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# GRASS GONE BAD!

## *NEW INVASIVE SPECIES OF CONCERN TO B.C. GRASSLANDS*

Presented by Becky Brown, P.Ag.

Invasive Plant Specialist – Provincial EDRR Coordinator

B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural  
Development

April 22, 2020



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## *OVERVIEW*

- What is Early Detection Rapid Response (EDRR)?
- EDRR Status Update for B.C.
- Bad Grasses (who, what, where)
- Some Other Bad Grasses
- How to Get That Bad Grass Gone!



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



NOVEMBER 2014



**IMISWG**

Inter-Ministry Invasive Species Working Group



FIGURE 1: 6 STEPS OF THE BC EDRR PROCESS



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## ***WHAT ARE B.C. PRIORITY INVASIVE PLANTS? - EDRR CANDIDATE SPECIES -***

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



## ***EDRR PLANT PROGRAM UPDATE***

- 48 EDRR candidate plant species
- EDRR species status updates:  
<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/edrr/edrr-status>
- Risk assessments: 46 drafted
- 24 species in EDRR process (298 sites)
  - 20 species under containment/eradication (286 sites)
  - 4 species federally regulated – CFIA response



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# ***BAD GRASS***

## *WHAT'S SO BAD ABOUT IT?...IMPACTS*

- Reduce forage for livestock & wildlife
- Displace native grassland species (incl. rare/endangered)
- Reduce crop yields & quality
- May contaminate export crops



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# ***BAD GRASS***

## *WHAT'S SO BAD ABOUT IT?...IMPACTS*

- Increase soil erosion
- May impede machinery
- Can alter irrigation/wetland hydrology and flood retention capacity
- May impede roadside visibility



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## ***BAD GRASS***

### *WHAT'S SO BAD ABOUT IT?...INTRODUCTION & SPREAD*

- Contaminated seed mixes
- Machinery
- Contaminated hay
- Livestock & wildlife grazing
- Recreational activities
- Agricultural field run-off
- Livestock consumption



DO YOU KNOW WHAT IS  
**HIDING IN  
YOUR SEED?**



Undesirable plants  
can be introduced through  
contaminants in seed mixtures!

Before you buy seed, CHECK the  
**Certificate of Seed Analysis**  
to ensure that Invasive Plants are not  
accidentally introduced to B.C.!

**PREVENT INTRODUCTIONS  
OF BAD GRASS!**  
CHECK SEED CERTIFICATES

Request seed analysis  
BEFORE  
the mix is blended

When Reviewing THE CERTIFICATES OF SEED ANALYSIS, check for:

1. Date completed.
2. Species listed under "Other Crop Seeds", "Other weed seeds" or "Noxious Weeds".
3. Signature and stamp from an accredited seed testing laboratory.

04/21/2011 10:58am #996 Page 02/06

**AG SEED LAB**  
P.O. BOX 606, GABRIOT RIVER, BC, CANADA V0E 0L0  
PHONE: (250) 766-5535 FAX: (250) 766-2160  
EMAIL: agseedlab@asact.net WEB: www.agseedlab.ca  
Certificate of Seed Analysis #: A20-153 CFA Accreditation No. 173 Date: 04/21/11

Product: 00000  
Lot: 00000

Analysis	Value	Other Weed Seed	Value	Other Crop Seed	Value
Analysed Quantity	5	Lamb's-quarters	1	Chenopodium	
Primary Species		Field bindweed	8	Monarda	
Secondary Species					
Total Primary + Secondary	5	Total Weed Seed of All Genus	4	Other Seed	0.1% by mass

PROPERTY: 0724  
 0.00% 0.00%  
 0.00% 0.00%  
 0.00% 0.00%  
 0.00% 0.00%

GENERAL INFORMATION:  
 0.00% 0.00%  
 0.00% 0.00%  
 0.00% 0.00%

Number of Sample Frames: 00  
 Analysis: 00000

SENIOR MEMBER OF  
  
 NANCY DENYSIUK

This is certified that the results reported herein are the best obtained under the best conditions known to the analyst.  
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Ministry of  
Transportation  
and Infrastructure

[https://www2.gov.bc.ca/assets/gov/driving-and-](https://www2.gov.bc.ca/assets/gov/driving-and-transportation/environment/invasive-species/invasive_plant_hiding_in_seed.pdf)

