



BRITISH
COLUMBIA



Invasive Plant Management in BC: Successes, Challenges and Introducing InvasivesBC!

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Ministry of Forests, Lands, Natural Resource
Operations and Rural Development

*IVMA Forum
November, 2021*



OUTLINE:

- Brief Provincial EDRR Update
- Provincial Containment species to watch for
- InvasivesBC!



**Invasive Species Early Detection
and Rapid Response Plan
for British Columbia**



November 2014



IMISWG

Inter-Ministry Invasive Species Working Group

BC Invasive Species Early Detection and Rapid Response (EDRR) Plan



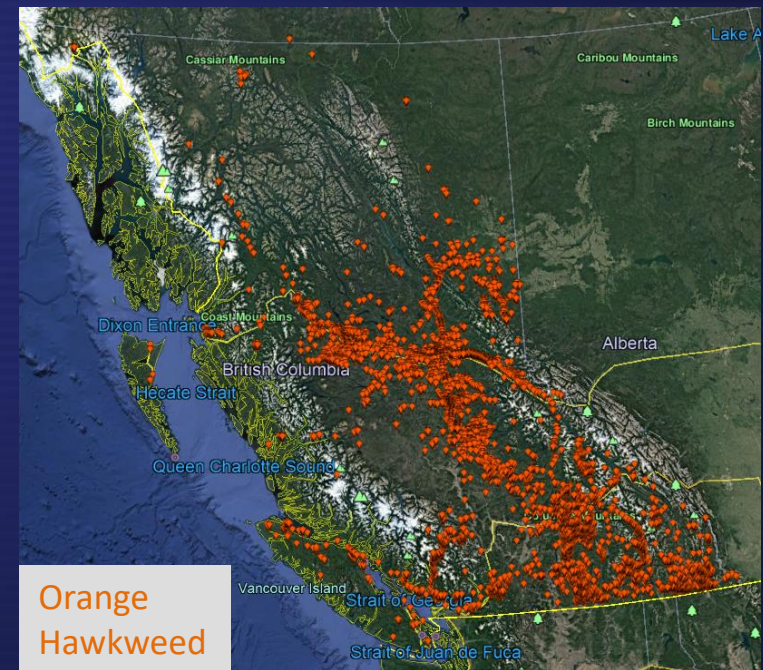
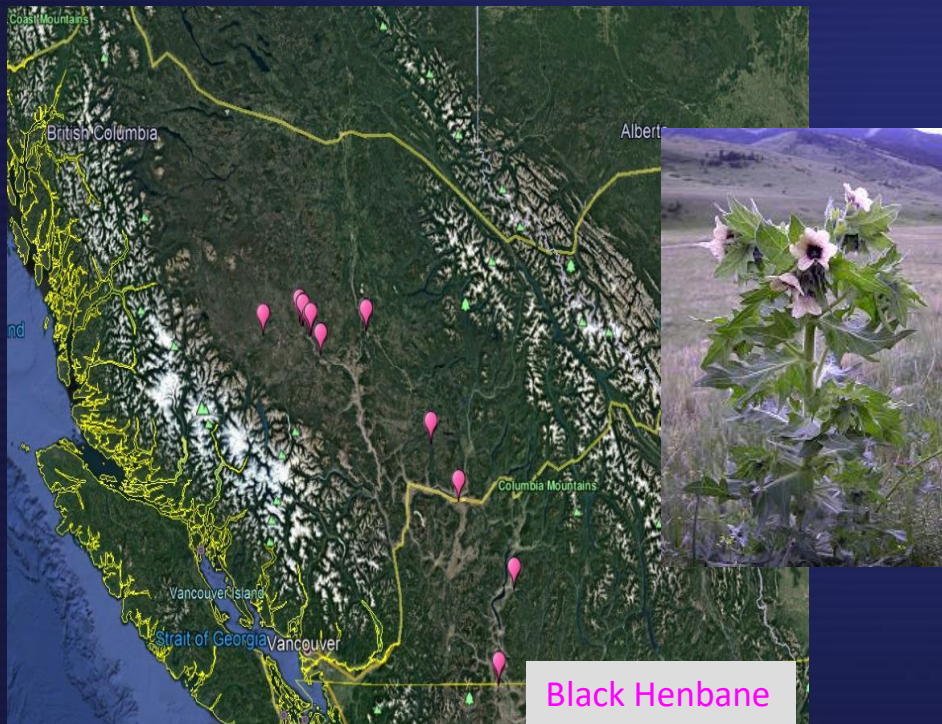
EARLY DETECTION RAPID RESPONSE PROCESS FOR B.C.



**Contain Known
Infestations**

B.C. EDRR CANDIDATE SPECIES

Terrestrial and aquatic species known to be invasive and damaging and not known to occur in BC or present in limited amounts.





2021 EDRR PLANT PROGRAM UPDATE

- 47 EDRR candidate plant species:
https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/guidance-resources/edrr_candidate_invasive_plants_feb2020.pdf
- Risk assessments: 50 drafted to date
- 26 invasive plants within EDRR process (1024 sites total)(as of July 2021)
- Last year:
 - 84 new EDRR reports and field verifications
 - 89 sites removed from EDRR workplan (67 North Africa grass, 22 eradicated)
 - 2 species federally regulated – CFIA regulated



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B.C. Invasive Plant Candidates for Eradication (EDRR Candidates)

The following invasive plant species are not present in BC or are present but extremely limited in extent, and pose a significant threat to BC's environment, economy and/or human health. These species have been identified as a result of an extensive review that considered their regulation and status in BC and bordering jurisdictions, presence elsewhere in similar environments to those that occur in BC, and listing under federal regulations. These species are proposed candidates for eradication province wide (EDRR candidates) under the B.C. Invasive Species Early Detection Rapid Response (EDRR) Program.

Common Name	Scientific Name	Type
African-rue	<i>Peganum harmala</i> L.	Terrestrial
Black Henbane	<i>Hyoscyamus niger</i> L.	Terrestrial
Brazilian Elodea/ Waterweed	<i>Egeria densa</i> Planch.	Aquatic - submerged, rooted
Camel Thorn	<i>Alhagi maurorum</i> Medik.	Terrestrial
Common Crupina	<i>Crupina vulgaris</i> Cass.	Terrestrial
Common Reed, European	<i>Phragmites australis</i> (Cav.) Trin. ex Steud. subsp. <i>australis</i>	Semi aquatic - emergent
Cordgrass, Dense-flower	<i>Spartina densiflora</i> Brongn.	Semi-aquatic - tidal
Cordgrass, Salt Meadow	<i>Spartina patens</i> (Aiton) Muhl.	Semi-aquatic - tidal
Cordgrass, Smooth	<i>Spartina alterniflora</i> Loisel.	Semi-aquatic - tidal
Cordgrass, Common	<i>Spartina anglica</i> C.E. Hubbard	Semi-aquatic - tidal
Dyer's Woad	<i>Isatis tinctoria</i> L.	Terrestrial
Eggleaf Spurge	<i>Euphorbia oblongata</i> Griseb.	Terrestrial
False-brome, Slender	<i>Brachypodium sylvaticum</i> (Huds.) P. Beauv.	Terrestrial
Flowering rush	<i>Butomus umbellatus</i> L.	Aquatic – submerged and emergent, rooted
Foxtail, Slender/Meadow	<i>Alopecurus myosuroides</i> Huds.	Terrestrial
Geranium, Shiny	<i>Geranium lucidum</i> L.	Terrestrial
Goatsrue	<i>Galega officinalis</i> L.	Terrestrial
Halogeton/Saltlover	<i>Halogeton glomeratus</i> (M. Bieb.) C.A. Mey.	Terrestrial
Hawkweed, Mouse-ear	<i>Hieracium pilosella</i> L.	Terrestrial
Hyacinth, Water	<i>Eichhornia crassipes</i> (Mart.) Solms	Aquatic - semi-emergent
Hydrilla	<i>Hydrilla verticillata</i> (L. f.) Royle	Aquatic – submerged, rooted
Johnsongrass	<i>Sorghum halepense</i> L.	Terrestrial
Jointed Goatgrass	<i>Aegilops cylindrica</i> Host	Terrestrial

REPORT Priority Invasive Species:

<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/reporting-invasive-species>



B.C. Invasive Plant Candidates for Eradication (EDRR Candidates)

Common Name	Scientific Name	Type
Knapweed, Squarrose	<i>Centaurea virgata</i> Lam. ssp. <i>squarrosa</i>	Terrestrial
Kudzu	<i>Pueraria montana</i> (Lour.) Merr. var. <i>lobata</i>	Terrestrial
Meadow Clary	<i>Salvia pratensis</i> L.	Terrestrial
Medusahead	<i>Taeniatherum caput-medusae</i> (L.) Nevski	Terrestrial
Nightshade, Silverleaf	<i>Solanum elaeagnifolium</i> Cav.	Terrestrial
Nutsedge, Purple	<i>Cyperus rotundus</i> L.	Terrestrial
Pepperweed, Perennial	<i>Lepidium latifolium</i> L.	Terrestrial
Red Bartsia	<i>Odontites serotina</i> Dum.	Terrestrial
Reed, Giant	<i>Arundo donax</i> L.	Terrestrial
Sage, Clary	<i>Salvia sclarea</i> L.	Terrestrial
Sage, Mediterranean	<i>Salvia aethiopis</i> L.	Terrestrial
Spring Milletgrass	<i>Milium vernale</i> M. Bieb.	Terrestrial
Spurge Flax	<i>Thymelaea passerina</i> (L.) Coss. & Germ.	Terrestrial
Starthistle, Iberian	<i>Centaurea iberica</i> Trev. ex Sprengel	Terrestrial
Starthistle, Maltese	<i>Centaurea melitensis</i> L.	Terrestrial
Starthistle, Purple	<i>Centaurea calcitrapa</i> L.	Terrestrial
Starthistle, Yellow	<i>Centaurea solstitialis</i> L.	Terrestrial
Syrian Bean-Caper	<i>Zygophyllum fabago</i> L.	Terrestrial
Texas Blueweed	<i>Helianthus ciliaris</i> DC.	Terrestrial
Thistle, Italian	<i>Carduus pycnocephalus</i> L.	Terrestrial
Thistle, Slenderflower	<i>Carduus tenuiflorus</i> W. Curtis	Terrestrial
Water lettuce	<i>Pistia stratiotes</i> L.	Aquatic – emergent, free-floating
Water soldier	<i>Stratiotes aloides</i> L.	Aquatic – submerged/emergent, rooted
Yellow floating heart	<i>Nymphoides peltata</i> [(Gmel.) Kuntze]	Aquatic - emergent

What Can You Do?

- Learn to identify provincial eradication candidate species: <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/priority-species/priority-plants>
- If you find a new plant species in BC: collect a pressed sample, take pictures, record site location and description.

REPORT Priority Invasive Species:

<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/reporting-invasive-species>



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Menu

Status of invasive plants within the Provincial EDRR Process

Show entries

Search:

EDRR Invasive Plant Status

Scientific Name 	Common Name 	Step 1: Early Detection 	Step 2: Identification 	Step 3: Alert Screening 	Step 4: Risk Assessment 	Step 5: Rapid Response 	Step 6: Monitor & Reassess 
<i>Abutilon theophrasti</i>	Velvet leaf	Present	Confirmed	Complete - Provincial Response	Complete	In progress	-
<i>Aegilops cylindrica</i>	Jointed goatgrass	Present	Confirmed	Complete - Federal Response	In progress	In progress	-
<i>Alhagi maurorum</i>	Camelthorn	Not present	n/a	n/a	In progress	n/a	n/a
<i>Alliaria petiolata</i>	Garlic mustard	Present	Confirmed	Eradication candidate - No	Complete - Not EDRR	n/a	n/a
<i>Alopecurus myosuroides</i>	Slender foxtail	Not present	n/a	n/a	In progress	n/a	n/a
<i>Arundo donax</i>	Giant reed	Present	Confirmed	Complete - Federal Response	In progress	In progress	-

New Invaders and threats



Patterson's curse



Dyers woad



Yellow starthistle



Kudzu



Texas blueweed

Not found in BC.... Yet

New Invaders and Threats



Common reed



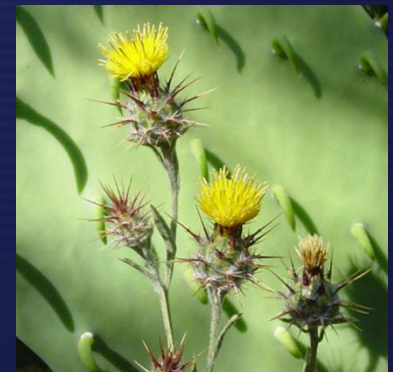
Mouse-ear hawkweed



Black henbane



Spartina spp.



