

# Squamish River Estuary

The Wildlife Management Area (WMA) was divided into the following sub-divisions (Fig 1)

1. Squamish River East Bank
2. Crescent Slough
3. Central Delta
4. Dredge Spoils
5. Uplands Meadow
6. Log Sort, North Fields and East Marsh

The inventory of invasive plant species was undertaken in early January to early March 2010, so limited to winter-identifiable species only. Other invasive species may be present.

The field crew covered the trails and roads within the WMA (see Figs. 2 & 3). Some sites to the northern end of the WMA, on the river dyke, had been inventoried by the field crew earlier in the contract and these sites are included in this report. West Delta was not inventoried as it is accessible only by boat.

The WMA is a Provincial Park under the jurisdiction of the Ministry of Environment; there are a number of sites adjacent to and crossing the WMA boundary that are the jurisdiction of other parties including District of Squamish, Squamish First Nations and Ministry of Transportation and Infrastructure (BC Rail). Invasive plant control in the WMA and along its boundaries will likely require cooperation of multiple organizations.

## Summary of species found during field work during February 2010\*

\*Only includes evergreen species and recognizable deciduous species

Common name	Scientific name	Wildlife Management Area		
		Ministry of Environment	District of Squamish	Squamish Nation
common burdock	<i>Arctium sp.</i>	2	1	
butterfly bush	<i>Buddleja davidii</i>	1		
Scotch Broom	<i>Cytisus scoparius</i>	2 to 3	2	1
Daphne	<i>Daphne laureola</i>			
Japanese Knotweed	<i>Fallopia japonica</i>	3	2 to 3	
English Ivy	<i>Hedera helix</i>	2 to 3		
English Holly	<i>Ilex aquifolium</i>	2 to 3	1	1
yellow archangel	<i>Lamium galeobdolon</i>	2 to 3		
Himalayan Blackberry	<i>Rubus discolor</i>	3	2 to 3	1
cutleaf blackberry	<i>Rubus Laciniatus</i>	2		
mullein	<i>Verbascum thapsus</i>	2		
Periwinkle	<i>Vinca minor</i>	2 to 3	1	