[transportation/environment/invasive-species/invasive\\_plant\\_hiding\\_in\\_seed.pdf](https://www2.gov.bc.ca/assets/gov/driving-and-transportation/environment/invasive-species/invasive_plant_hiding_in_seed.pdf)



## ***BAD GRASS***

### *SPECIES OF CONCERN TO B.C. GRASSLANDS*

- North African grass (*Ventenata dubia*)
- Slender false brome (*Brachypodium sylvaticum*)
- European common reed (*Phragmites australis subsp. australis*)
  - Jointed goat grass (*Aegilops cylindrica*)
  - Giant reed (*Arundo donax*)



## NORTH AFRICAN GRASS (*VENTENATA DUBIA*)



USDA NRCS



- Native to N. Africa, Europe
- Winter annual grass
- ID May to Jun\*
  - Vibrant green
  - Reddish-black nodes
    - Long ligules (1-8 mm)
    - Shallow roots
- Erect, narrow, in-rolled culms (10-45 cm tall)



## NORTH AFRICAN GRASS: *WHAT IS IT?*

- Senescence (July-Aug):
  - Lower awns straight
  - Upper awns twisted & bent
- Twisted/bent awns “unwind” once wet and drill into soil
- Reproduces by seed
- Primary dispersal in contaminated grass seed mixtures



Dave Skinner



## NORTH AFRICAN GRASS: *LOOK-ALIKES*



Dave Skinner

Cheatgrass  
(*Bromus tectorum*)



Jamie Fenneman

Timber oatgrass  
(*Danthonia intermedia*)



Adolf Ceska

Spike-oat grass  
(*Avenula hookeri*)



## NORTH AFRICAN GRASS: *WHERE IS IT IN B.C.?*

- Sites:
  - 1-MetroVan (0 ha)
  - 51-Kootenay-Boundary (13.62 ha)
  - 3-Central Kootenay (0.01 ha)
- Status: *Containment in progress*
- Weed Alert – *REPORT NEW SIGHTINGS*





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## NORTH AFRICAN GRASS: *WHAT ARE WE DOING ABOUT IT?*



[www.invasives.org](http://www.invasives.org)

- Risk assessment: Drafted
- Extent Surveys: In progress
- Containment: In progress
- Targeted education
- Promoting seed screening



## SLENDER FALSE BROME (*BRACHYPODIUM SYLVATICUM*)

- Native to Eurasia
- Perennial bunchgrass
- Evergreen; nodding form
- Fringe of fine hairs along leaf and culm margins







## SLENDER FALSE BROME: *WHAT IS IT?*

- Young plant “spider-like”
- Flat, floppy leaf blades, freely releasing

Ernie Sellentin



Bruce Newhouse



BC Government

- Solid mats, 30-40 cm tall
- Fibrous root



## SLENDER FALSE BROME: *LOOK-ALIKES*



Adolf Ceska

Columbia brome (*Bromus vulgaris*)



Velvet grass (*Holcus lanatus*)