Maltese starthistle



Perennial pepperweed

Confirmed in BC –
treating/containing all

New Invaders and Threats



BC Government



Confirmed in BC
treating/containing all



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EDRR PLANT PROGRAM UPDATE



Welcome!

**A Story of Invasion and the Fight for Good
New Invasive Plants to BC**

Presented by Becky Brown,
Professional Agrologist with the BC Institute of Agrologists

Please note this webinar is being recorded.

WATCH HERE: <https://youtu.be/nkr1FwNdl3E>



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Biological Control – A Management Tool in BC



Welcome!

Biological Control – A Management Tool in BC

Presented by Susan Turner,
Invasive Plant Biocontrol Specialist

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Please note this webinar is being recorded.



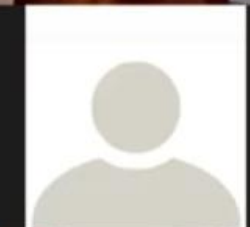
MORE VIDEOS



Watch later



Share



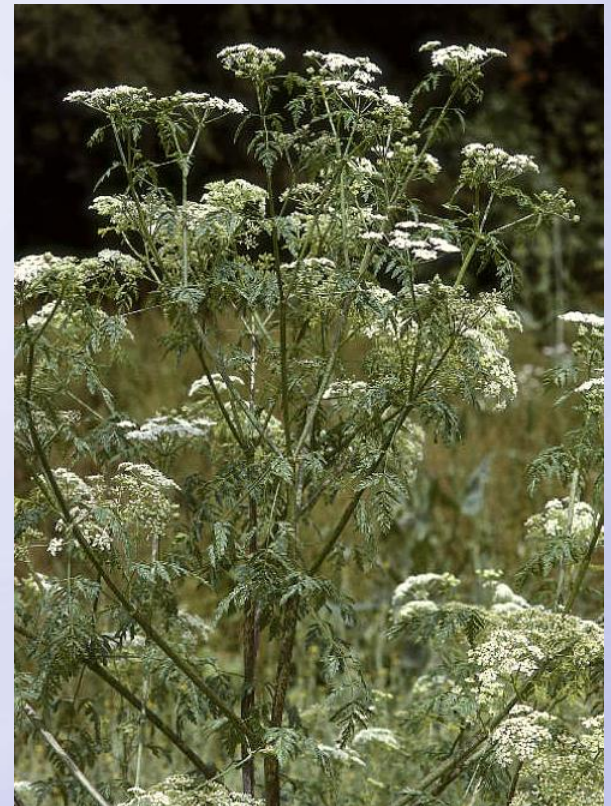


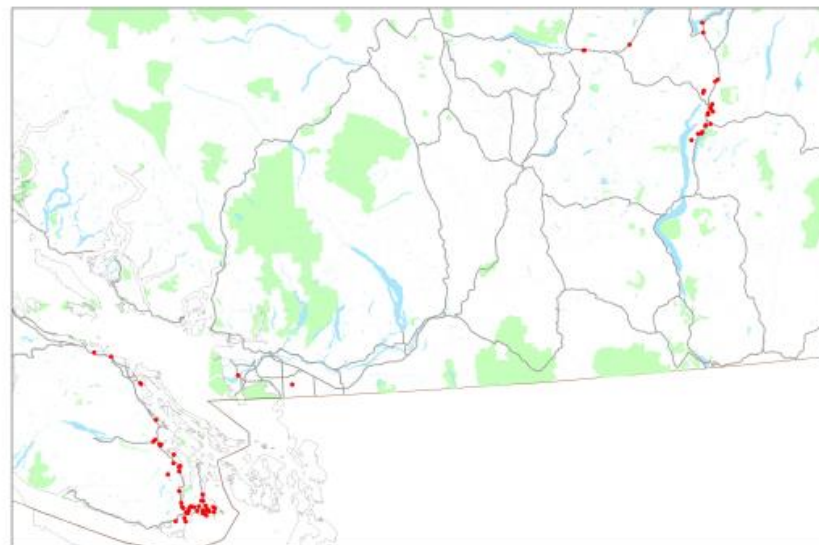
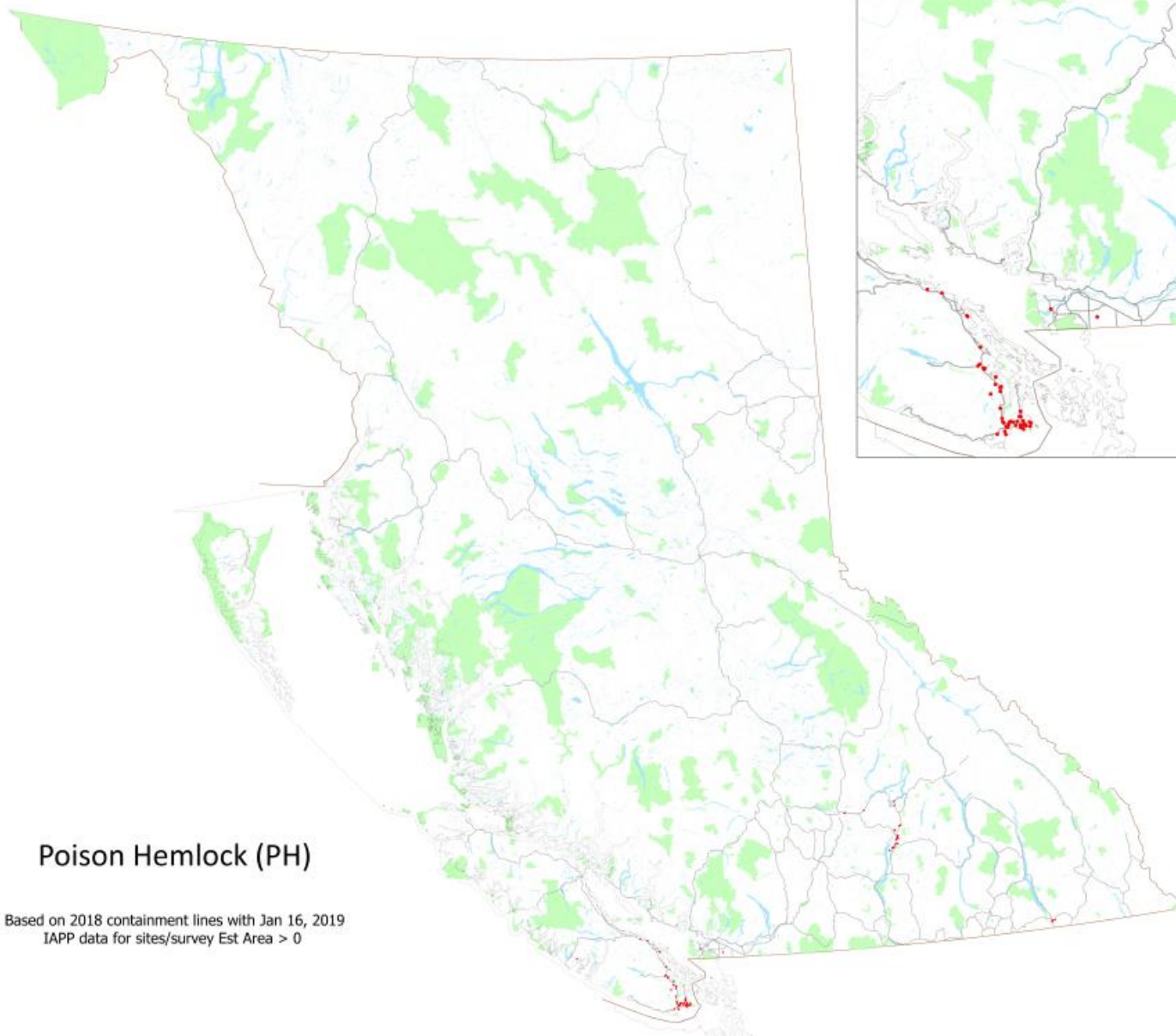
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PROVINCIAL CONTAINMENT SPECIES

- **Poison Hemlock**
- Teasel
- Wild Chervil
- Wild Parsnip
- Garlic Mustard
- North Africa Grass

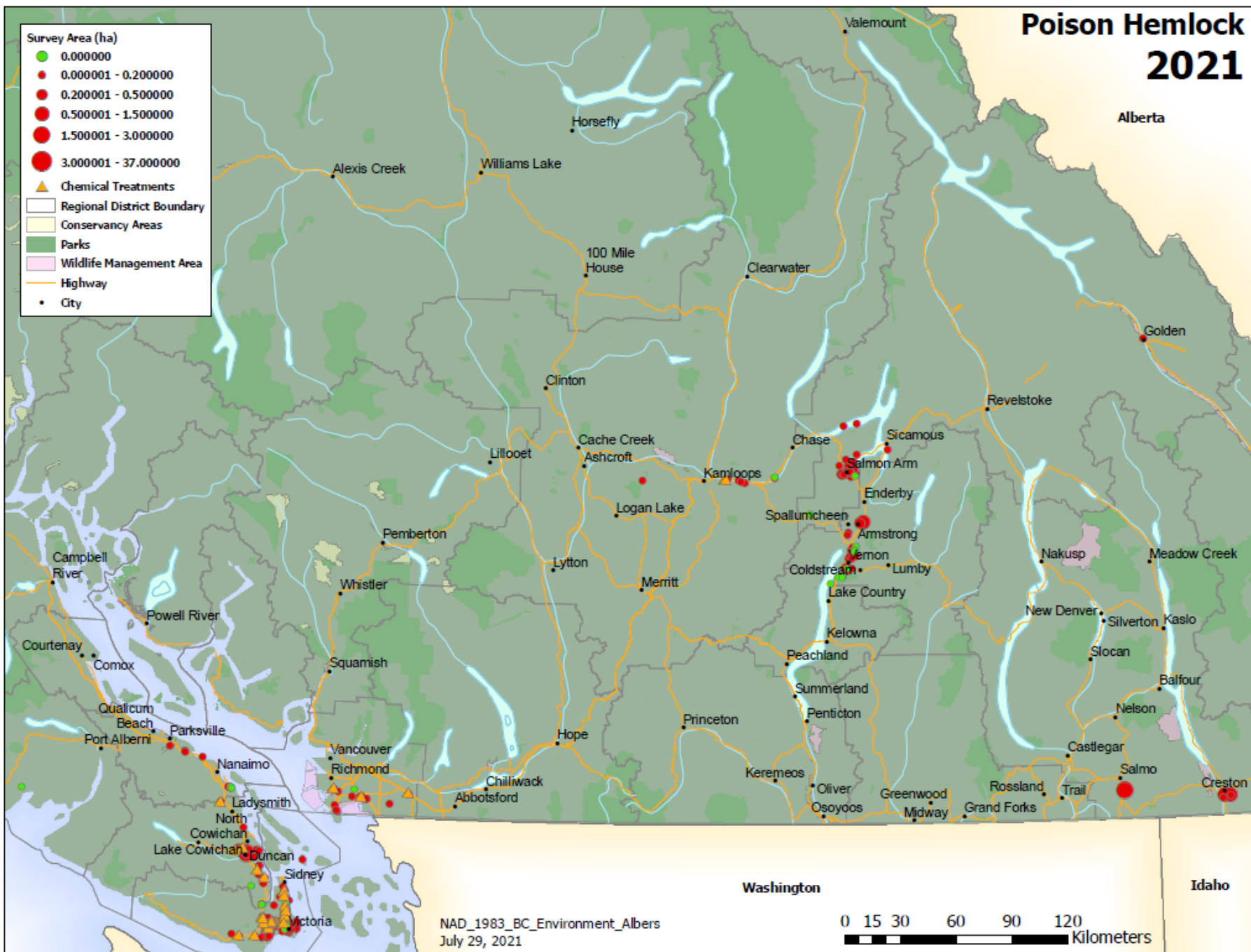
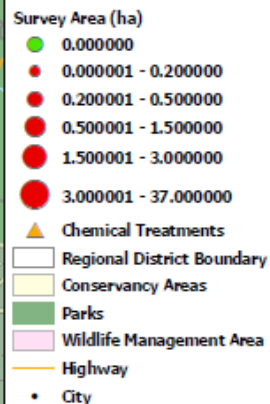




