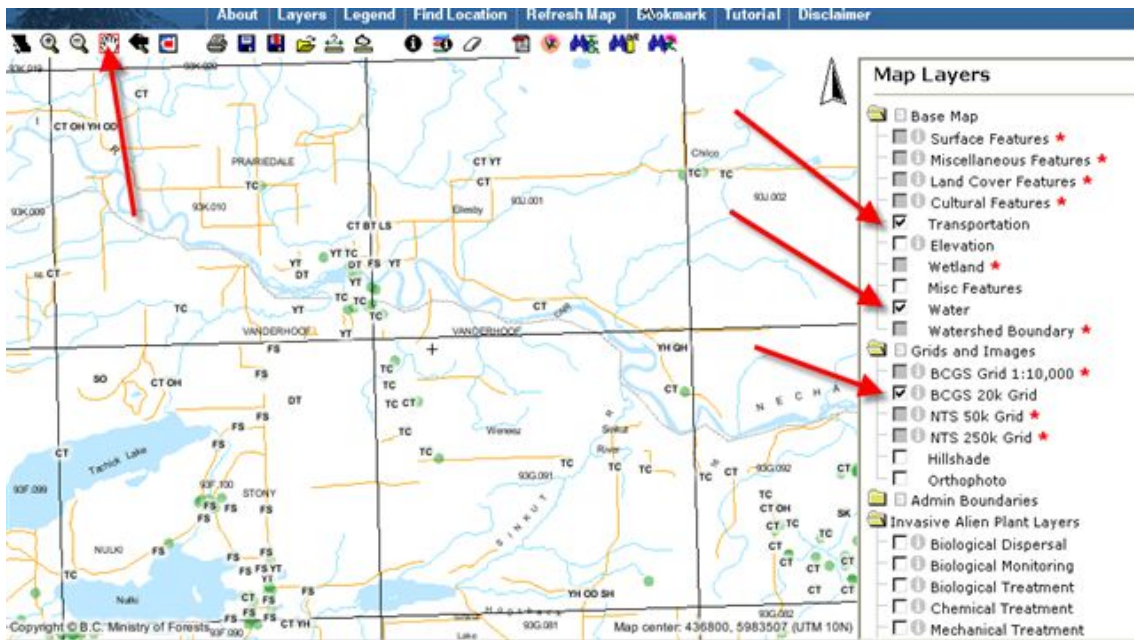
- C. A map display of BC, as indicated below will be generated. You may either utilize the zoom function on the toolbar to locate the specific area you wish to assess for the presence of known invasive plant sites, or



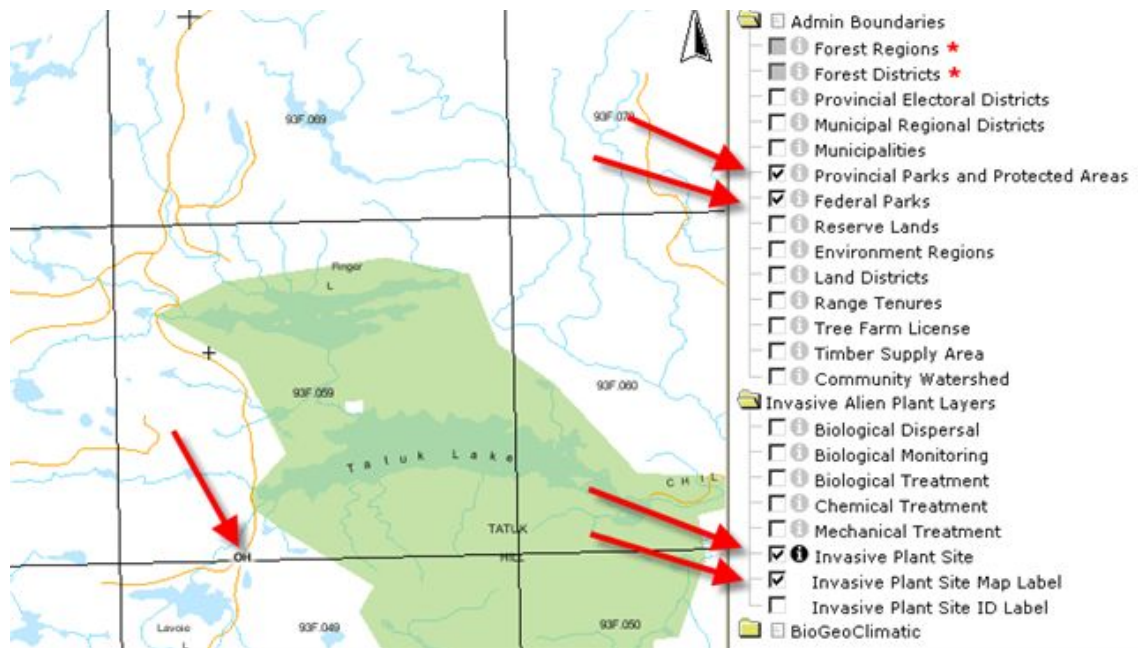
D. Utilize the find location to zoom to a mapsheet, or a specific co-ordinate