## SLENDER FALSE BROME: *WHERE IS IT IN B.C.?*

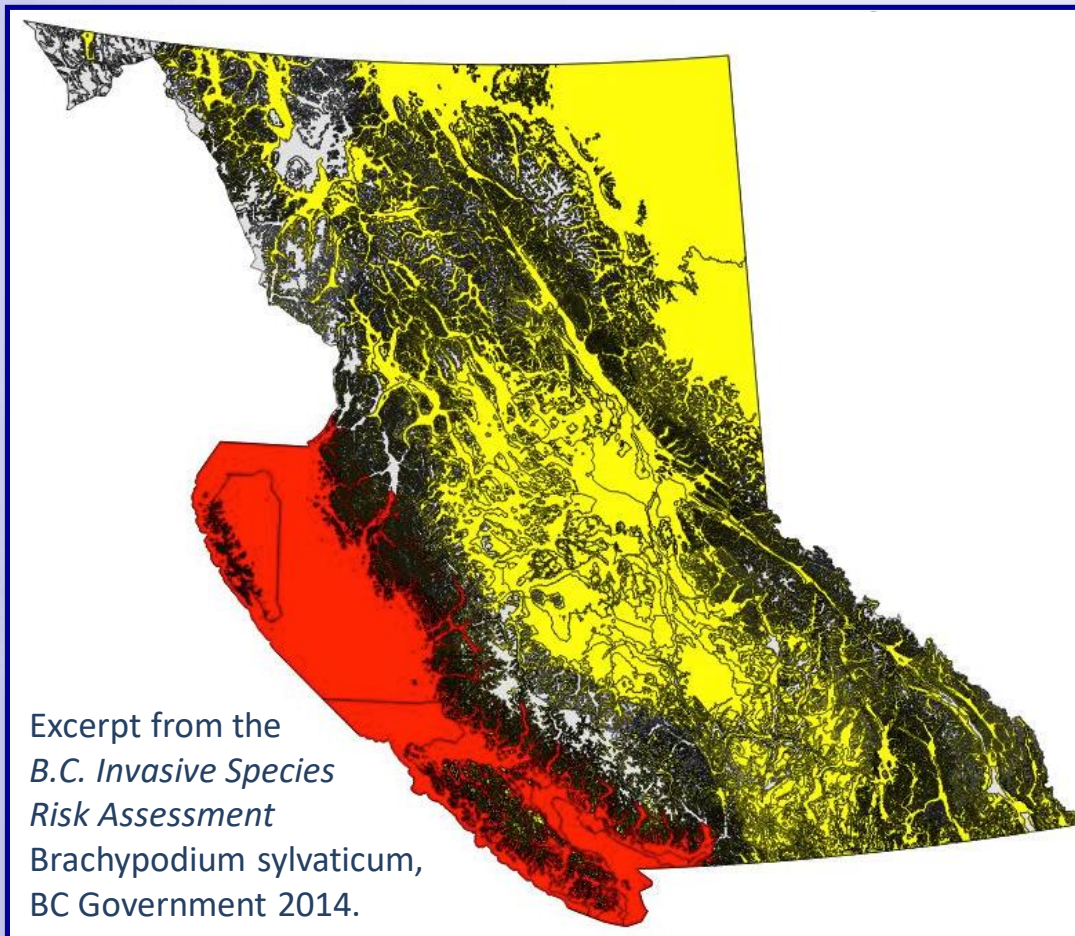
- Sites:
  - 24-Cowichan Valley
  - 62 ha concentrated on the north shore of Cowichan Lk
- Status: *Contained, control in progress*





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## SLENDER FALSE BROME: *POTENTIAL B.C. RANGE*



Red = highly  
susceptible to invasion

Yellow = susceptible to  
invasion



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## SLENDER FALSE BROME : *WHAT ARE WE DOING ABOUT IT?*



BC Government



- Risk assessment: Drafted
- Extent Surveys: Complete
- Containment: Complete
- Targeted surveillance
- Targeted education



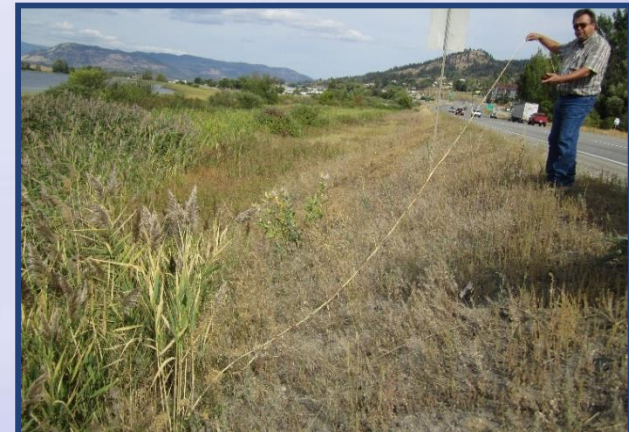
## EUROPEAN COMMON REED (*PHRAGMITES AUSTRALIS* SUBSP. *AUSTRALIS*)

BC Government



- Erect perennial grass (2-5 m tall)
- Terminates in conspicuous, white plume-like inflorescence
- Thick, hollow culm 5-15 mm in diameter
- Flat, stiff leaves clasp culm loosely with smooth sheath

- Deep, dense rhizomatous mats and far reaching stolons





## *PHRAGMITES: WHAT IS IT?*

- Seed germination & new shoots occur in spring and fall
- Rhizomes up to 18 m long
- Mature sites <200 stems/m<sup>2</sup>
- New introductions mainly by seed
- Established sites spread rapidly by root fragments
- Propagules spread mainly by water currents, heavy machinery and contaminated soil