Poison Hemlock (PH)

Based on 2018 containment lines with Jan 16, 2019
IAPP data for sites/survey Est Area > 0

Poison Hemlock 2021



NAD_1983_BC_Environment_Albers
July 29, 2021

Washington

Idaho

0 15 30 60 90 120
Kilometers



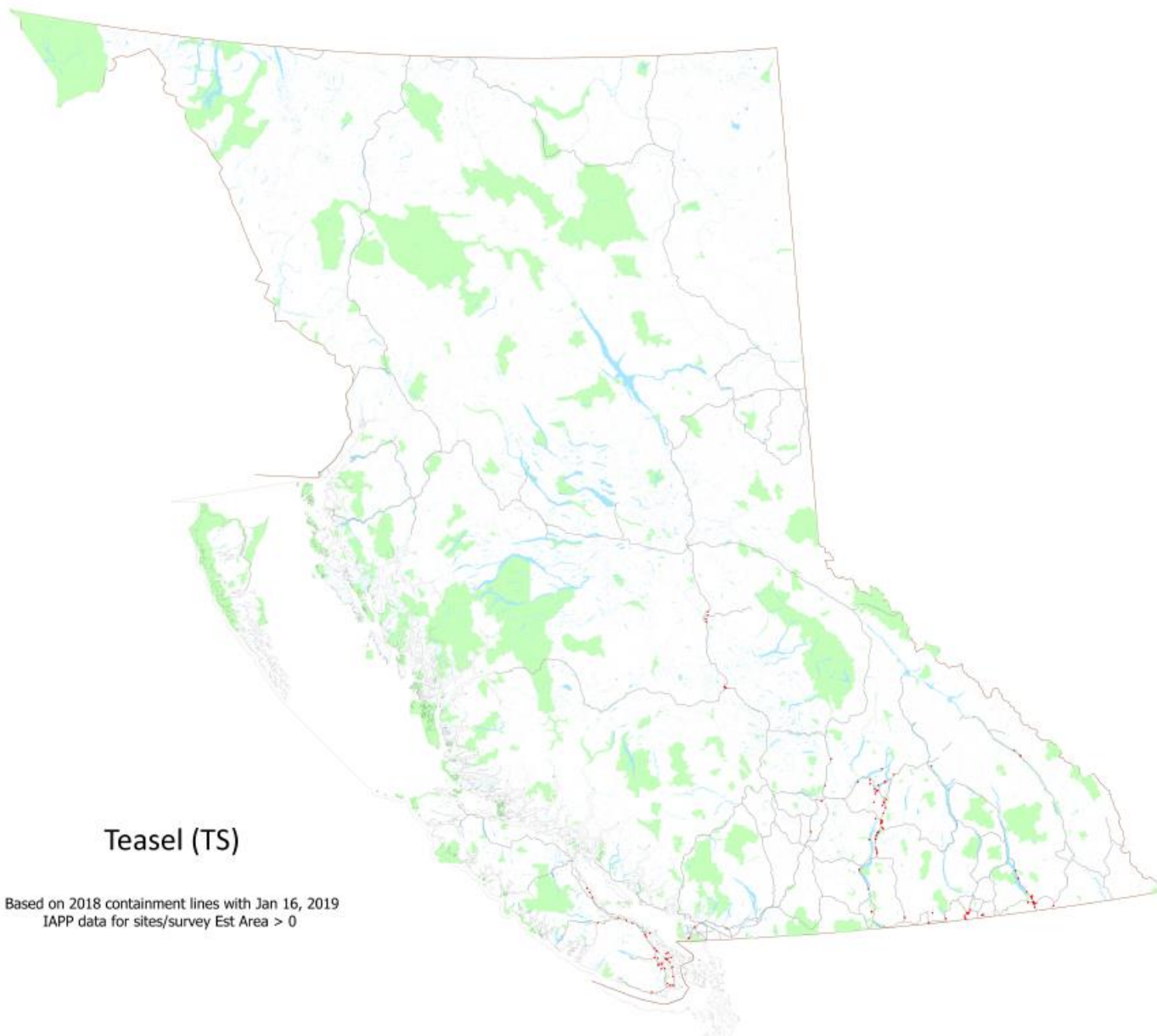
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PROVINCIAL CONTAINMENT SPECIES

- Poison Hemlock
- **Teasel**
- Wild Chervil
- Wild Parsnip
- Garlic Mustard
- North Africa Grass





Teasel (TS)

Based on 2018 containment lines with Jan 16, 2019
IAPP data for sites/survey Est Area > 0



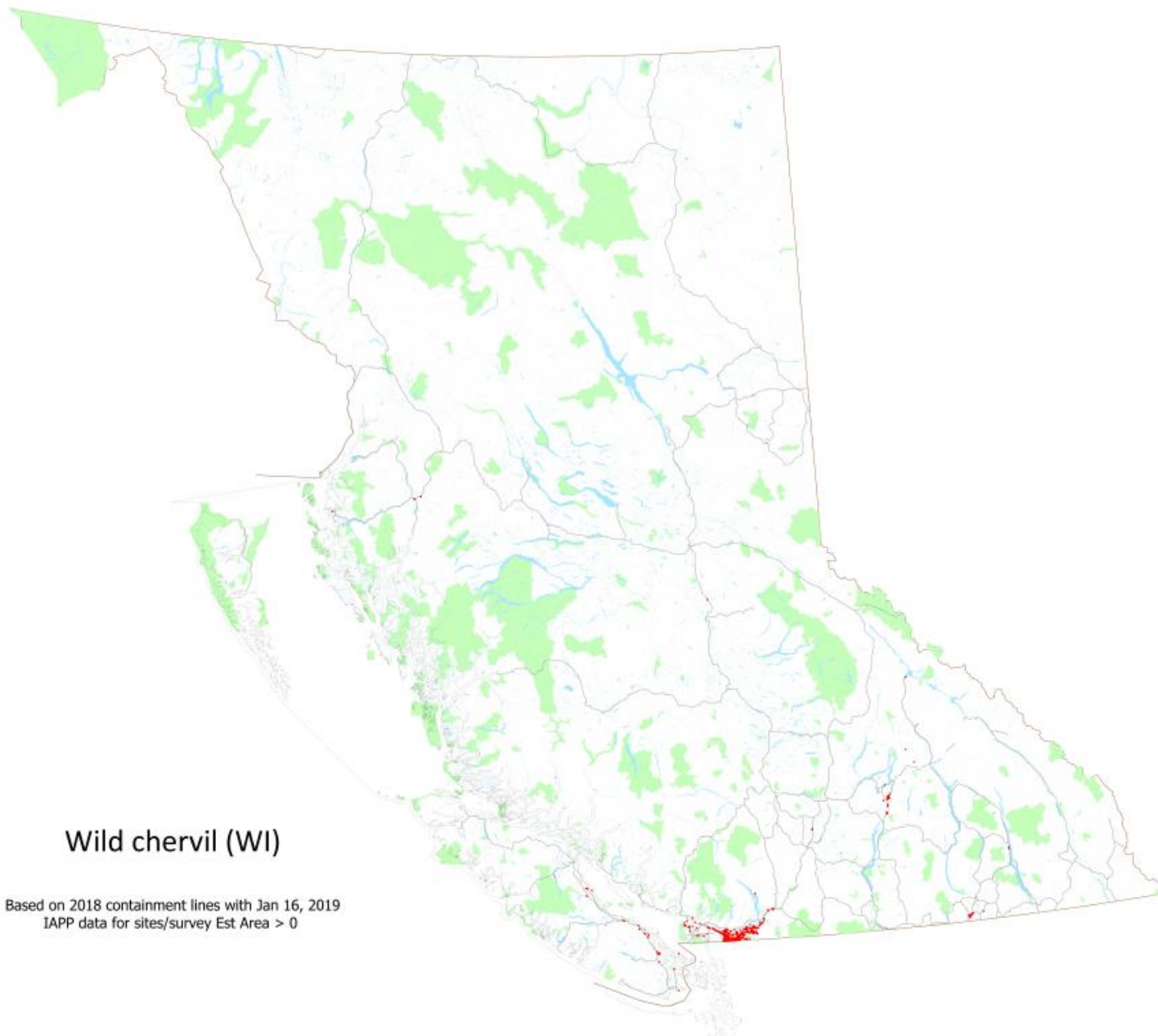
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PROVINCIAL CONTAINMENT SPECIES

- Poison Hemlock
- Teasel
- **Wild Chervil**
- Wild Parsnip
- Garlic Mustard
- North Africa Grass





Wild chervil (WI)

Based on 2018 containment lines with Jan 16, 2019
IAPP data for sites/survey Est Area > 0



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PROVINCIAL CONTAINMENT SPECIES

- **Poison Hemlock**
- **Teasel**
- **Wild Chervil**
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- **North Africa Grass**

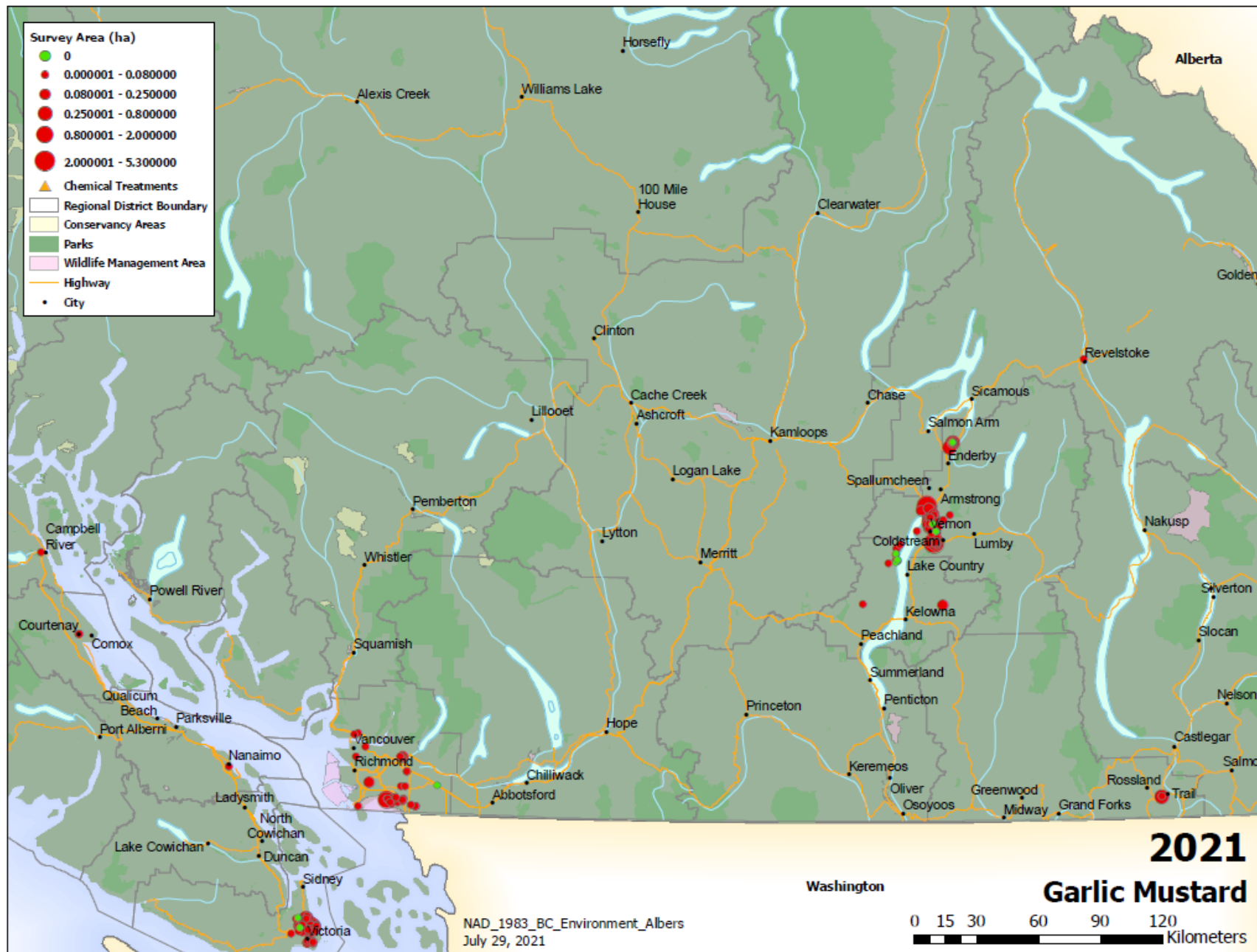




PROVINCIAL CONTAINMENT SPECIES

- Poison Hemlock
- Teasel
- Wild Chervil
- Wild Parsnip
- **Garlic Mustard**
- North Africa Grass