1 = small infestation, less than a day to eradicate

2 = medium infestation, multiple day eradication efforts

3 = large infestation, multi-year eradication efforts

**Skwelwil'em Wildlife Management Area**

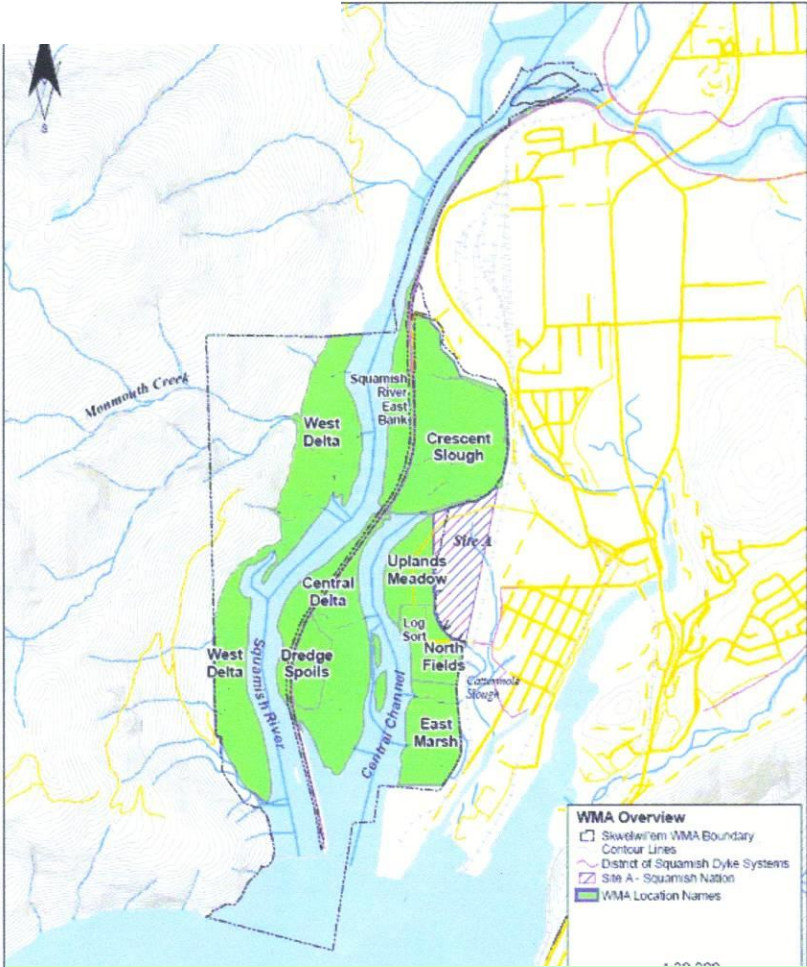


Fig. 1: Squamish Estuary Wildlife Management Area (taken from the Estuary Management Plan )  
Not to scale

Fig. 1: Squamish Estuary Wildlife Management Area

Fig. 2: Route taken (pink highlight) by SSISC field crew during their inventory. Map extract from Squamish Estuary Trail Guide  
 Not to scale