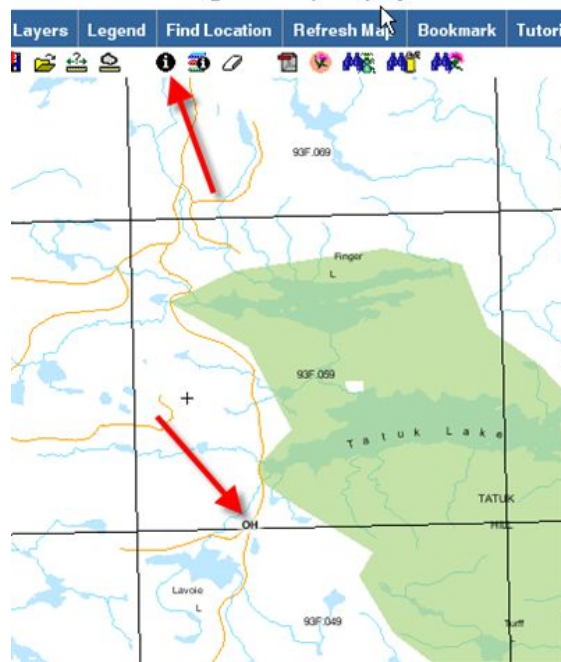
E. By selecting the “Layers” tab you can choose the map layers you wish active. Selecting roads, water features and 1:20,000 gridlines will aid in panning between mapsheets and referencing proposed development in relation to known invasive plant sites. Note: certain layers are only active above, or below a specific map scale.



F. In all map display queries the Invasive Plant Site and related map label must remain selected.



G. Select the Invasive Plant site indicator on the toolbar and left click on the invasive plant site map label. An invasive plant species label consists of two letters (i.e. OH). A specific site may indicate the presence of several invasive species and thus would be represented by several two letter combinations (i.e. OH CT YT).



H. The invasive plant site Id # will be displayed, along with the date recorded, site size, UTM co-ordinates, invasive plant species code etc. Where the site is within 6 km of proposed BCTS development (can use measure feature on toolbar), record the Site Id # and map label. Utilize the UTM coordinates to transfer the site location to the SP map base. Once the extent of inventoried site locations is determined, refer to the BCTS Planning Procedures - Measures for preventing the introduction, or spread of Invasive Plants.

Invasive Plant Site	
Invasive Plant Site ID	236405
Jurisdiction:	Ministry of Forests and Range
Site Created:	2007-07-12
Site Area (ha):	0.0003
Mapsheet:	093F059
UTM Easting:	411247
UTM Northing:	5928938
UTM Zone:	10
Map Label:	OH
IAPP Link:	More data
Invasive Plant:	HIER AUR
Survey Date:	2007-07-06
Precise Survey:	N
Found:	Y
Distribution Code:	4
Density Code:	2

I. The invasive plant common and scientific names can be obtained from the label and species codes on the map display. Left click on the pdf symbol in the toolbar.