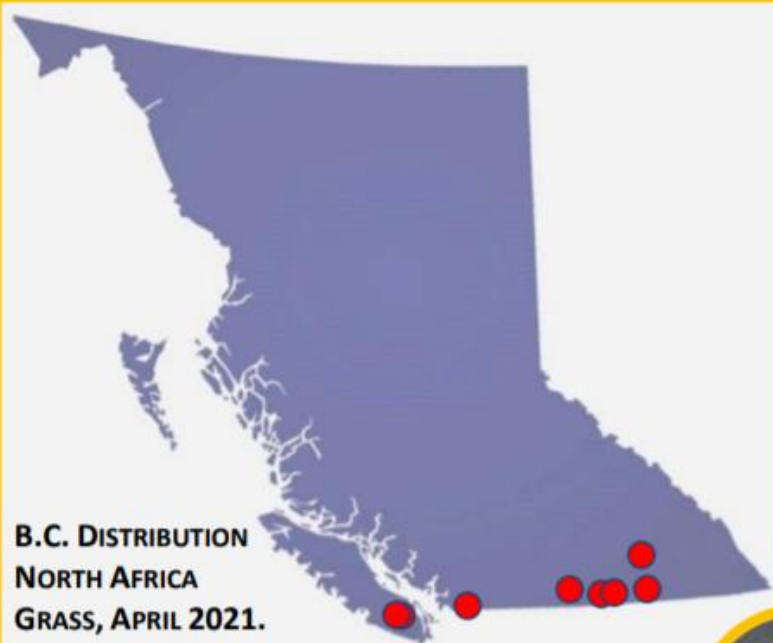


PROVINCIAL CONTAINMENT SPECIES

- **Poison Hemlock**
- **Teasel**
- **Wild Chervil**
- **Wild Parsnip**
- **Garlic Mustard**
- **North Africa Grass**



NORTH AFRICA GRASS (*Ventenata dubia*)



DISTRIBUTION & STATUS

- Regulated Provincial Noxious Weed
- Management goal contain to impacted regions
- BC confirmed sites are limited to the regions of the West and Central Kootenays, Boundary, Metro Vancouver, and Nanaimo

DID YOU KNOW?

- If cut or grazed, North Africa grass can re-produce inflorescence in the same year.

REPORT INVASIVE SPECIES

Download the App!



www.gov.bc.ca/invasive-species

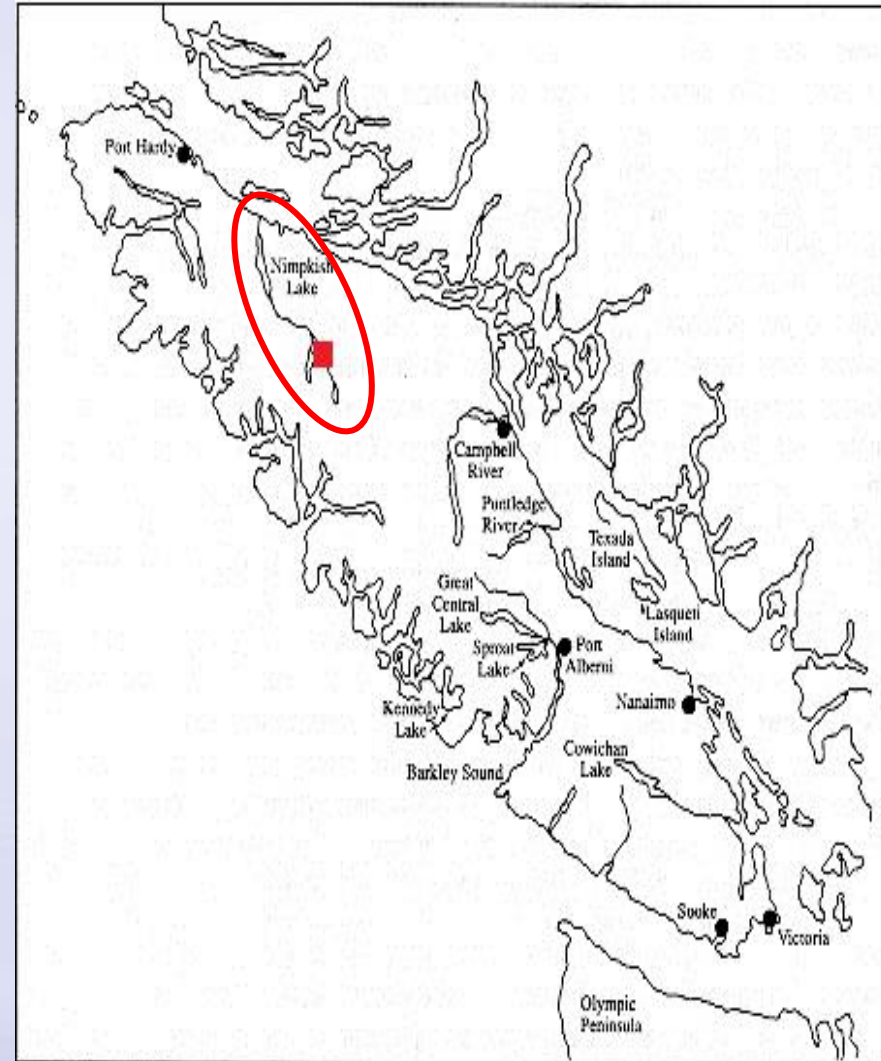
Senesced North Africa grass



Matt Lavin

Nimpkish River Knotweed Project

- First river-scale knotweed management project in B.C.
- Heart of the traditional territory of the 'Namgis First Nation
- North Vancouver Island (southwest Port McNeill)
- Longest river on Vancouver Island (>100 km long)
- Rich cultural and natural values
- Bohemian knotweed
- Impacted land managers:
 - Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD),
 - Western Forest Products (WFP),
 - BC Parks,
 - BC Hydro



Nimpkish River Knotweed Project

BUILDING TRUST & PROJECT DEVELOPMENT

- 2016
 - Baseline surveys (air, ground)
 - Knotweed training workshop
- 2017
 - Assessed management options
 - Drafted management plan
 - 'N̓amgis First Nation Council and community engagement
 - June 2017 'N̓amgis Council voted to support herbicide treatments
- Project Goals
 - Minimize knotweed risks and eradicate from river
 - Opportunities for 'N̓amgis community involvement



Nimpkish River Knotweed Project

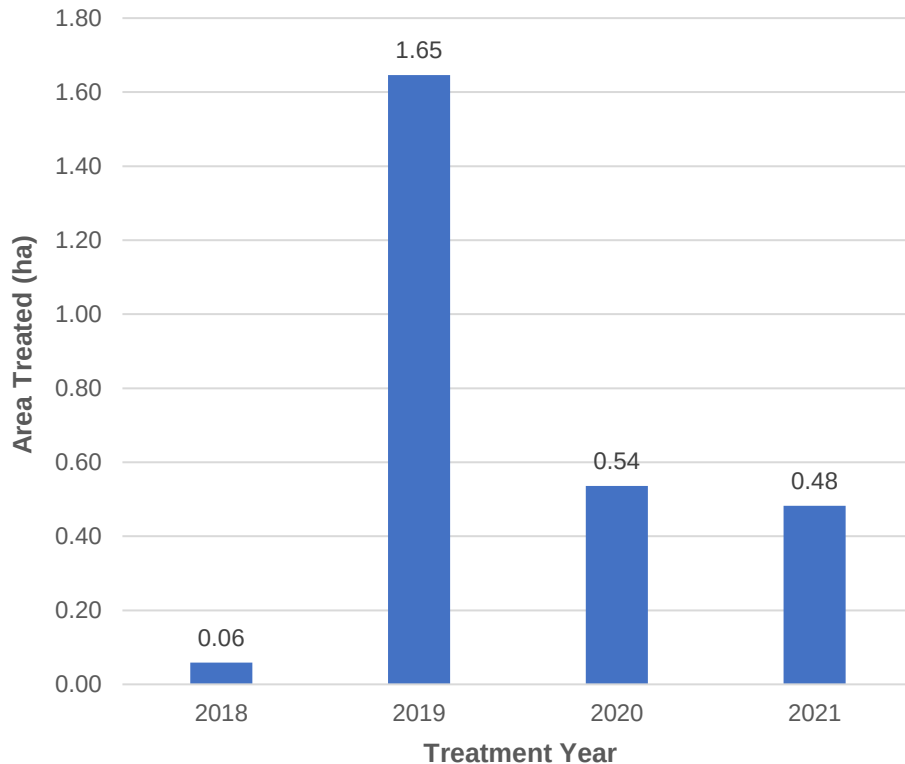
- In 2017, FLNORD established a three-year Pesticide Use Permit (PUP) No. 738-0027-18/21
- In August 2018, ground surveys and herbicide treatments started on the Nimpkish River at the most upstream population source working downstream.
- Annual surveys and treatments June 15 to Sept 15.
- August 2021 completed the first three-year PUP.



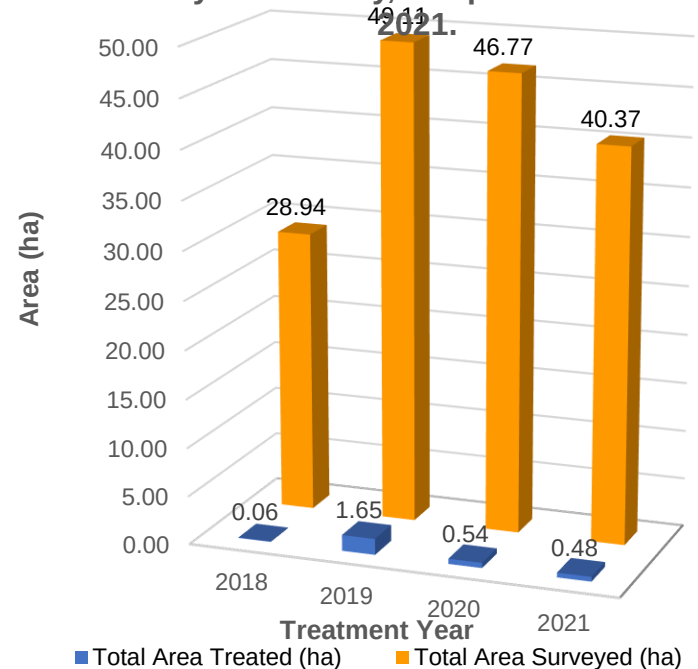
Nimpkish River Knotweed Eradication Project

RESULTS

Bohemian Knotweed Total Area (ha) Treated
Annually, Nimpkish River 2018-2021.



Bohemian Knotweed Total Area (ha)
Treated Relative to Total Area (ha)
Surveyed Annually, Nimpkish River 2018-
2021.

