

Sea to Sky Invasive Species Council

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Special Weed Action Team (SWAT) Report

Invasive species inventory during January and February, 2010 on Squamish Nation territory

An initiative of the Invasive Plant Council of British Columbia (IPCBC)

Funded through the provincial Job Opportunities Program (JOP) and
the federal Community Adjustment Fund (CAF)

Regional team directed and supervised by the Sea to Sky Invasive Species Council (SSISC)

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CONTENTS

Executive Summary	4
Introduction	7
Recommendations	9
Appendices: Summary reports for each jurisdiction	
Appendix 1 - District of Squamish	11
Trails	12
Parks & Greenspaces	26
Brackendale and north Squamish	27
Garibaldi Estates and west Hwy 99	41
Garibaldi Highlands	52
Squamish Town	70
Valleycliffe	80
Appendix 2 - Ministry of Environment - Provincial Parks	91
Alice Lake	92
Porteau Cove	95
Murrin	97
Shannon Falls	99
Stawamus Chief	101
Appendix 3 - Skwelwil'em Squamish Estuary Wildlife Management Area	103
Squamish River East Bank	107
Crescent Slough	109
Central Delta	113
Dredge Spoils	114
Uplands Meadow	116
Log Sort, North Fields and East Marsh	119
Appendix 4 - Ministry of Forest and Range - Forest service roads	122
Britannia Beach and Furry Creek	124
Mamquam (also known as Stawamus) and Indian Arm	133
Squamish Valley, Ash Lu Valley and Elaho Valley	140
Ring Creek (Garibaldi Park Road and Mamquam FSR)	143
Brohm Ridge: Cheekeye (also known as Cat Lake Road)	146
Culliton, Conroy and Swift Creek	149
Appendix 5 - Transmission lines	153
Mashiter Creek to the Cheekeye River	155
Ring Creek to Mashiter Creek	157
Ring Creek access road/Poop Alley bike trail	160
Cheekeye River to North of Cat Lake and down to Hwy 99	161

Just North of Alice lake turn off to the Cheekeye River	161	
From 1 K up the hwy 99 from Cheekeye Bridge to Cheekeye Power Station	163	
From Cheekeye Power station to Brackendale	169	
From Depot Road to Squamish Valley Road	173	
Paradise Valley	176	
Squamish Valley (Indian Reserve)	178	
Garibaldi Estate to Mamquam river	181	
Mamquam river to Valleycliffe	184	
Appendix 6 - Rail right of ways		186
Paradise Valley	187	
Squamish Terminals rail spur	189	
Bailey Street/Government Road/Squamish River dyke	189	
Brackendale		
Appendix - 7 -Ministry of Tourism, Sport and the Arts – Recreation Sites		193
Brohm Lake	193	
Cat Lake	194	

EXECUTIVE SUMMARY

In January and February of 2010, the Sea to Sky Invasive Species Council (SSISC) directed and supervised a team employed by the Invasive Plant Council of BC to do invasive species inventory. The purpose of this work was to help identify the extent of the invasive threat in the Sea to Sky area. This inventory is designed to be a tool for land owners /managers/occupiers to help identify priority invasive species and areas, in order to develop or adjust invasive species management plans in coordination with other jurisdictions in the Sea to Sky. The SSISC will help coordinate these efforts so action plans are as efficient and effective as possible and provides recommendations in this document.

The team was made up of Squamish residents and included a two person field crew and a technical resource worker. The work was primarily done in the Squamish area only since the rest of the Sea to Sky was covered with snow. The crew inventoried 245 hectares of priority evergreen invasive species and deciduous species that were recognizable in a multitude of jurisdictions (Table 1). The total number of surveys entered into the Invasive Alien Plant Program database for all species combined was 520. Table 2 summarizes the priority species inventoried and the jurisdictions they were found in. Figure 1 shows all the information entered into the Invasive Alien Plant Program (IAPP) database to date for the Squamish area including the work during this project.