Invasive Alien Plant Program - Map Display Close Help

[Home](#) | [Layers](#) | [Legend](#) | [Find Location](#) | [Refresh Map](#) | [Bookmark](#) | [Tutorial](#) | [Disclaimer](#)

Invasive Plant Site

Invasive Plant Site ID: 236405

Jurisdiction: Ministry of Forests and Range

Site Created: 2007-07-12

Site Area (ha): 0.0003

Mapsheet: 093F059

UTM Easting: 411247

UTM Northing: 5928938

UTM Zone: 10

Map Label: OH

IAPP Link: [More data](#)

Invasive Plant: HIER AUR

Survey Date: 2007-07-06

Precise Survey: N

Found: Y

Distribution Code: 4

Density Code: 2

J. An invasive plant map legend label is displayed, which can be referenced to determine the common and latin names



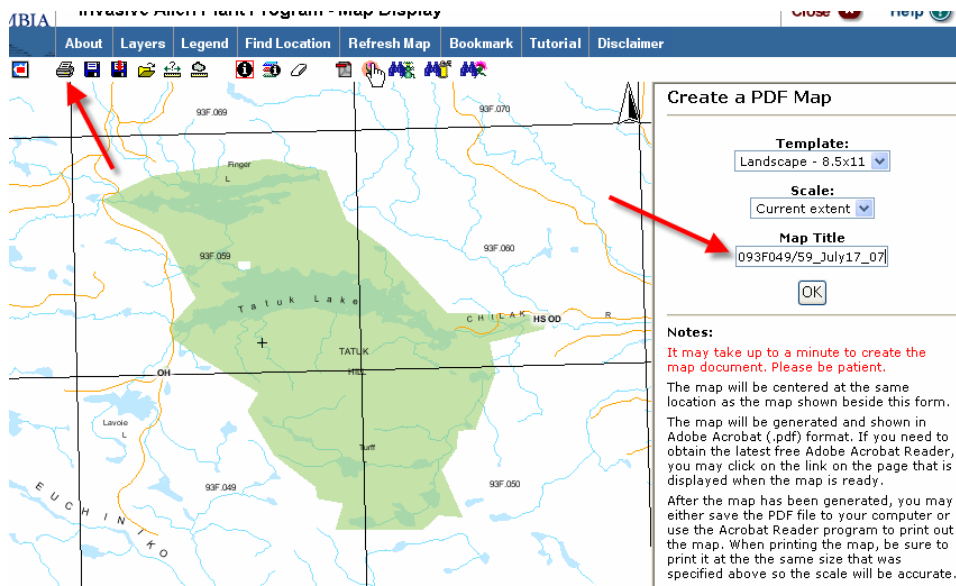
Ministry of Forests

Invasive Alien Plant Program - Map Display

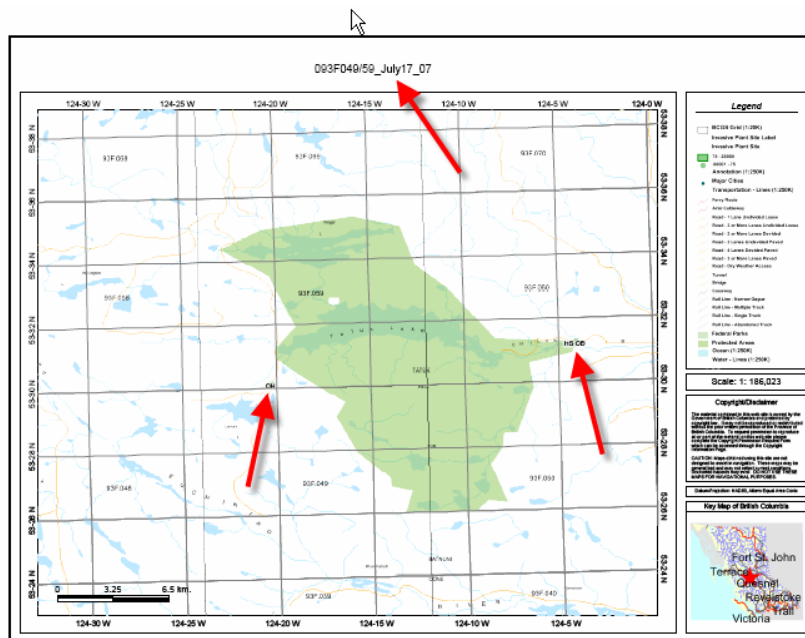
Invasive Plant Map Label Legend

Map Label	Common Name	Latin Name	Genus Code	Species Code
MW	Showy milkweed	Asclepias speciosa	ASCL	SPE
NB	Nodding beggar-ticks	Bidens cernua	BIDE	CER
NC	Night-flowering catchfly	Silene noctiflora	SILE	NOC
NH	Narrowleaf hawkweed	Hieracium umbellatum	HIER	UMB
NI	Nightshade	Solanum spp	SOLA	SPP
NT	Nodding thistle	Carduus nutans	CARD	NUT
OD	Oxeye daisy	Leucanthemum vulgare	LEUC	VUL
OH	Orange hawkweed	Hieracium aurantiacum	HIER	AUR
PA	Polar hawkweed	Hieracium atratum	HIER	ATR
DR	Japanese and giant knotweed hybrid	Polypogon Y. Bohemicum	POLY	BOH

K. An IAPP pdf map submission is required to accompany all site plan submissions. Left click on the printer symbol and a pdf legend is generated. Title the IAPP map by mapsheet (applicable to development area) and date created. To ensure use of the most current dataset, create this pdf map within 2 weeks of the final site plan submission.



L. The hardcopy IAPP map submission serves to document the presence of inventoried invasive plant sites, at the time of development planning.



2. Identifying New Invasive Plant Locations

Invasive Plants are those listed in the Invasive Plants Regulation.