## PHRAGMITES: LOOK-ALIKES

Native common reed  
(*Phragmites australis*)



Giant reed  
(*Arundo donax*)



Pampas grass  
(*Cortaderia spp*)



### DID YOU KNOW?

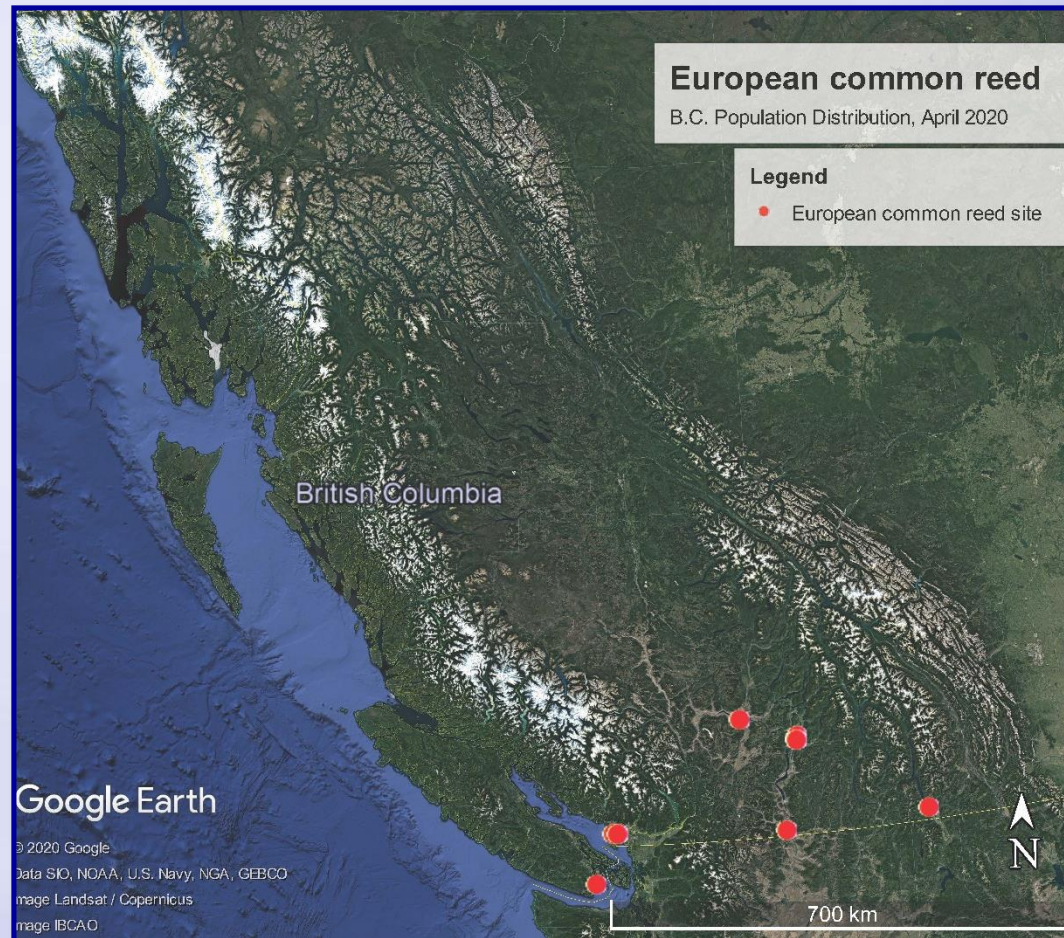
- Reed canary grass (*Phalaris arundinacea*) - Immature culms are often misidentified as Phragmites
- *Invasive Phragmites persists year-round as dense clusters of standing dead stems (native Phragmites does not)*
- *Appearance and growth habits are highly variable, DNA analysis is the most accurate method of differentiating between the invasive and native Phragmites*





## PHRAGMITES: WHERE IS IT IN B.C.?

- Sites:
  - 1-Capital
  - 3-Metro Van
  - 1-OK-Similkameen
  - 3-North OK
  - 1-Thompson Nicola
  - 1-Central Kootenay
- Status: *Contained, control in progress*





## *PHRAGMITES: WHAT ARE WE DOING ABOUT IT?*



- Risk assessment: Drafted
- Provincial DNA verification project
- Extent Surveys: Complete
- Containment: Complete
- Eradication: In progress