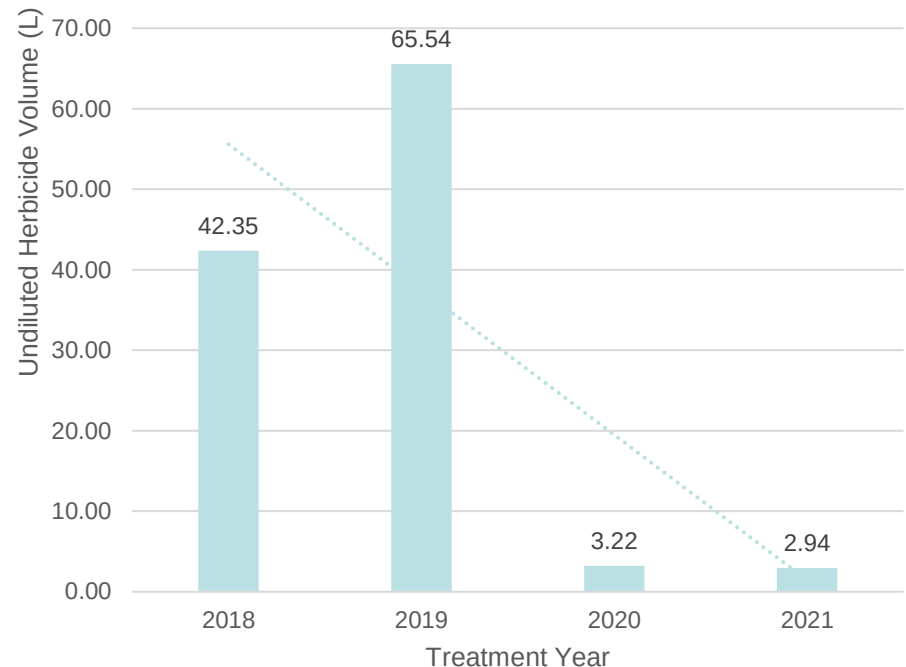


Nimpkish River Knotweed Eradication Project

RESULTS

- 2018 single pass only, 99.9% stem injection
- 2019 two passes, 85% stem injection
- 2020 two passes & some side channels, 100% backpack foliar (sig decline in total concentrate used)
- 2021 two passes, all side channels, main channel in entirety, 97.9% backpack foliar
- Now, small clones = low herbicide volume but harder to detect

Undiluted Roundup WeatherMAX (a.i. glyphosate) (L) annual use for the treatment of Bohemian Knotweed, Nimpkish River 2018-2021.



Nimpkish River Knotweed Eradication Project

Challenges

- Site locations remote and rugged
- Dynamic river system
- Plant detection
- Funding

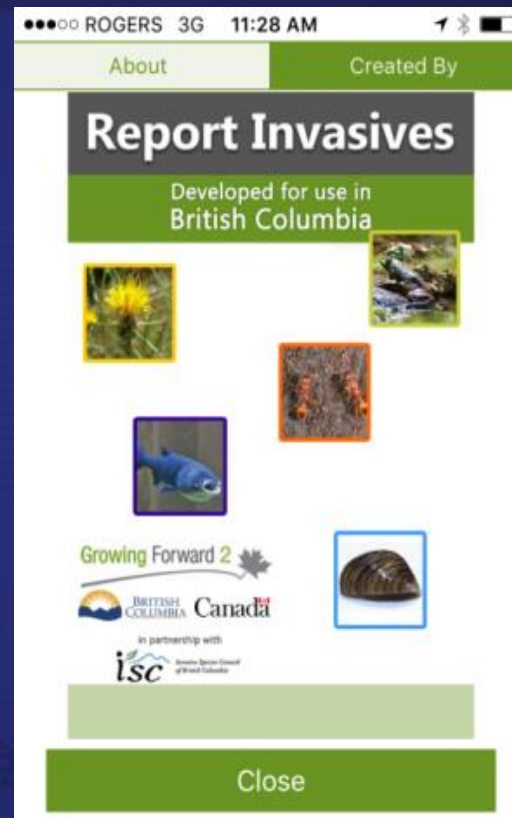
Next Steps

- New 3-year Pesticide Use Permit (2022-2024)
- Habitat Aqua



Reporting

- Smartphone app
- Online form



Introducing....

InvasivesBC



NEW

BC's NEW Invasive Species Database and Mobile Application!

- ✓ *Includes observation, treatment, efficacy and long-term monitoring records!*
- ✓ *Covers both Invasive Plants and Invasive Animals!*
- ✓ *Mobile App for data collection AND a web-based platform for data viewing and analysis.*
- ✓ *Mobile App has both online AND offline functionality!*

InvasivesBC



***COMING
SOON...***

WILL BE RELEASED early 2022 in time for
the 2022 field season!

InvasivesBC will replace the BC Invasive
Alien Plant Program (IAPP).



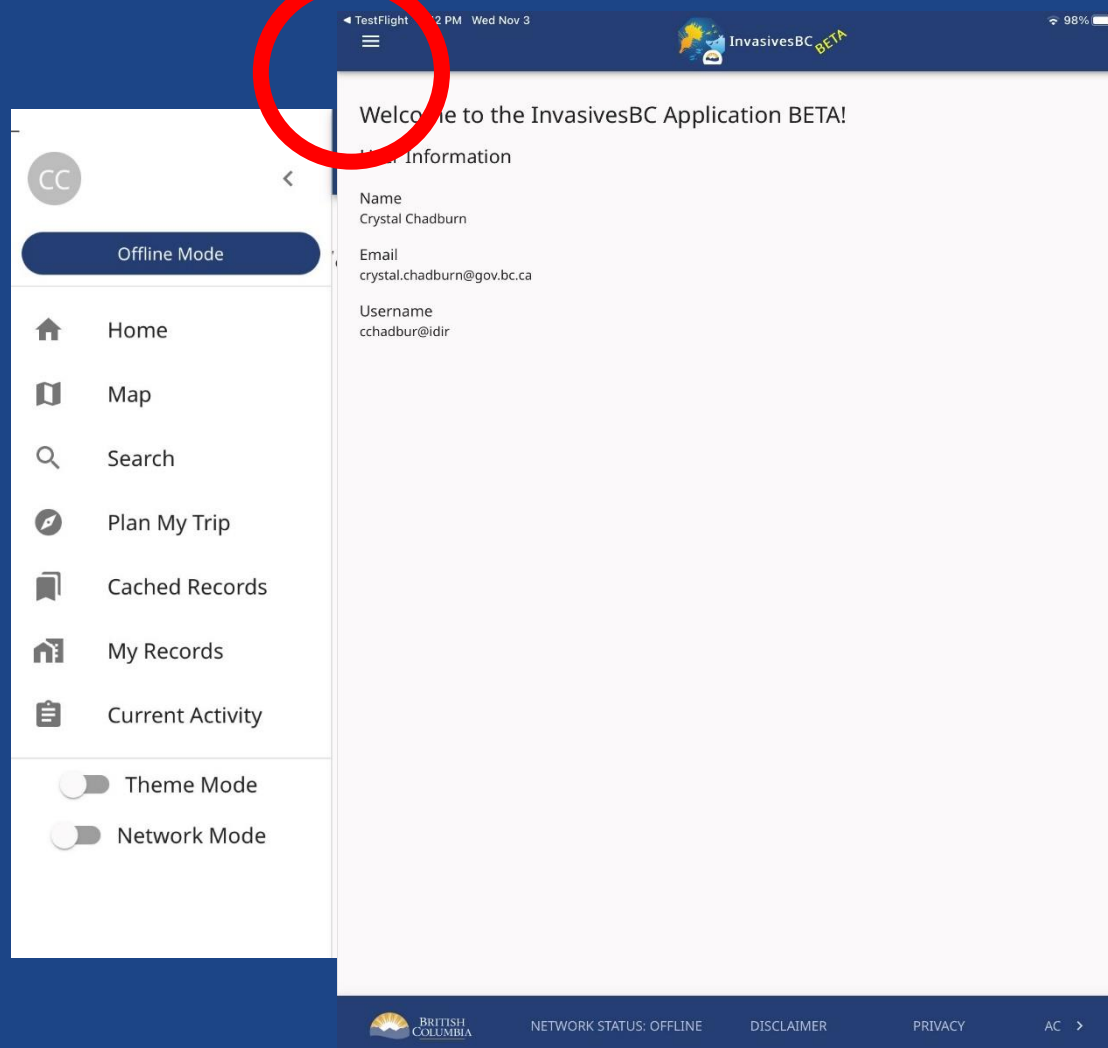
InvasivesBC VS. IAPP



- Mobile application will allow data collection in the field to go directly into the database saving time and resources!
- NO MORE SITES!
- Observation (survey) and treatment activities are entered with individual polygons that auto calculates area.
- Auto-suggestion for jurisdiction and a variety of other fields.
- Customizable map and reports via Metabase.
- Spatial overlay reporting functions to calculate and provide outputs (extracts and reports).
- Negative Occurrences!