<http://www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/invplants/ipr.htm>

The following procedures will be utilized to identify new Invasive Plant Sites within BCTS Operating Areas.

1. BCTS Planning staff will annually update BCTS operating area maps with invasive plant site locations, inventoried in the IAPP database. This will include a summary of the various invasive plant species inventoried within the district.
2. BCTS staff conducting post-harvest inspections related to BCTS roads, cutblocks and re-vegetation monitoring will conduct cursory inspections related to the presence of invasive plants.
3. BCTS multi-phase and silviculture contractors will include cursory inspections related to the presence of invasive plants during on-site inspections, assessments and surveys related to development planning.
4. Invasive Plant descriptions suitable for in-field identification can be obtained through the website links below. BCTS staff and contractors should ensure they are familiar with those species inventoried within the district.

<http://www.weedsbc.ca/browse.html>

<http://www.agf.gov.bc.ca/cropprot/weeds.htm>

5. Where Invasive Plants are identified during multi-phase layout, post-harvest inspections, re-vegetation monitoring and post-harvest silviculture surveys:
 - Record the name of the specific invasive plant species, its location (preferably via GPS, or detailed map) the date encountered and photo documentation (take a digital photo for later confirmation).
 - Notify the BCTS staff member supervising the contract/project and confirm if an invasive plant (if so the particular species).
 - Notify appropriate planning staff and establish the process of completing a site and invasive plant inventory record form.
<http://www.for.gov.bc.ca/isb/forms/lib/FS1260.PDF>
 - Return completed inventory form to planning for entry into the IAPP database.
 - If warranted, update appropriate BCTS development maps with the location of the invasive plant location.