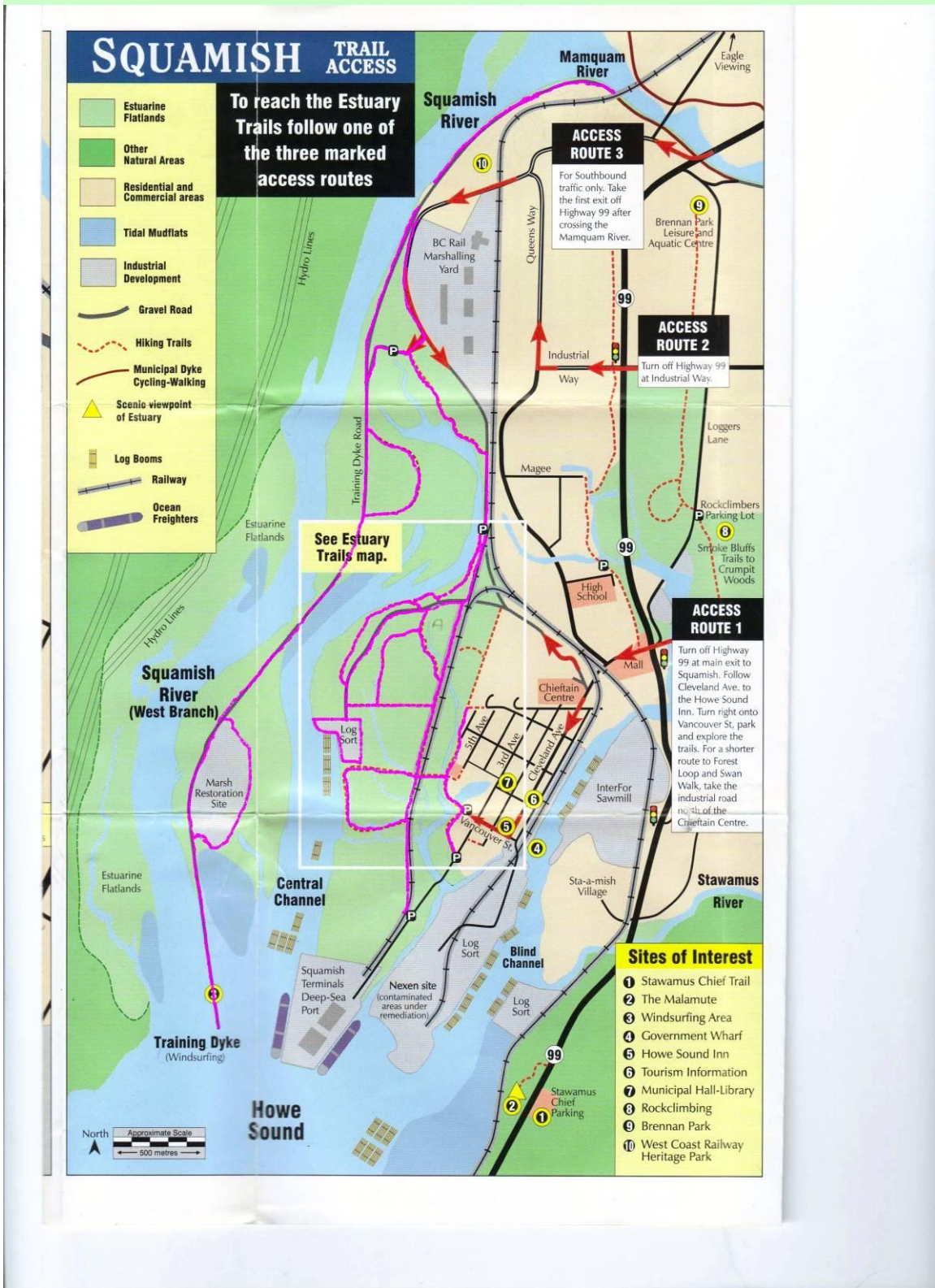


Fig. 3: Enlarged detail of Estuary trails in the Uplands Meadow to East Marsh area. Not to scale



## 1. Squamish River East Bank



Fig. 4: East bank of dyke, from dyke trail  
Japanese knotweed – continuous patch – with Himalayan  
blackberry and common burdock; BCRail in background  
Site # 256721

Table 1. Squamish River East Bank

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
266474	488100	5508044	Ministry of Environment	3.0	Japanese knotweed	A single patch or clump	Dense	North end Training Dyke Road (Spit Road) from T-intersection on access road (to The Spit) up to behind the railway museum. Site boundary east is the dyke trail. Waypoint is on the dyke trail and is on the WMA boundary, the site lies west of that and is within the WMA.
					Scotch broom	A few sporadically occurring individuals	Low	
					Common burdock	A few sporadically occurring individuals	Low	
					Himalayan blackberry	Several sporadically occurring individuals	Medium	
256721	488786	5508829	District of Squamish	0.5	Common burdock	Several sporadically occurring individuals	Low	Close to BC Rail line. Waypoint is on the WMA boundary.
					Japanese knotweed	Continuous dense occurrence	Dense	
					Himalayan blackberry	Several sporadically occurring individuals	Medium	
263002	489078	5508898	District of Squamish	0.01	Common burdock	Rare individual	Low	On dyke, 300m west of BC rail bridge. Waypoint is very close to WMA boundary but not within it.
					Himalayan blackberry	Rare individual	Low	

## 2. Crescent Slough



Fig 5: Sandy pit 200m up the trail from east trail head between Training Dyke Road and rail bed.  
Scotch broom and common periwinkle  
Site # 266450



Fig 6: Site within a site: roadside by BC Rail spur to Squamish Terminals  
Himalayan blackberry  
Site # 266451



Fig. 7: Along Training Dyke Road/Spit Road, across from WMA sign  
Yellow archangel  
Site # 266452



Figs 8 and 9: Off Training Dyke Road.  
Yellow archangel (Fig. 8) and Japanese knotweed (Fig. 9)  
Site # 266473