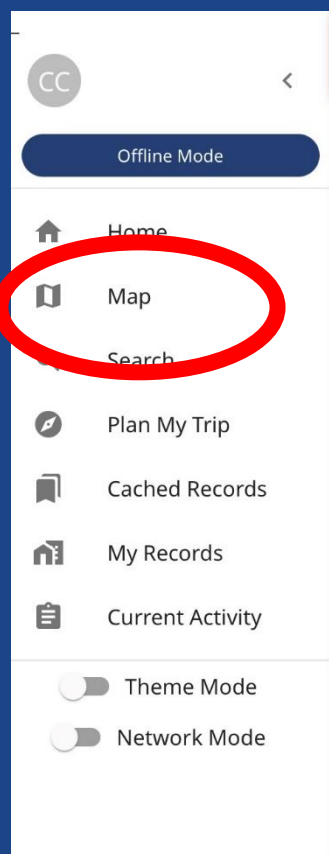
InvasivesBC – MOBILE APP



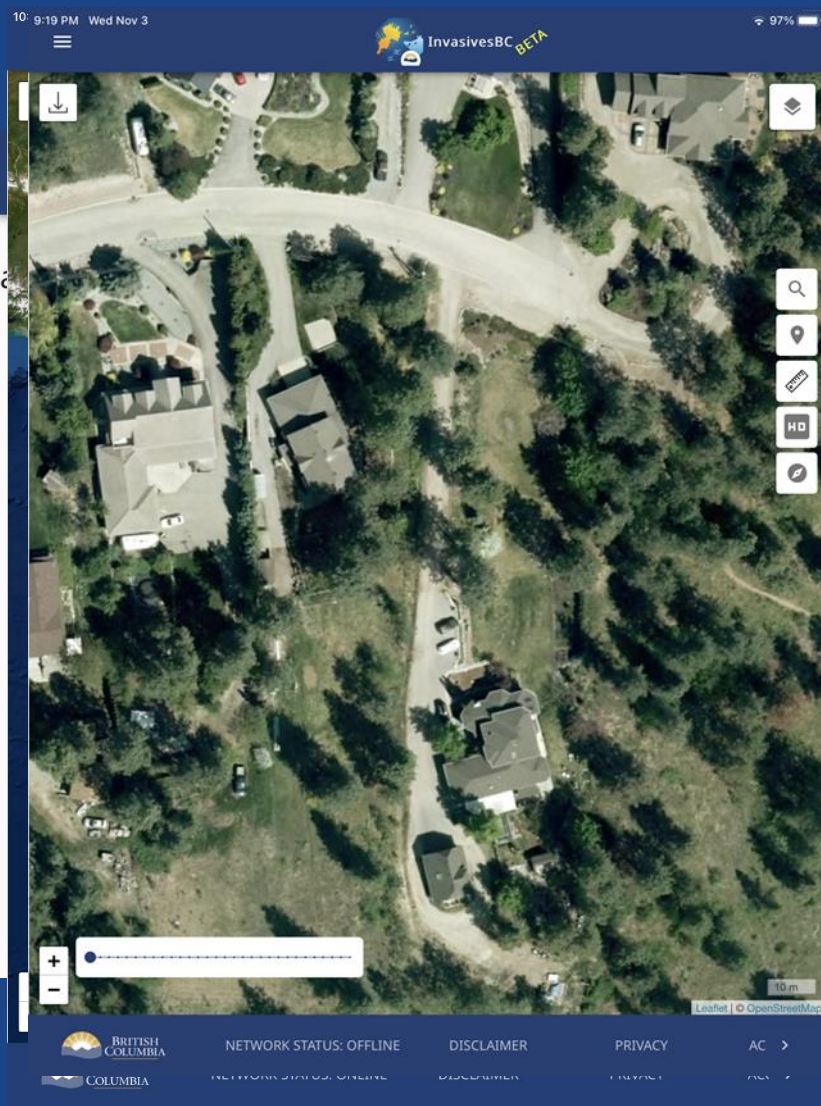
Welcome page



InvasivesBC – **MOBILE APP**

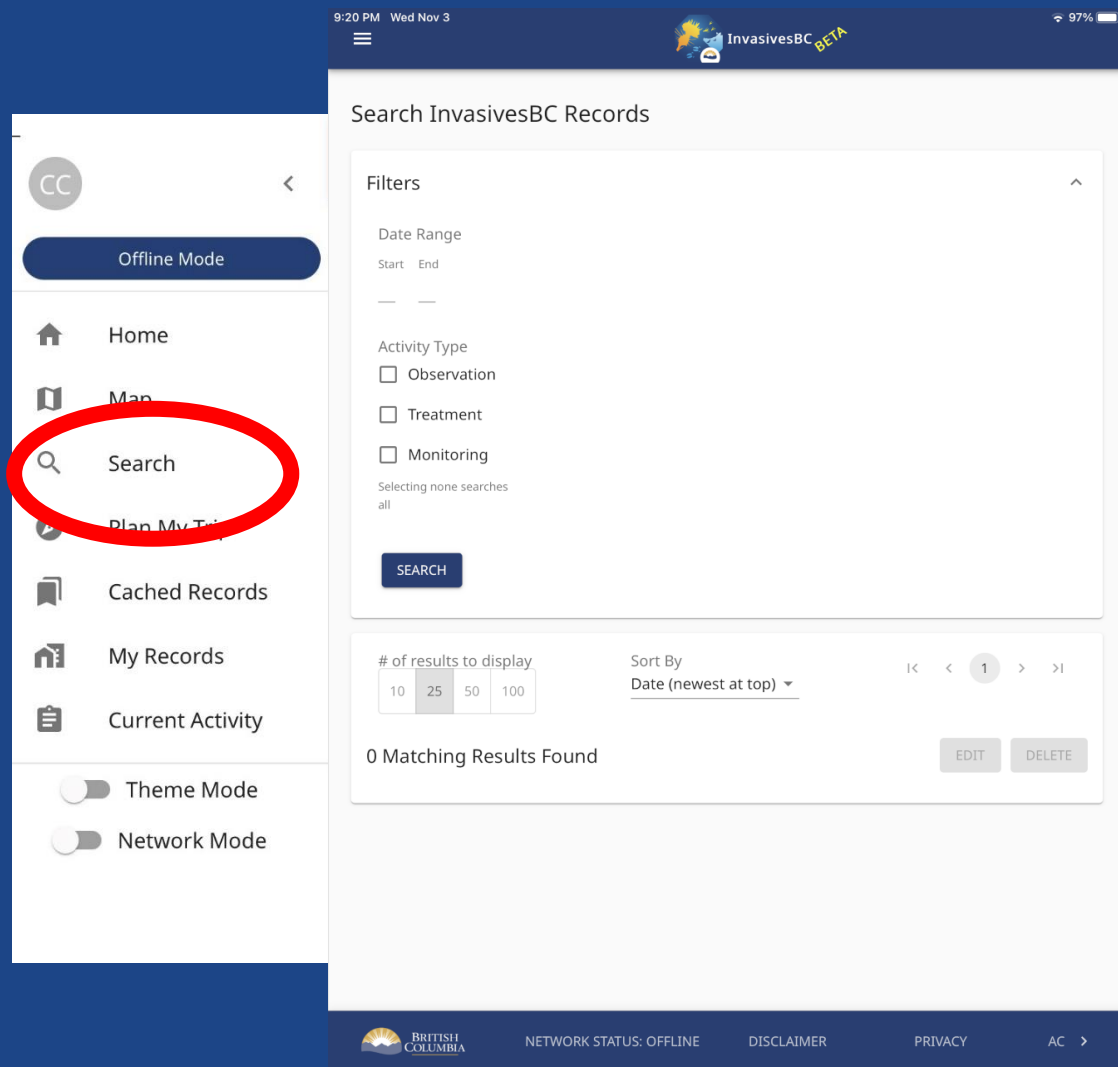


Customizable map.





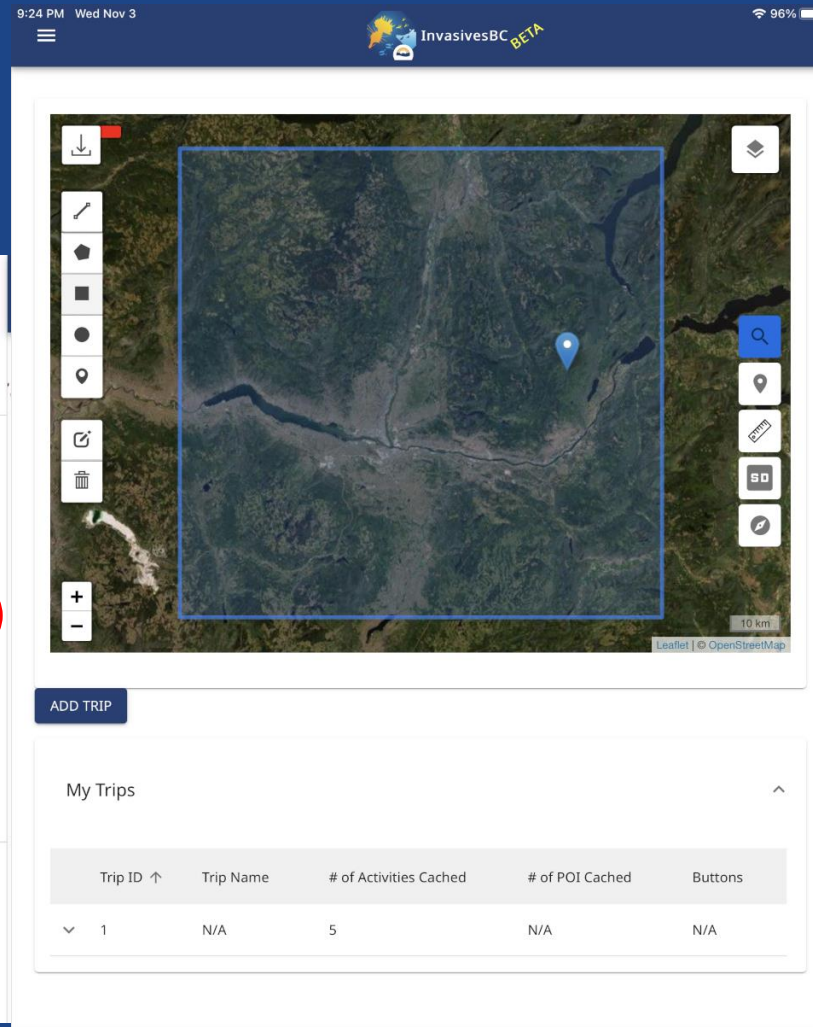
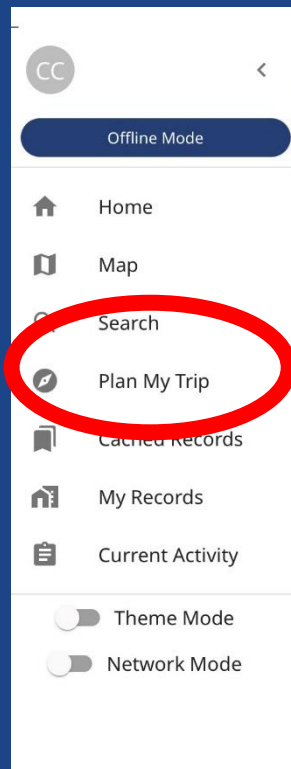
InvasivesBC – MOBILE APP