MEASURES

Measures for Preventing the Introduction or Spread of Invasive Plants FPPR 17

If the Timber Sales Manager carries out or authorizes primary forest activities, the measures for the purposes of FRPA section 47 are:

1. On an annual basis, identify areas of known locations of invasive plants within the FDU, as indicated in provincial inventories.
2. In areas where the spread of invasive plants pose an extremely high risk, the TSM will seed areas of disturbed soils with grass and legumes within 6 months of completing primary forest activities.
3. In areas where the spread of invasive plants pose a high risk, the TSM will seed areas of disturbed soils with grass and legumes within 1 year of completing primary forest activities.
4. In areas where the spread of invasive plants pose a moderate risk, the TSM will seed areas of disturbed soils with grass and legumes within 2 years of completing primary forest activities.
5. Part 2, 3 and 4 above pertain to areas of disturbed soils:
 - a. resulting from forest practices carried out, or authorized by the TSM;
 - b. not reforested; and
 - c. within the road clearing width that will support vegetation.
6. Sites referred to in part 2 and 3 of this commitment will be monitored over the year following seeding to ensure they are adequately vegetated with grass. Sites not adequately vegetated, or disturbed by other harvesting activities carried out, or authorized by the TSM, will be re-seeded within one year of site inspection and further monitored as required to ensure establishment of grass seed.

For the purposes of these measures, invasive plants are those plants listed in the *Invasive Plants Regulation*.

For the purposes of part 1 of these measures, locations of invasive plants within the FDU will generally be identified using information gathered from MoFR provincial inventories, (Invasive Alien Plant Program) but may be supplemented by information provided by BCTS staff, or material provided by regional experts or other government agencies.

For the purposes of part 1 of these measures, the invasive plant inventory will be updated using new information in provincial inventories and information collected during field work (e.g., silviculture surveys, cutblock or road inspections, etc.)

The seed used for the purposes of parts 2, 3 and 4 of these measures will meet or exceed Canada Common Number 1 specifications as defined by the federal *Seeds Act*.

For the purpose of part 2, 3 and 4, Table 1: Invasive Plant Site Risk described below defines the risk rating of areas where the spread of invasive plants pose an extremely high, high or moderate risk.

Table 1: Invasive Plant Site Risk

Risk Rating	Site Conditions
Extremely High	Areas of Disturbed Soils > 0.25 hectares, which are located within 5 km of non-infested, highly susceptibility, non-infested seed or other high-value crops
High	Areas of Disturbed Soils > 0.5 hectares, which are located within 5 km of a site identified as containing extremely, or very invasive plants (category 1 and 2, as described by the Northwest Invasive Plant Committee – Table 2)
Moderate	Areas of Disturbed Soils > 0.5 hectares, which are located within 5 km of a site identified as containing invasive, or aggressive invasive plants (category 3 and 4, as described by the Northwest Invasive Plant Committee – Table 2)

For the purpose of part 5 c., the TSM will undertake seeding associated with the road clearing width on areas of disturbed soils that will support vegetation. This includes road cuts, ditchlines, fill slopes, inactive borrow pits, disposal sites for debris and disposal sites for excavation spoil. It excludes the running surface of active roads, exposed rock or other areas where seed will not successfully germinate.

Table 2: Invasive Plant Categories

CATEGORY 1 EXTREMELY INVASIVE			
Category 1 invasive plants invade undisturbed habitats and dominate them. Domination implies the invasive plant becomes the most abundant species across the entire site or area of the plant community being invaded. The invasion can progress slowly or rapidly.			
Common Name	Scientific Name	Common Name	Scientific Name
Broom	<i>Cytisus scoparius</i>	Knotweeds	<i>Polygonum</i> spp
Gorse	<i>Ulex europaeus</i>	Scabious, field or bluebuttons	<i>Knautia arvensis</i>
Iris, yellow flag	<i>Iris pseudacorus</i>	Spurge, leafy	<i>Euphorbia esula</i>
Knapweed, black & brown	<i>Centaurea nigra</i> & <i>C. Jacea</i>	Tansy, common	<i>Tanacetum vulgare</i>
Knapweed, greater	<i>Centaurea scabiosa</i>	Thistle, marsh plume	<i>Cirsium palustre</i>
Knapspotted, spotted	<i>Centaurea maculosa</i>	Toadflax, dalmation	<i>Linaria dalmatica</i>

**CATEGORY 2
VERY INVASIVE**

Category 2 invasive plants invade even undisturbed habitats. They become very prevalent and may form dense patches but usually do not dominate the entire site or area of the plant community. If category 2 invasive plants invade the entire site or plant community they tend to dominate the site.