Table 2: Crescent Slough

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Eastings	Northing						
266448	488056	5507367	Ministry of Environment	0.45	English holly	A few sporadically occurring individuals	Low	From west trail head to sandy pit. Close to BC Rail yard
266449	488050	5507535	Ministry of Environment	10.5	Common periwinkle	A single patch or clump	Dense	Adjacent to BC rail marshalling yard. Waypoint is outside WMA. Site is a triangle 750m base by 250m sides
					Yellow archangel	A few patches or clumps	Dense	
					Himalayan blackberry	Several well-spaced patches or clumps	Dense	
					English holly	A few sporadically occurring individuals	Low	
266450	488356	5507004	District of Squamish	0.16	Scotch broom	A few patches or clumps	Medium	Sandy pit 200m up trail from east trailhead between Training Dyke Road (Spit Road) and rail bed. Waypoint is on WMA boundary
					Common periwinkle	A single patch or clump	Dense	
266451	488500	5506912	District of Squamish	2.0	English holly	Continuous occurrence with few gaps in distribution	Medium	Between Training Dyke Road and rail bed. Waypoint is on WMA boundary
					Himalayan blackberry	A few sporadically occurring individuals	Medium	
	488583	5506904	0.8	Himalayan blackberry	Several well-spaced patches or clumps	High	Site within a site	
266452	488120	5507433	Ministry of Environment	0.0225	Yellow archangel	A single patch or clump	Dense	Across from WMA sign on Training Dyke Road (Spit Road), south side of road. Waypoint is just outside WMA
266473	487924	5507413	Ministry of Environment	0.12	Japanese knotweed	Several well-spaced patches or clumps	Dense	Training Dyke Road 30m south of T-intersection with access road (from Government Road)
					Yellow archangel	Single patch or clump	Dense	
266475	488168	5506421	Ministry of Environment	1.4	English holly	Several sporadically occurring individuals	Low	Walking trail east side of Training Dyke Road (Spit Road). On marsh land within WMA.
					Himalayan blackberry	A few sporadically occurring individuals	Low	
					English ivy	Rare individual	Low	

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
266476	487902	5507069	Ministry of Environment	3.0	Himalayan blackberry	Several sporadically occurring individuals	Medium	Training Dyke Road (Spit Road). All along roadway
					Common burdock	A single patch or clump	Low	South of road

Table 3. Central Delta

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
266464	487418	5505741	Ministry of Environment	3.0	Scotch broom	A few sporadically occurring individuals	Low	Training Dyke Road (Spit Road). South end of site
					English holly	Several sporadically occurring individuals	Low	
					Himalayan blackberry	Several well-spaced patches or clumps	Medium	All along road

## 4. Dredge Spoils



Figs 10 and 11: Training Dyke Road, looking east/northeast from waypoint.  
Scotch broom, Himalayan blackberry and mullein  
Site # 266463



Fig 12: Training Dyke Road/Spit Road looking south from  
waypoint.  
Cut-leaf blackberry and mullein  
Site # 266466

Table 4: Dredge Spoils

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
266463	486975	5504999	Ministry of Environment	1.2	Scotch broom	A single patch or clump	Medium	Training Dyke Road (Spit Road). East side
					Himalayan blackberry	Several well-spaced patches or clumps	Medium	Both sides of road
					Mullein	A few sporadically occurring individuals	Low	
266466	486966	5504719	Ministry of Environment	0.4	Mullein	Several sporadically occurring individuals	Low	Training Dyke Road (Spit Road).
					Cut-leaf blackberry	Several sporadically occurring individuals	Medium	
266467	487179	5505045	Ministry of Environment	3.0	Scotch broom	Several well-spaced patches or clumps	Medium	East loop trail off Training Dyke Road.

## 5. Upland Meadows

Industrial Road: Along this section of the road some Scotch broom *Cytisus scoparius* were found as well as Himalayan blackberry *Rubus discolor* and English holly *Ilex aquifolium* trees.



Fig. 13: View south from waypoint on Industrial Road. Scotch broom, Himalayan blackberry, English holly and Japanese knotweed.  
Site # 256740



Figs 14 and 15: Views north and south from waypoint. Himalayan blackberry, English holly and Scotch broom  
Site # 266470

Table 5: Upland Meadows

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
266445	487846	5505684	Ministry of Environment	2.0	English holly	Continuous occurrence with a few gaps in distribution	Low	Swan Walk south from mid-trail to trail head
					Himalayan blackberry	Several sporadically occurring individuals	Medium	
					Common periwinkle	Single patch or clump	Dense	At 2 <sup>nd</sup> junction off Industrial Road
266478	488151	5506042	Ministry of Environment	1.4	English holly	Continuous occurrence with a few gaps in distribution	Low	NE branch of Forest Loop trail between rail bed and log sort. Waypoint is outside WMA
					Himalayan blackberry	A few patches or clumps	Low	
266470	487840	5505682	Ministry of Environment	0.68	Scotch broom	Several sporadically occurring individuals	Medium	Southern end of Industrial Road from south Swan Walk trail head to the Log Sort.
					Himalayan blackberry	Several sporadically occurring individuals	Medium	
					English holly	Several sporadically occurring individuals	Low	