Table 1 Summary of inventory

Jurisdiction/right of way	# locations visited	Total ha covered	Total ha invasive species inventoried	# sites inventoried & entered into IAPP	Time spent
Provincial Parks: <i>Stawamus Chief, Shannon Falls, Murrin, Porteau Cove & Alice Lake</i>	5	All trails in 1,000 ha of parks	3.2	14	10%
Skwelwil'em Squamish Estuary: <i>Wildlife Management Area - Ministry of Environment, District of Squamish, Squamish Nation</i>	1	All trails in approx. half of area (300 ha)	54.9	25	7%
District of Squamish: <i>trails, parks, green spaces</i>	44		87.1	63	32%
Ministry of Tourism, Sport and the Arts: <i>Brohm and Cat Lake res sites</i>	2	9.6	0.0125	2	2%
Ministry of Forest and Range: <i>Road side</i>	150 km	180	5.1	37	29%
Transmission corridors: <i>Ministry of Forest and Range, District of Squamish, Squamish Nation, private land</i>	35 km	140	83.1	38	16%
Rail corridors: <i>Ministry of Transportation, District of Squamish, Squamish Nation</i>	14 km	17	11.3	12	4%

Totals

245

191

Table 2 Summary of priority invasive species inventoried during SWAT project. Note that two species on the original priority list were never found: giant hogweed (*Heracleum mantegazzianum*) and gorse (*Ulex europaeus*).

Common name	Scientific name	District of Squamish	Squamish Forest District	Squamish Estuary	Provincial Parks	BCTC right of way	Rail right of way
Species on original work plan							
butterfly bush	<i>Buddleja davidii</i>	X	X	X	X	X	X
Scotch Broom	<i>Cytisus scoparius</i>	X	X	X	X	X	X
daphne	<i>Daphne laureola</i>	X					
Japanese Knotweed	<i>Fallopia japonica</i>	X	X	X	X	X	X
English Ivy	<i>Hedera helix</i>	X	X	X	X		
English Holly	<i>Ilex aquifolium</i>	X	X	X	X		X
yellow archangel	<i>Lamium galeobdolon</i>	X	X	X			X
Himalayan Blackberry	<i>Rubus discolor</i>	X	X	X	X	X	X
periwinkle	<i>Vinca minor</i>	X	X	X	X	X	
Species not on original plan but inventoried							
common burdock	<i>Arctium sp.</i>	X	X	X	X	X	X
knawweed	<i>Centaurea sp.</i>				X		
thistles	<i>Cirsium sp.</i>		X			X	
Himalayan balsam	<i>Impatiens glandulifera</i>	X					
creeping buttercup	<i>Ranunculus repens</i>		X				
cutleaf blackberry	<i>Rubus Laciniatus</i>	X		X	X		
mullein	<i>Verbascum thapsus</i>	X	X	X			X
Bamboo		X					X