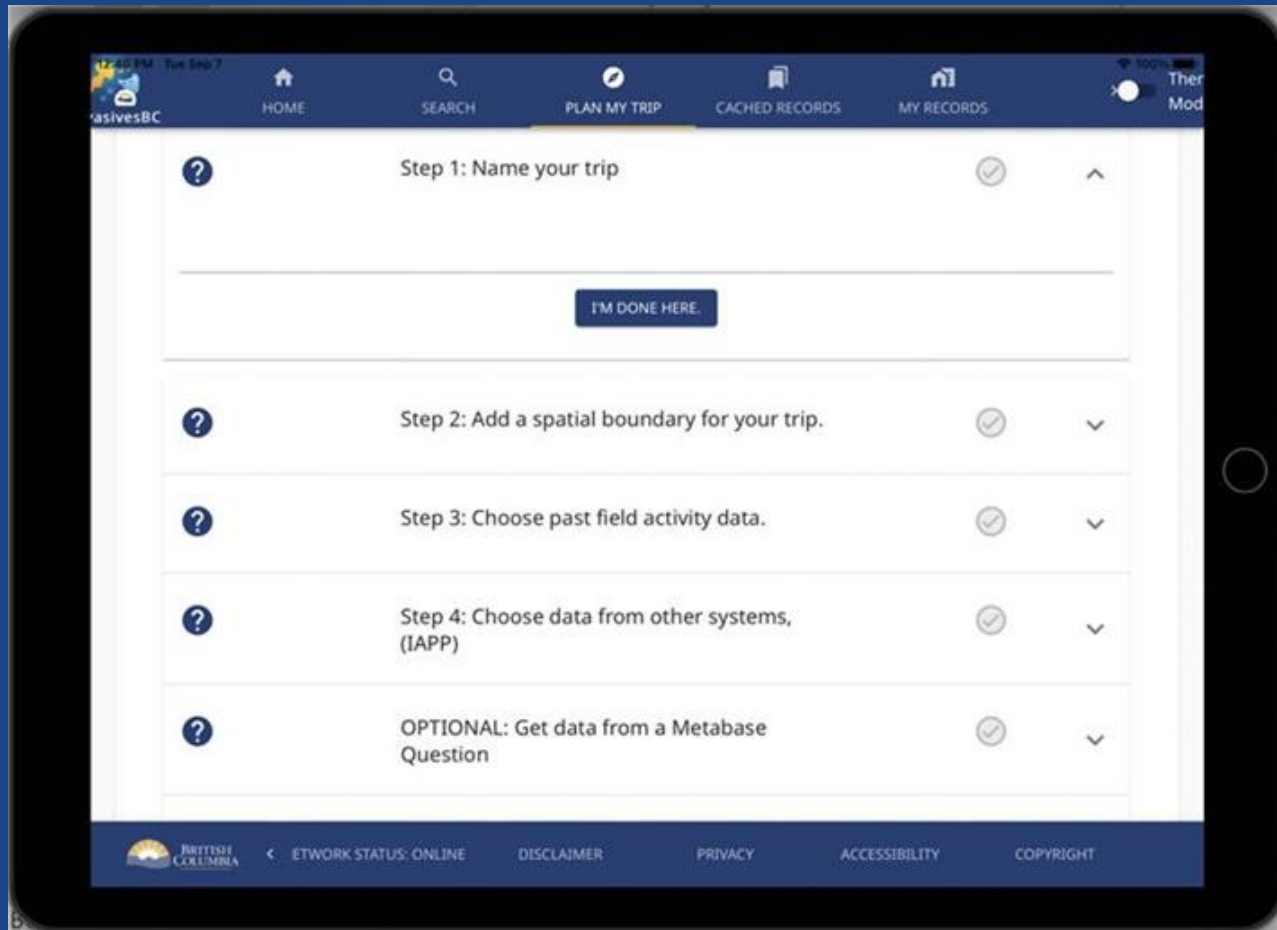
InvasivesBC – MOBILE APP

PLAN MY TRIP PAGE





InvasivesBC – MOBILE APP



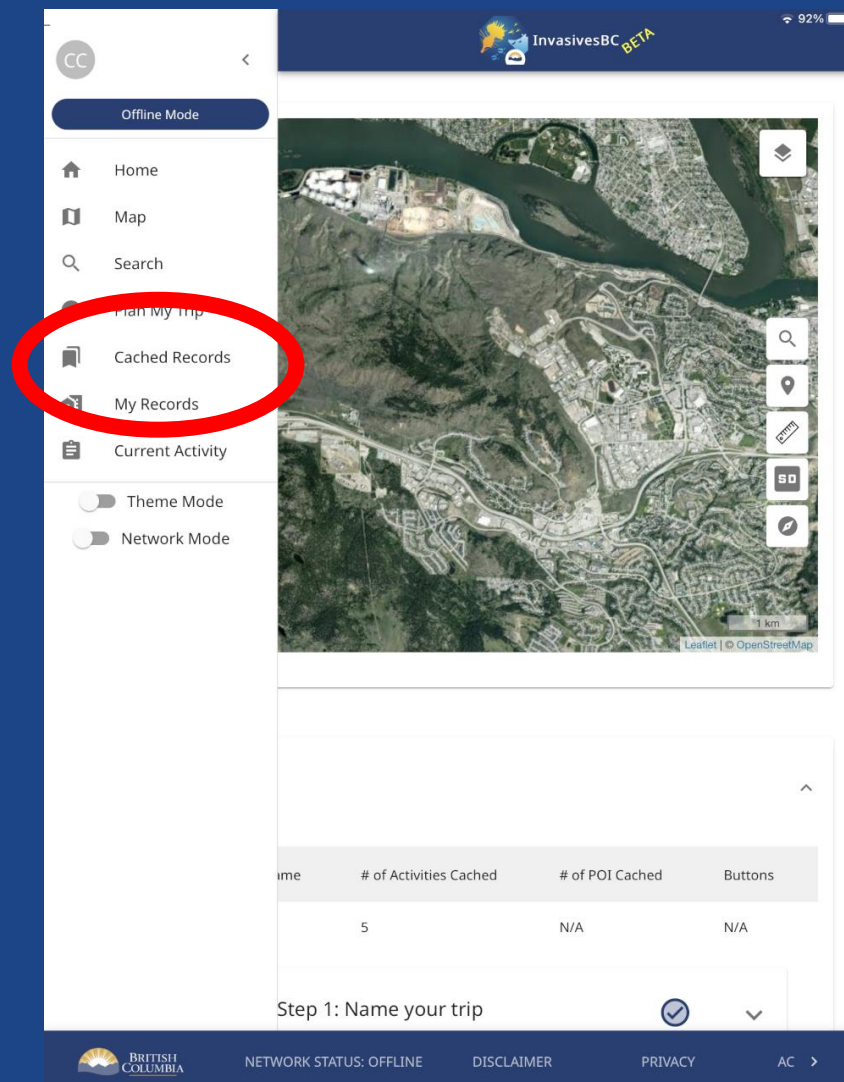
“PLAN MY TRIP” page for taking information with you offline into the field.



InvasivesBC – MOBILE APP

CACHED RECORDS:

Table of records that you have cached to take offline.

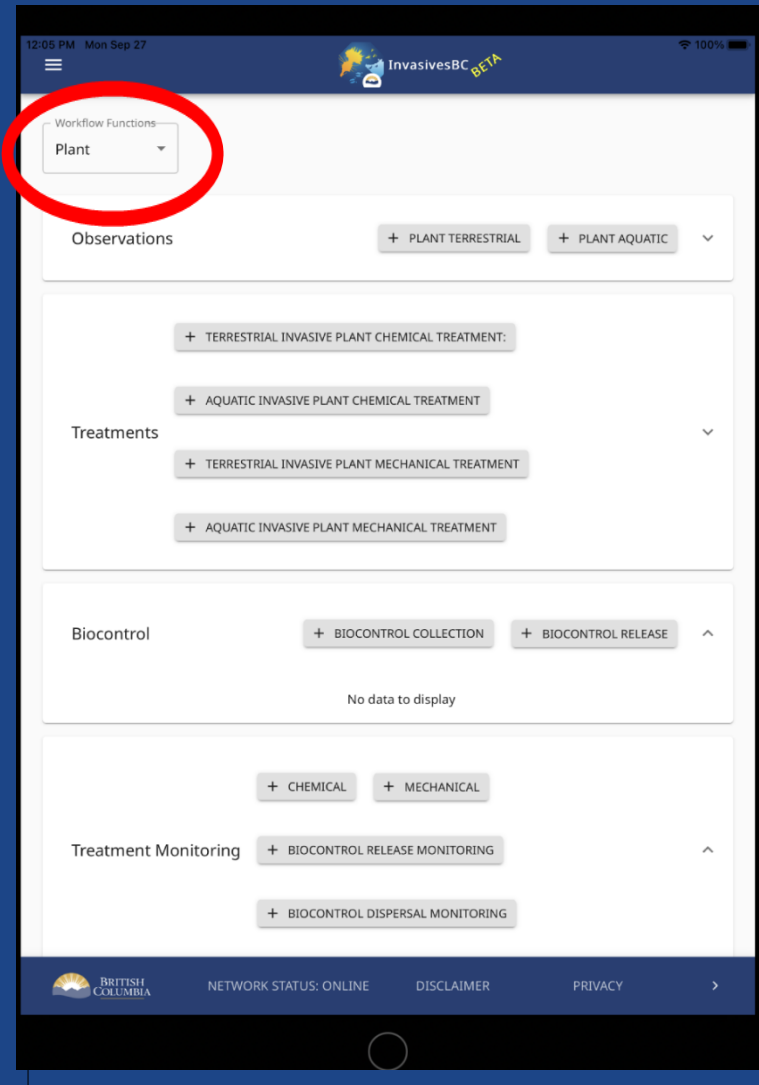




InvasivesBC – MOBILE APP

MY RECORDS:

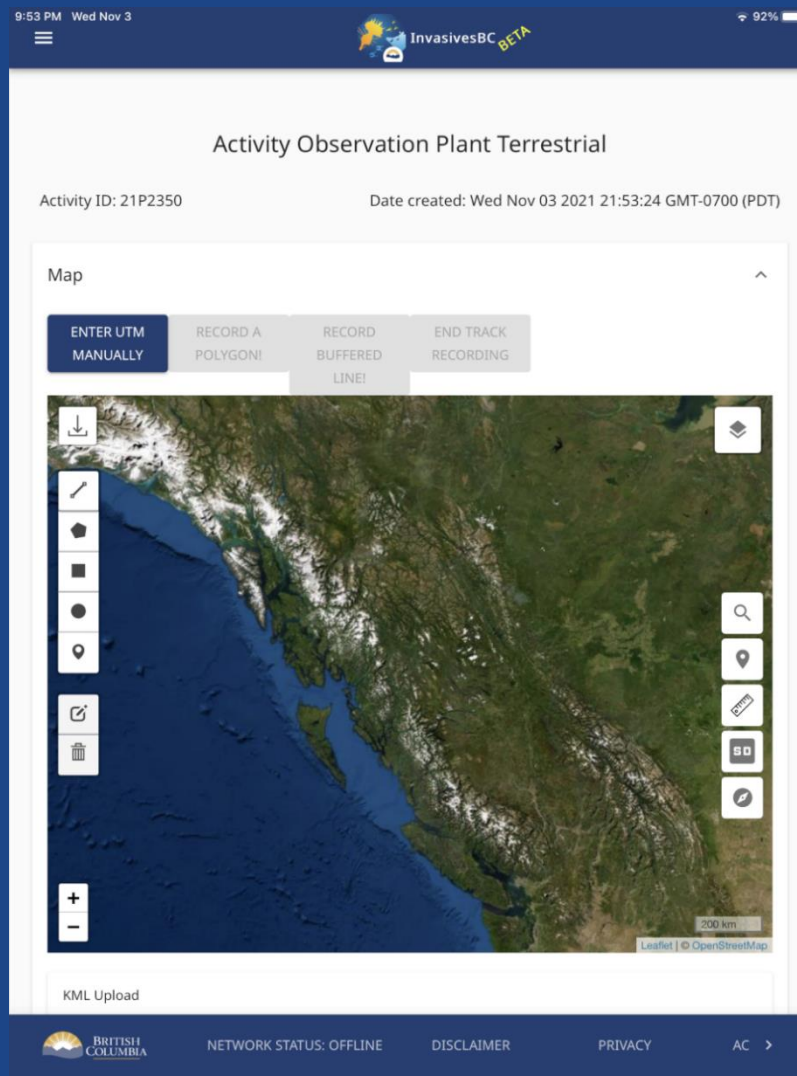
*Where you go
to create a
new record
and see all the
records you
have created.*





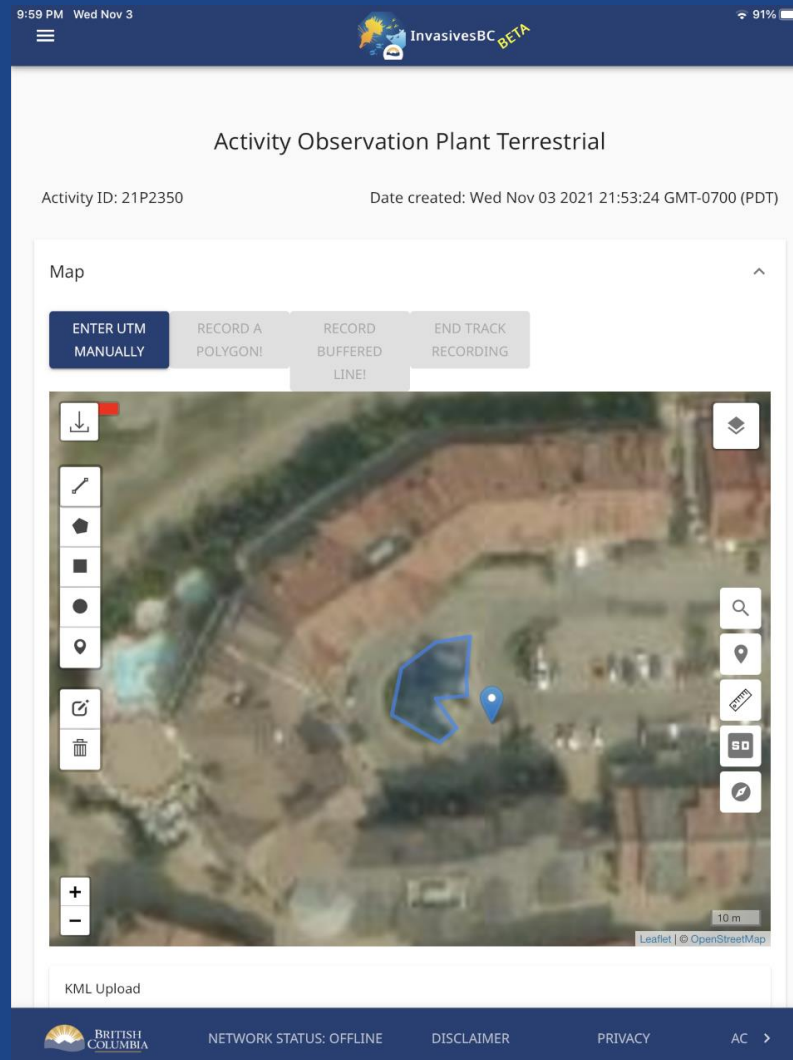
InvasivesBC – **MOBILE APP**

1. Choose an activity,
2. Zoom to your location,
3. Create or track a polygon, point or line.
4. Fill out the form
5. Submit directly to the database or optional “submit for review”.