Common Name	Scientific Name	Common Name	Scientific Name
Blueweed	Echium vulgare	Knapweed, diffuse	Centaurea diffusa
Burdock, common	Arctium minus	Loosestrife	Lythrum spp.
Chamomile, scentless	Matricaria maritima	Ragwort, tansy	Senecio jacobaeae
Daisy, oxeye	Chrysanthemum leucanthemum	Thistle, Canada	Cirsium arvense
Hawkweeds	Hieracium spp.	Thistle, plumeless	Carduus acanthoides
Hounds tongue	Cynoglossum officinale		

**CATEGORY 3
INVASIVE**

Category 3 invasive plants can invade undisturbed habitats but they usually require some disturbance to gain entry. Once in a habitat they usually do not dominate the site unless management problems are occurring.

Common Name	Scientific Name	Common Name	Scientific Name
Catchfly, nightflowering	Silene noctiflora	Thistle, sow	Sonchus spp.
Goat's-beard	Tragopogon dubious	Toadflax, common	Linaria vulgaris
Thistle, bull	Cirsium vulgare	Wormwood or absinthium	Artemisia absinthium

**CATEGORY 4
AGGRESSIVE OR UNDER CONTROL**

Category 4 invasive plants can invade even undisturbed habitats but they do so at a slow pace and rarely dominate the site. Category 4 invasive plants may go through large population fluctuations. This may be the result of the fluctuation in biocontrol agent populations or cyclic patterns the plant displays. Native plants that behave in a weedy manner are listed in this category

Common Name	Scientific Name	Common Name	Scientific Name
Agrimony	<i>Agrimonia striata</i>	Lamb's-quarter	<i>Chenopodium</i> spp.
Barley, foxtail	<i>Hordeum jubatum</i>	Lettuce, tall blue	<i>Lactuca</i> spp
Bergamont, wild	<i>Monarda fistulosa</i>	Medic, black	<i>Medicago lupulina</i>
Blue buttons	<i>Centaurea cyanus</i>	Mullien	<i>Verbascum thapsus</i>
Bluet, mountain	<i>Centaurea montana</i>	Mustard, dog	<i>Eruscastrum gallicum</i>
Bluebur, western	<i>Lappula echinata</i>	Mustard hedge	<i>Sisymbrium officinale</i>
Buckwheat, wild	<i>Polygonum convolvulus</i>	Mustard, tumble	<i>Sisymbrium</i> spp.
Bugloss, small	<i>Lycopsis arvensis</i>	Mustard, wild	<i>Sinapis arvensis</i>
Campion, bladder	<i>Silene cucubalus</i>	Pineapple weed	<i>Matricaria matricarioides</i>
Chicory	<i>Cichorium intybus</i>	Pennycress	<i>Thlaspi arvense</i>
Cockle, white	<i>Lychnis alba</i>	Primrose, evening	<i>Oenothera biennis</i>
Dock, curled	<i>Rumex crispus</i>	Safflower	<i>Carthamus tinctorius</i>
Dragonhead, American	<i>Dracocephalum parviflorum</i>	St. John's-wort	<i>Hypericum perforatum</i>
Fleabane, Canadian	<i>Conyza canadensis</i>	Stinkweed	<i>Thlaspi arvense</i>
Groundsel, common	<i>Senecio vulgaris</i>	Tarweed	<i>Madia glomerata</i>
Hawksbeard, narrowleaf	<i>Crepis tectorum</i>	Thistle, nodding	<i>Carduus nutans</i>
Hemp-nettle	<i>Galeopsis tetrahit</i>	Vetch, tufted	<i>Vicia cracca</i>
Hop-clover	<i>Trifolium agrarium</i>	Water hemlock, western	<i>Cicuta douglasii</i>

See Appendix 3, Planning Process – Management of Invasive Plants.