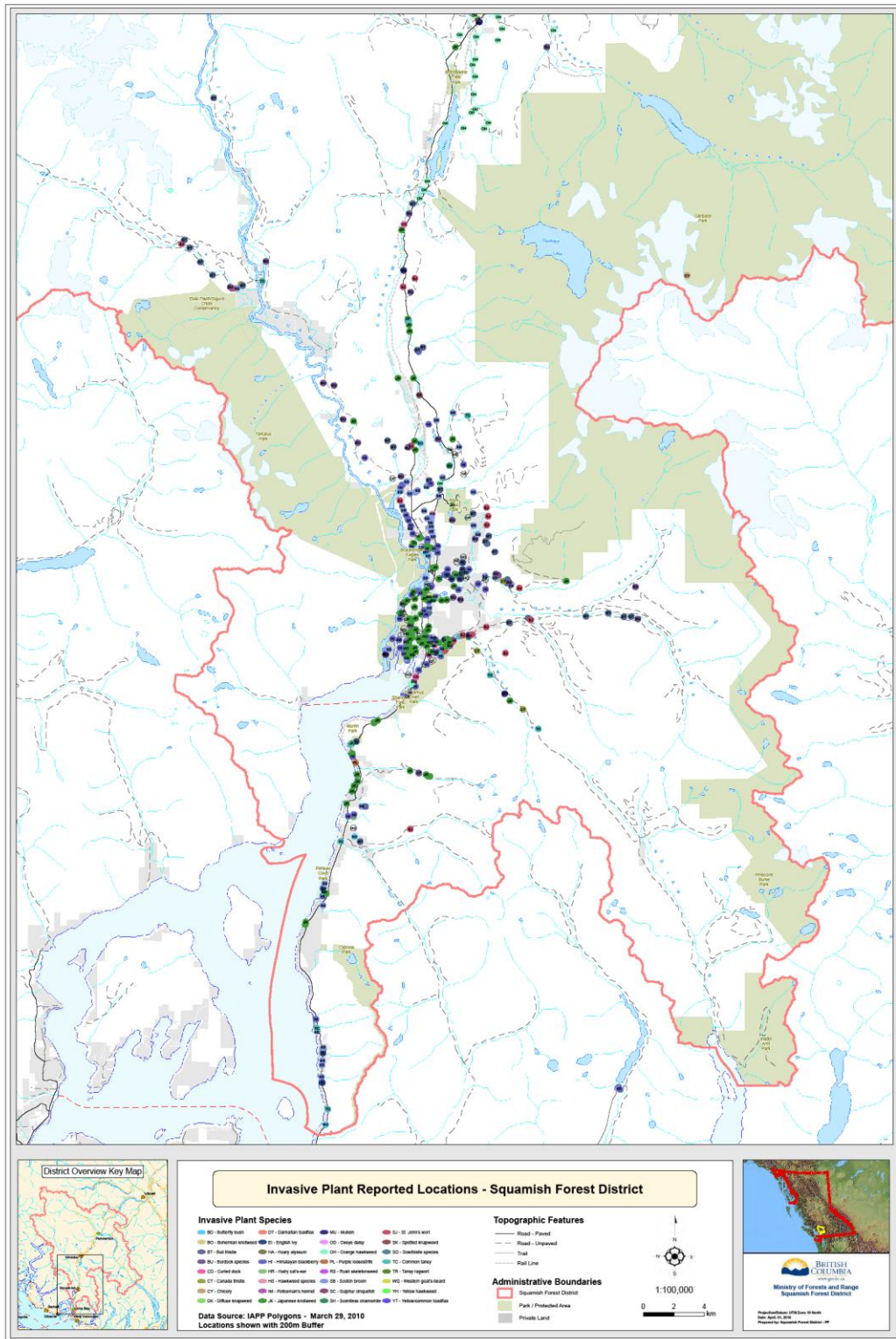


Figure 1 Overview of invasive plant locations in the Squamish area entered to date into the IAPP database

INTRODUCTION

In January and February of 2010, the Sea to Sky Invasive Species Council (SSISC) had the opportunity to direct and supervise a team employed by the Invasive Plant Council of BC to do invasive species inventory. The project was funded through the provincial Job Opportunities Program (JOP) and the federal Community Adjustment Fund (CAF).

Every year, the battle against invasive species cost the Canadian taxpayer in the order of a few billion dollars. Invasive species are the second biggest threat to global biodiversity, after habitat destruction by land clearing. Invasive species are not native to our region and tend to favour disturbance, grow rapidly, are hard to get rid of and form monocultures, while outcompeting native species. Because they arrive in Canada without their natural predators to keep them in balance, invasive plants and animals can spread rapidly. Specific threats include:

- altered water flow and leading to erosion and/or less available water;
- creating and increasing the fire hazard;
- damage to roads and other built structures;
- reduction of crop yield;
- recreational & tourism trails/areas choked by invasive monocultures;
- decreased property values; and
- a loss of medicinal plants and cultural practices (loss of wild edibles, loss of habitat for wildlife and fish).

The purpose of this work was to help identify the extent of the invasive threat in the Sea to Sky area. This inventory is designed to be a tool for land owners /managers/occupiers to help identify priority invasive species and areas, in order to develop or adjust invasive species management plans in coordination with other jurisdictions in the Sea to Sky. The SSISC will help coordinate these efforts so action plans are as efficient and effective as possible and provides recommendations in this document.

The team was made up of Squamish residents and included a two person field crew of Alex Vignola and Dominique Monnier and technical resource worker Sara Rowland. Direction was provided by SSISC Directors and Advisors and supervision by SSISC Coordinator Kristina Swerhun. The work was primarily done in the Squamish area only since the rest of the Sea to Sky was covered with snow and an overview of where the inventory was done is represented in Figure 1. More detailed maps can be found in the appendices of this report.