## JOINTED GOAT GRASS (*AEGILOPS CYLINDRICA*)



Sam Brinker

- Native to SE Europe, W Asia
- Winter annual grass
- Numerous erect stems branching at base (40-60 cm tall)



- Alternate leaves, sparsely hairy, hairs evenly spaced on leaf margin, hairy auricles



SteveDewey



## JOINTED GOAT GRASS: *WHAT IS IT?*

- Narrow cylindrical seed head (5-10 cm long), alternately arranged spikelets on opposite sides of spike axis
- Roots shallow, fibrous
- Sig losses in winter wheat crop yield/quality\*
- Can hybridize w/ wheat
- Reproduces by seed spread mainly in contaminated cereal crops
- Seeds viable after passing through cattle



Sam Brinker



WSU Extension

# JOINTED GOAT GRASS: *LOOK-ALIKES*



CFIA



Colorado State Uni

	<b>Jointed goat grass</b>	<b>Winter wheat</b>
Seedlings	<ul style="list-style-type: none"> <li>• Reddish – brownish</li> <li>• Thinner</li> </ul>	<ul style="list-style-type: none"> <li>• Whitish - greenish</li> <li>• Thicker</li> </ul>
Leaf	<ul style="list-style-type: none"> <li>• Evenly spaced hairs along leaf margin</li> <li>• Inconspicuous midrib</li> <li>• Shorter (3-15 cm)</li> </ul>	<ul style="list-style-type: none"> <li>• Few or no hairs</li> <li>• Conspicuous midrib</li> <li>• Longer</li> </ul>
Ligule	<ul style="list-style-type: none"> <li>• Shorter (0.2-0.8 mm)</li> </ul>	<ul style="list-style-type: none"> <li>• Longer (0.6-2.0 mm)</li> </ul>
Spikes	<ul style="list-style-type: none"> <li>• Cylindrical; narrower</li> </ul>	<ul style="list-style-type: none"> <li>• Less cylindrical; wider</li> </ul>
Root	<ul style="list-style-type: none"> <li>• Shallow, fibrous; smaller</li> </ul>	<ul style="list-style-type: none"> <li>• Shallow, fibrous; larger</li> </ul>



## JOINTED GOAT GRASS: *WHERE IS IT IN B.C.?*

- Sites:
  - 1-MetroVan
  - 4-OK-Similkameen
  - 2-Boundary
  - 1-Cowichan Valley eradicated 2019
- Status: *Extent surveys in progress*



# JOINTED GOAT GRASS: *WHAT ARE WE DOING ABOUT IT?*

- Regulated pest under the CAN Plant Protection Act
- Prohibited noxious weed in the *Weed Seeds Order*, 2016 under the *Seeds Act*
- Importation and domestic movement of regulated plants and their propagative parts is prohibited
- ***CFIA is leading the response to new incursions in CAN***

Jointed goatgrass spikelets in wheat



- Risk assessment: Drafted
- Extent surveys: In progress
- Eradication: Cowichan site declared eradicated in 2019



## GIANT REED (*ARUNDO DONAX*)

- Native to warm, temperate Asia
- Tall perennial grass (<10 m)
- Hollow, bamboo-like culms (1-4 cm diam.)
- Nodes 12-30 cm apart
- Fleshy, rhizomatous root