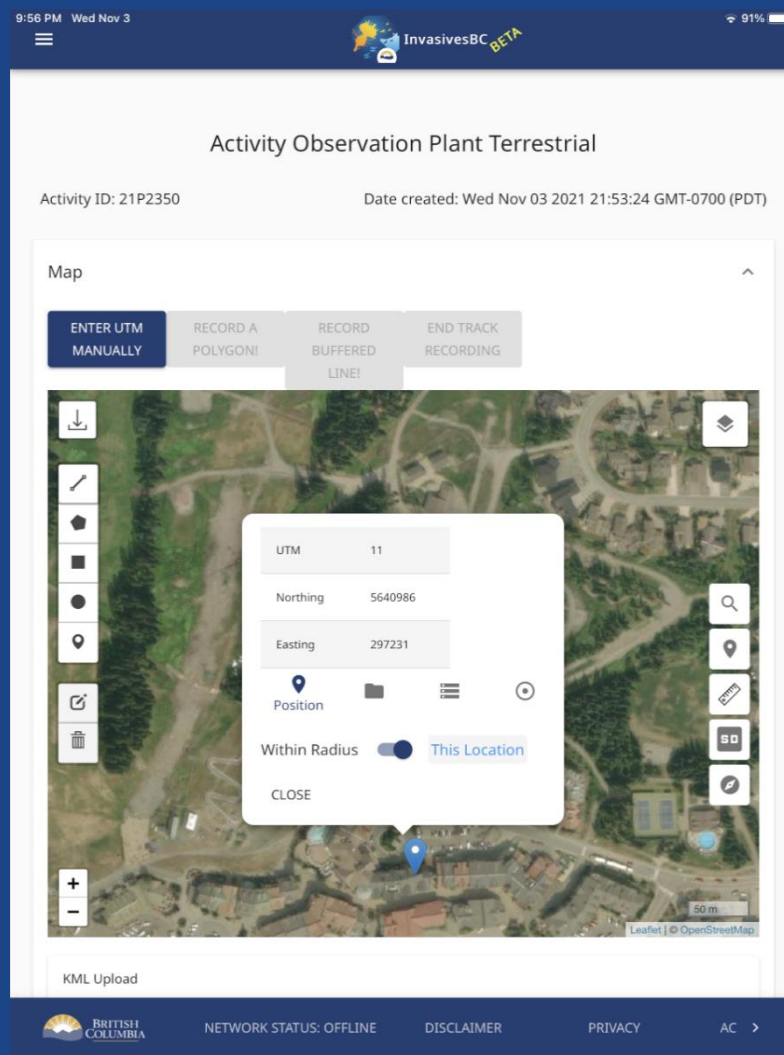


InvasivesBC – MOBILE APP





InvasivesBC – MOBILE APP

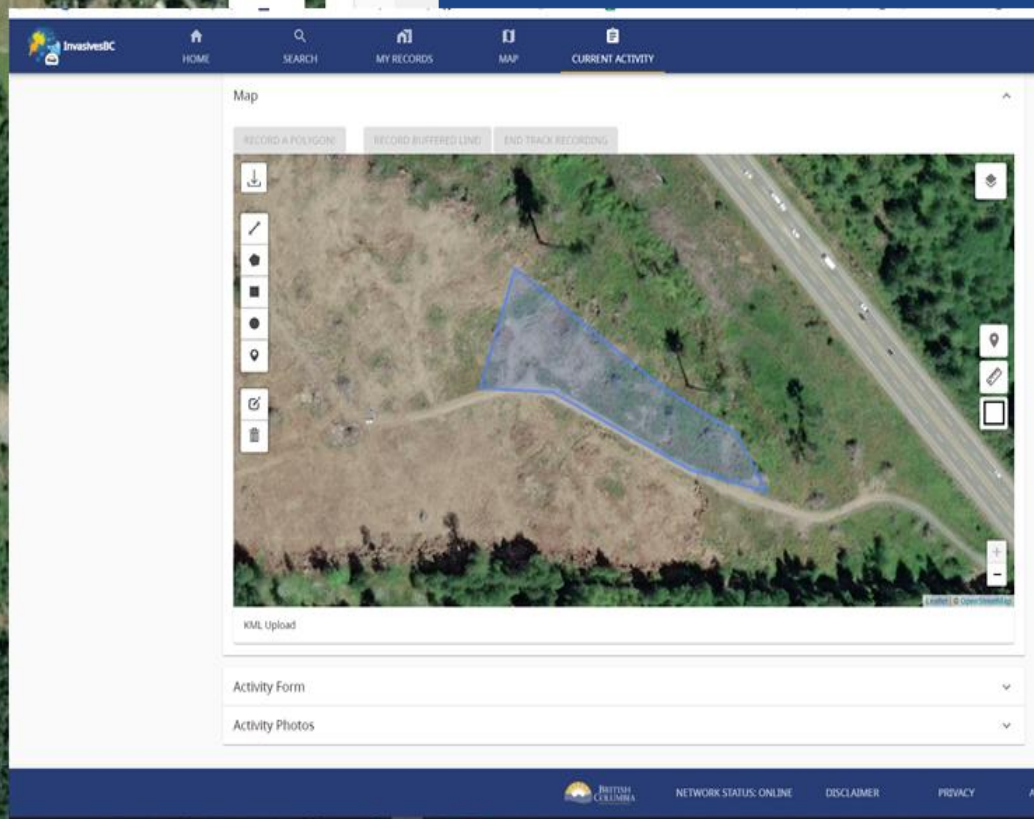
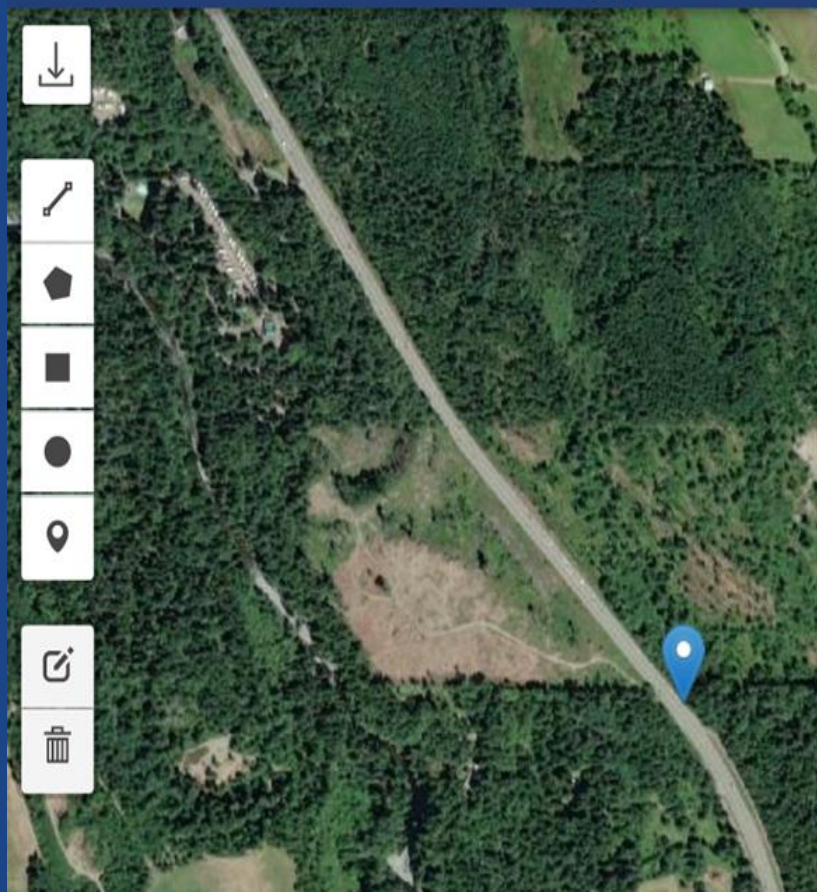




InvasivesBC – **MOBILE APP**

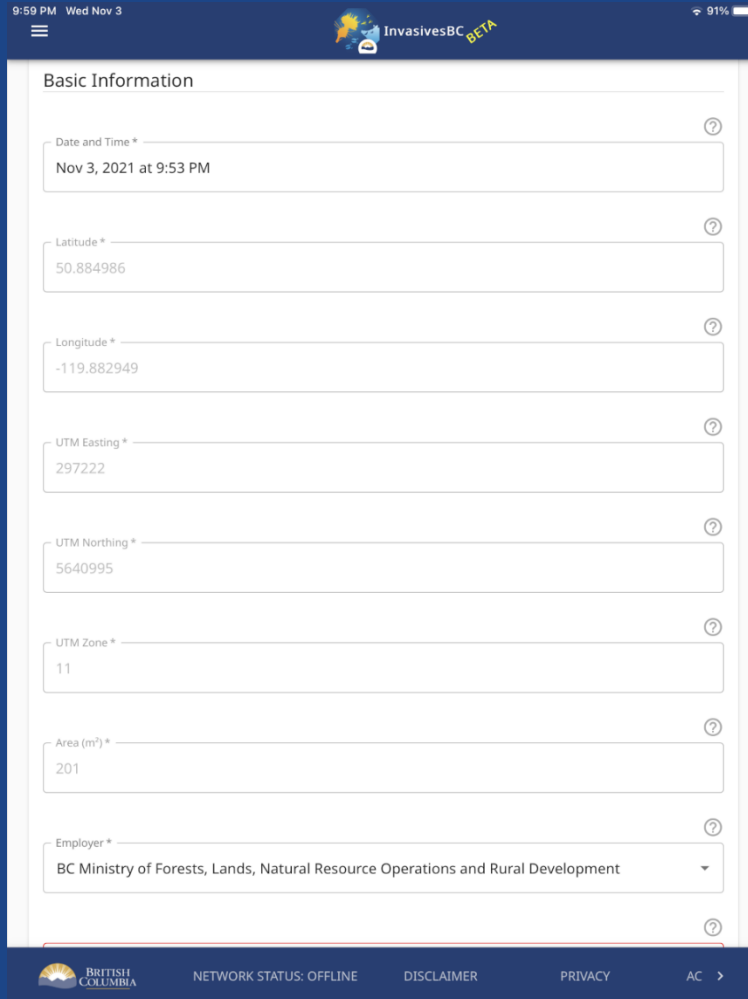


InvasivesBC





InvasivesBC – MOBILE APP



9:59 PM Wed Nov 3 InvasivesBC BETA 91%

Basic Information

Date and Time *
Nov 3, 2021 at 9:53 PM

Latitude *
50.884986

Longitude *
-119.882949

UTM Easting *
297222

UTM Northing *
5640995

UTM Zone *
11

Area (m²) *
201

Employer *
BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development

BRITISH COLUMBIA NETWORK STATUS: OFFLINE DISCLAIMER PRIVACY AC >

Many fields will autofill or autosuggest to speed up data entry and reduce user errors.



InvasivesBC – **MOBILE APP**



10:02 PM Wed Nov 3 InvasivesBC BETA 90%

Invasive Plant *
Cheatgrass / downy brome (BROM TEC Bromus tectorum)

Occurrence *
Negative occurrence

↑ ↓ -

Invasive Plant *
Blueweed (ECHI VUL Echium vulgare)

Occurrence *
Positive occurrence

eDNA sample *
No

Density *
2 | 2-5 plants/m2 (Med)

Distribution *
5 | a few patches or clumps of a species

Life Stage *
Mature: flowering

BRITISH COLUMBIA NETWORK STATUS: OFFLINE DISCLAIMER PRIVACY AC >



InvasivesBC – MOBILE APP

10:03 PM Wed Nov 3 InvasivesBC BETA 90%

Workflow Functions
Plant

Observations

+ PLANT TERRESTRIAL + PLANT AQUATIC

☐	Save Status	Form Status	Review Status	Activity ID	Activity Type
☐	Not Saved	Invalid	Not Reviewed	21P2350	Observation

EDIT DELETE SAVE

Treatments

+ TERRESTRIAL INVASIVE PLANT CHEMICAL TREATMENT

+ AQUATIC INVASIVE PLANT CHEMICAL TREATMENT

+ TERRESTRIAL INVASIVE PLANT MECHANICAL TREATMENT

+ AQUATIC INVASIVE PLANT MECHANICAL TREATMENT

No data to display

Biocontrol

+ BIOCONTROL COLLECTION + BIOCONTROL RELEASE

No data to display

BRITISH COLUMBIA NETWORK STATUS: OFFLINE DISCLAIMER PRIVACY AC

InvasivesBC – WEB



Welcome to the InvasivesBC Application BETA!

User Information

Name

Crystal Chadburn

Email

crystal.chadburn@gov.bc.ca

Username

cchadbur@idir



InvasivesBC – METABASE

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IAPP Chemical Treatments



Custom InvasivesBC Queries • InvasivesBC



Choose a visualization



Line



Bar



Combo



Area



Row



Scatter



Pie



Funnel



Done

This question is written in SQL.

[OPEN EDITOR](#)

point_of_interest_incoming_data_id	point_of_interest_id	version	point_of_interest_type	point_of_interest_subtype
31,001	31,001		IAPP Site	First Load
31,099	31,099		IAPP Site	First Load
31,100	31,100		IAPP Site	First Load
37,874	37,874		IAPP Site	First Load
31,008	31,008		IAPP Site	First Load
31,009	31,009		IAPP Site	First Load
38,429	38,429		IAPP Site	First Load



Visualization



Settings



Showing first 2,000 rows





InvasivesBC – METABASE

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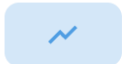
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31,008	31,008		IAPP Site	First Load
31,009	31,009		IAPP Site	First Load
38,429	38,429		IAPP Site	First Load



Visualization



Settings



Showing first 2,000 rows





InvasivesBC

HOW DO I SIGN UP?

1. Existing IAPP users - watch for email to confirm your user login information.
2. New users - email us to be added to a list.

NOTE: All users will need to take virtual training before access is granted.

INVASIVESBC@GOV.BC.CA

FOR MORE INFORMATION



BRITISH
COLUMBIA

THANK YOU!

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