This report starts with a summary of recommendations on management action to take based on this project and any other available information. The report then provides details of the inventory work done collated by jurisdiction and/or right of way (i.e. BCTC and rail rights of way). Each sub-section contains:

- What areas within the jurisdiction/right of way were searched for invasive species
- Details on each site where invasives were found and inventoried
- representative photos and maps (where applicable)
- specific recommendations for each site (where applicable)

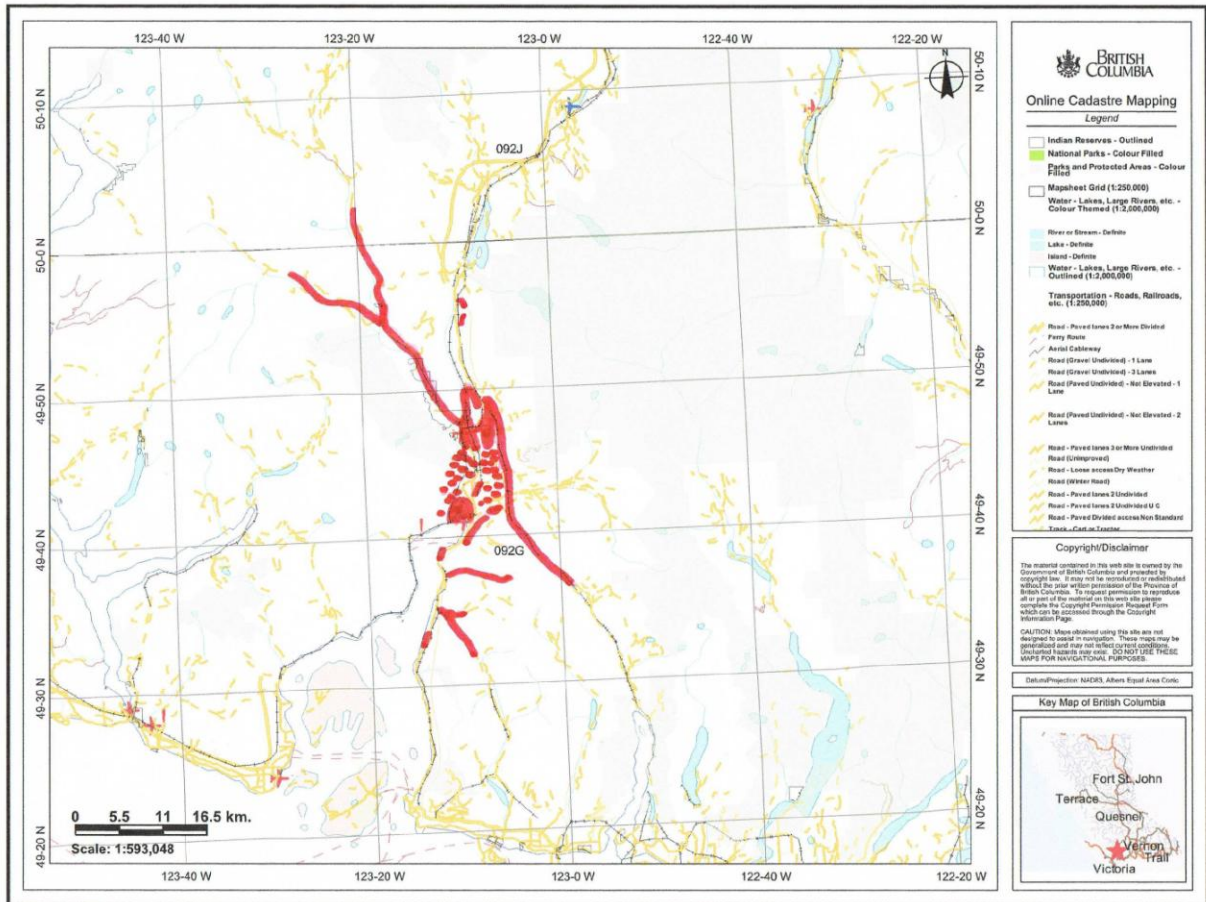


Figure 2 Overview map of SWAT inventory locations

RECOMMENDATIONS

The following recommendations are general for the entire Squamish area, and are intended to be fine tuned on a jurisdiction basis in consultation with the land owner/manager/occupier. **Please note** that these recommendations come primarily out of this report alone and do not include a wide range of deciduous and/or aquatic species that we still need more information on.