## GIANT REED (*ARUNDO DONAX*)

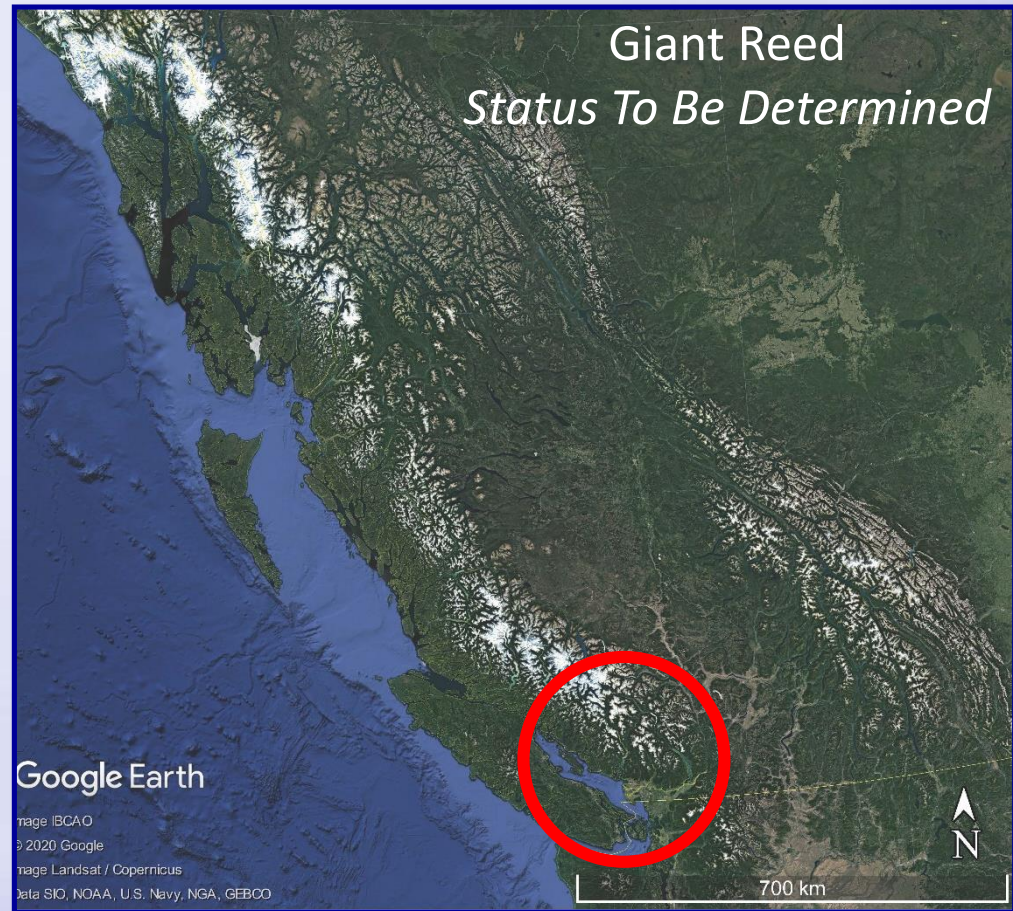
- Pale green leaves (70 cm long) arranged alternately along culm; distinctly two-ranked, in a single plane
- Leaves clasp stem broadly with heart-shaped, hairy-tufted base
- Large plume-like panicles (30-65 cm long), cream to brown in colour