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
266444	488318	5506077	Squamish Nation	7.5	English holly	Continuous occurrence with a few gaps in distribution	Low	Swan Walk from parking lot to mid-trail including roadway (S) and railway (E). Waypoint is at southern end of site and is outside WMA.
					Himalayan blackberry	Several sporadically occurring individuals	Medium	Along railway side
					Common burdock	A few sporadically occurring individuals	Low	
256740	488482	5506061	Ministry of Transportation & Infrastructure/Ministry of Environment	6.56	Scotch broom	Several sporadically occurring individuals	Medium	From south Swan Walk trail head to the railway crossing on Industrial Road (WMA). Waypoint is outside WMA
					Himalayan blackberry	Several sporadically occurring individuals	Medium	
					English holly	Several sporadically occurring individuals	Low	
				0.0015	Japanese knotweed	Not recorded	Not recorded	Cursory inventory in 2005

## 6. Log Sort, North Fields and East Marsh

Throughout this area are copious young and maturing white oaks *Quercus alba* that were observed during a preliminary walk-through of the area. The original trees were planted by a local man (E. Tobe, pers. comm., 2010), but it is evident that the trees are spreading by seed to other areas and appear to be invasive. The species is not listed in the IAPP system so this information is not captured in IAPP other than as a unlisted species comment added to a different species entry. The occurrence of the oak was not recorded by the field crew.

### West Barr Log Sort

Some Scotch broom *Cytisus scoparius* was inventoried at the site as well as Himalayan blackberry *Rubus discolor* and butterfly bush *Buddleia davidii*.



Figs 16 and 17: Log Sort.  
Scotch broom, Himalayan blackberry and butterfly bush  
Site # 266469



East Marsh itself was not inventoried as it is marsh with no trail access. One site just outside the WMA was inventoried, off 3<sup>rd</sup> Avenue.



Fig. 18: South end of 3<sup>rd</sup> Avenue, close to East Marsh  
Scotch broom  
Site # 266457



Fig 19: Bret Carson Bench trail  
Japanese knotweed, Himalayan blackberry  
Site # 256696



Figs. 20 & 21: Meadow Loop trail from Vancouver Street to railway.  
Japanese knotweed, Himalayan blackberry and mullein  
Site # 256697



### Meadow Loop Trail

Along the Meadow Loop Trail some English holly *Ilex aquifolium* trees were inventoried

Table 6: Log Sort, North Fields and East Marsh

IAPP site #	UTM Zone 10		Jurisdiction	Area ha	Species	Distribution	Density	Comments
	Easting	Northing						
256696	488428	5504647	Ministry of Environment?		Japanese knotweed	Several well-spaced patches or clumps	Dense	Land classed as 'Shore'. Outside WMA. Bert Carson Bench trail
					Himalayan blackberry	Several well-spaced patches or clumps	High	
256697	488436	5504934	Ministry of Environment	0.4	Japanese knotweed	A few patches or clumps	Dense	Meadow Loop trail from Vancouver Street to rail bed.
					Himalayan blackberry	Several well-spaced patches or clumps	High	
					Mullein	Rare individual	Low	
266469	487914	5505146	Ministry of Environment	2.25	Scotch broom	Several sporadically occurring individuals	Low	Log Sort
					Himalayan blackberry	Rare individual	Medium	
					Butterfly bush	Rare individual	Low	
266480	488111	5505121	Ministry of Environment	4.5	English holly	Several sporadically occurring individuals	Low	Meadow Loop trail
					Himalayan blackberry	A few patches or clumps	High	
266457	488328	5504474	District of Squamish	0.01	Scotch broom	Several sporadically occurring individuals	Low	3rd Avenue, at bridge crossing. Just outside WMA.

**Note:** White oak *Quercus alba* is commonplace throughout the area