The three main focus areas are:

- a) eradicating newly introduced species and populations
- b) identifying leading edges of an invasive species and eradicating plants beyond those edges
- c) putting aside budget for treatment of these species *and* follow up

A. Eradicating newly introduced species and populations

Immediate eradication efforts should begin on the following species new to the area and be classified as Early Detection, Rapid Response:

EDRR Species	Notes
giant hogweed (<i>Heracleum mantegazzianum</i>)	not found during this project but know to be in a Squamish backyard – EXTREMELY TOXIC, research removal techniques before attempting
blueweed (<i>Echium vulgare</i>)	not found during this project but know to be creeping up from Lions Bay
daphne (<i>Daphne laureola</i>)	found only limited amounts as garden escapee in District of Squamish – a toxic plant so is a health and safety issue
butterfly bush (<i>Buddleja davidii</i>)	has manageable populations in the Squamish area and nothing near the infestation creeping up from Lions Bay
gorse (<i>Ulex europaeus</i>)	on original list but not detected in SLRD yet
knapweed (<i>Centaurea</i> sp.)	only found in Porteau Cove Provincial Park during survey – this plant can be kept entirely out of the Squamish area (is a <u>huge</u> problem in Pemberton)
New populations of any invasive species on the original list – <u>especially Japanese knotweed</u> (see below)	recommended that all new populations of priority invasive species be eradicated as soon as possible

B. Identifying leading edges of an invasive species and eradicating plants beyond those edges

These are the highest priority species to keep from spreading any further, especially towards any water source. Obvious it would be ideal to be able to keep all established invasive infestations from spreading.

Species of concern & hazards	Notes
<p>Japanese Knotweed (<i>Fallopia japonica</i>)</p> <ul style="list-style-type: none"> - <i>Chemical treatment may be the only way to get control of large populations</i> - <i>Keep this plant away from you waterways; this plant erodes stream channels, can be transported by water and chemical treatment is not feasible closer than 1 m to water</i> - <i>This plant will grow right through infrastructure and lower property values</i> 	<p>The “Knotweed Complex” that includes Japanese knotweed (<i>Fallopia japonica</i>), Giant knotweed (<i>Fallopia sachalenensis</i>), Bohemian knotweed (<i>Fallopia x bohemica</i>), and Himalayan knotweed (<i>Polygonum polystachum</i>) are serious threats to both the environment and to people. These plants have tremendous regenerative abilities and are recognized by international experts as “world’s worst species”. As little as 0.6 of a gram of root material (from roots that have been known to extend up to 20 meters) and/or stem material can produce a new plant in as little as 6 days in the warm, wet conditions that characterize the climate of coastal BC.</p>
<p>Scotch Broom (<i>Cytisus scoparius</i>)</p> <ul style="list-style-type: none"> - <i>produces toxic substances that it oozes into the soil and prevents other plant life from establishing</i> 	<p>This species is spreading most aggressively under transmission lines and along some parts of Hwy 99 and is a fire hazard and habitat destructor; large infestations need to be contained and small ones should be eradicated.</p>
<p>Himalayan Blackberry (<i>Rubus discolor</i>)</p> <ul style="list-style-type: none"> - <i>shades out all other vegetation</i> - <i>since berries can only be picked along the outside of a patch, makes sense to keep them small</i> 	<p>This species is found across the board and gets harder and harder to control as it spreads; eradicate small populations immediately and keep large ones contained.</p>

C. Putting aside budget for treatment of these species and follow up

There is no “silver bullet” or single best control strategy for all invasive species – each site and species is different. It will likely take 3-5 years to be successful using integrated approaches therefore an effective management plan will budget for both control and monitoring for years to come. The SSISC is here to help coordinate these efforts so action plans are as efficient and effective as possible.

Things to remember:

- Everything relates to site
- Deal with priority species and/or sites first
- Develop strategies and DON’T give up!