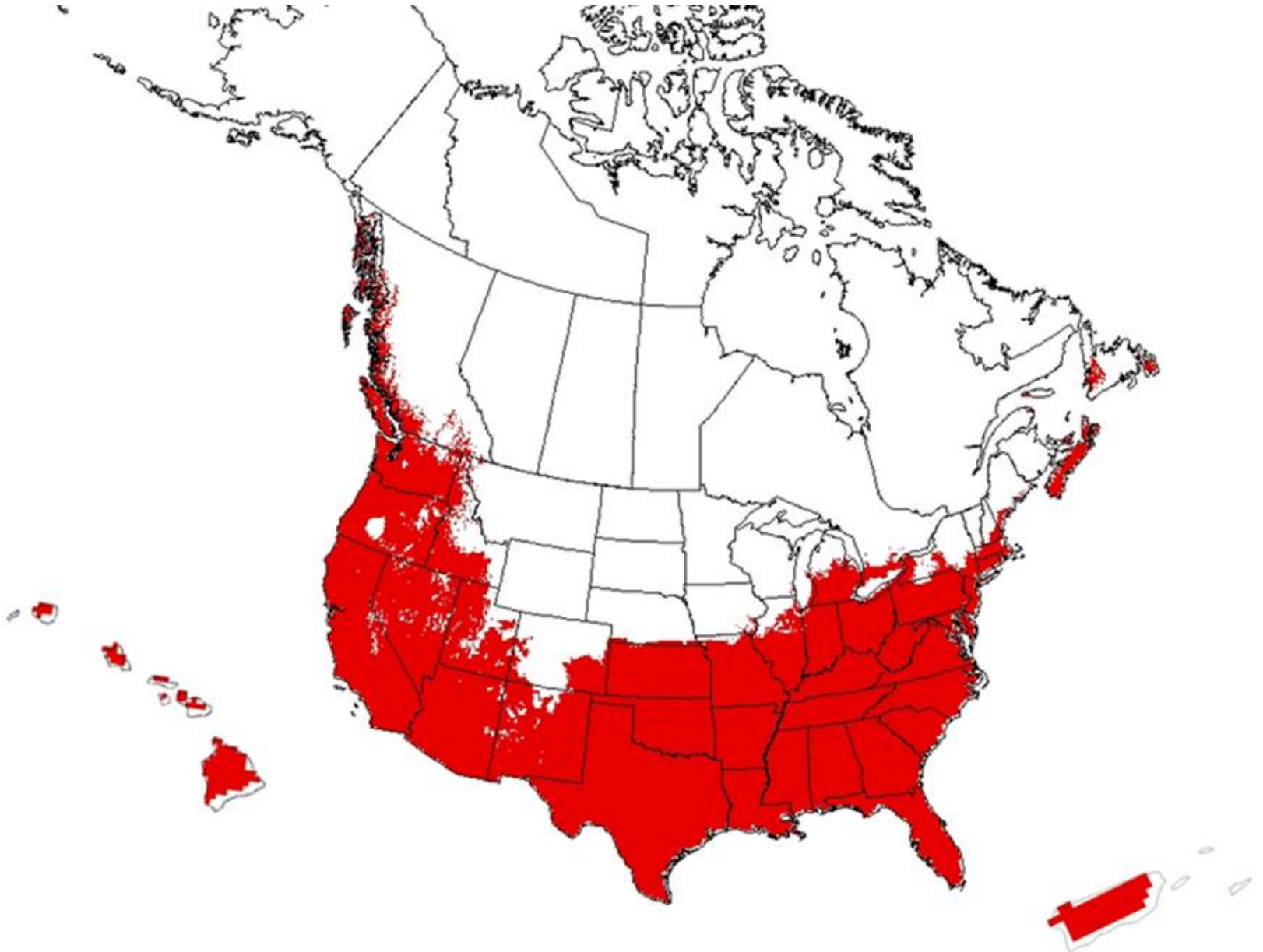


## GIANT REED: *WHERE IS IT IN B.C.?*

- Not known to occur out of cultivation in Canada
- One reported wholesale retailer in Fraser Valley
- Uses: Ornamental and biofuel crop interest



# Predicted distribution of *Arundo donax* in the United States and Canada (USDA-APHIS, 2012)



# GIANT REED: *WHAT ARE WE DOING ABOUT IT?*

- Regulated pest under the *CAN Plant Protection Act*
- Importation and domestic movement of regulated plants and their propagative parts is prohibited
- ***CFIA is leading the response to new incursions in CAN***



- Risk assessment: Drafted
- Extent surveys: Complete
- Eradication: In progress

<https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/invasive-plants/fact-sheets/giant-reed/eng/1557939393747/1557939394042>



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## MORE SPECIES OF CONCERN TO B.C. GRASSLANDS

*Not present - Close to B.C. border*

Johnson grass  
(*Sorghum halepense*)



Steve Dewey, Utah State University, [www.invasive.org](http://www.invasive.org)



Medusahead  
(*Taeniatherum caput-medusae*)



[www.anpc.ab.ca](http://www.anpc.ab.ca)



[www.cwma.org](http://www.cwma.org)



## MORE SPECIES OF CONCERN TO B.C. GRASSLANDS

*Not present - Close to B.C. border*

Slender foxtail

*(Alopecurus myosuroides)*



Spring millet grass

*(Miliun vernale)*





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## HOW CAN YOU HELP?

- Learn how to identify IPs
- Screen seed mixtures to ensure invasive plant free
- Report suspected new sites:  
[www.gov.bc.ca/invasive-species](http://www.gov.bc.ca/invasive-species)
- Plant non-invasive plants
- Stay informed





## *CONCLUSION*

- What is EDRR?
- B.C. EDRR Status Update
- New invasive grasses threatening B.C. grasslands
- Coastline grasses of concern
- Become part of the solution!





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***THANK YOU!***

**Becky Brown, P.Ag.**

Invasive Plant Specialist – Provincial EDRR Coordinator

B.C. Ministry of Forests, Lands & Natural Resource Operations

[Becky.N.Brown@gov.bc.ca](mailto:Becky.N.Brown@gov.bc.ca)

250-751-7177