Current & Emerging Invasive Species Threats to Growers in Nova Scotia

Hughstin Grimshaw-Surette, Project Lead – Terrestrial
NOVA SCOTIA INVASIVE SPECIES COUNCIL

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INVASIVES CANADA

- Provincial chapter of Invasives Canada
- NSISC is a non-profit environmental organization raising awareness and promoting a coordinated response to the threat of invasive species in Nova Scotia

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- **Our Focus**
  - Preventing invasive species introduction and reducing spread
  - Terrestrial and Aquatic
- **Education and Outreach**
  - What are invasive species?
  - How to identify them?
  - How to control them?
- **Reporting and Mapping**
  - How and where to report sightings?
- **Some removals of some key species**

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WHAT ARE INVASIVE SPECIES?

An invasive species is any organism that:

- Is non-native
- Spreads rapidly
- Causes harm

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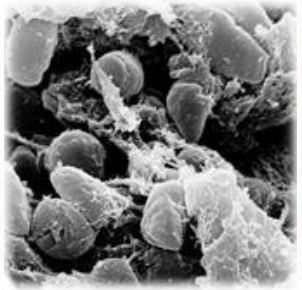


Many Types of Organisms

- **Animals**
  - Invertebrates
  - Amphibians
  - Reptiles
  - Fish
  - Birds
  - Mammals
- **Plants**
  - Algae
  - Ferns
  - Mosses
  - Gymnosperms
  - Flowering plants
- **Pathogens**
  - Bacteria
  - Fungi
  - Nematodes

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IMPACTS OF INVASIVE SPECIES

- **Significant Threat to Native Biodiversity**
- Threaten many species-at-risk

Monarch Butterfly
Endangered

Blanding's Turtle
Endangered

Black Ash
Threatened

Plymouth Gentian
Endangered

& more...

Increased Competition for Resources

Increased Predation

Degrading Habitat Quality

Introduce Diseases

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IMPACTS OF INVASIVE SPECIES

- **Significant Economic Costs**
  - Since [illegible] estimated
    - **$2.16** [illegible]
  - **$423 Billion US** [illegible] (Intergovernmental Platform on [illegible])
  - [illegible] **billion** US (InvaCost 2022)
- **Damage to Infrastructure**
- **Impedes Forestry & Agriculture Practices**
- **Human Health Concerns**
- **Harmful to Recreation**

Doubling every six years
(Diagne et al., 2021; Henry et al., 2023)

[illegible] Cost
[illegible] Ecosystem Services, 2023)

[illegible] al Canadian cost

Zebra Mussels

Japanese Knotweed

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IMPACTS OF INVASIVE SPECIES

- **Significant Economic Costs**
  - Since 1970 the estimated total global cost - **$2.168 trillion** US (InvaCost 2022)
  - Since 1970 the estimated total Canadian cost - **$35 billion** US (InvaCost 2022)
- **Damage to Infrastructure**
- **Impedes Forestry & Agriculture Practices**
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Asian Long-horned Beetle

Wild Pigs

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Giant Hogweed

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IMPACTS OF INVASIVE SPECIES

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- **Human Health Concerns**
- **Harmful to Recreation**

Chain Pickerel

Multiflora Rose

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INVASIVE SPECIES & CLIMATE CHANGE

- Synergy between **Climate Change** and **Invasive Species**
  - Climate change makes ecosystems more susceptible to invasive species
  - Invasive species can worsen the impacts of climate change
- Expand invasive species ranges
  - Example: “Sleeper species”
- Increased extreme weather events
  - Creates disturbances that increase risks for the establishment of invasive species

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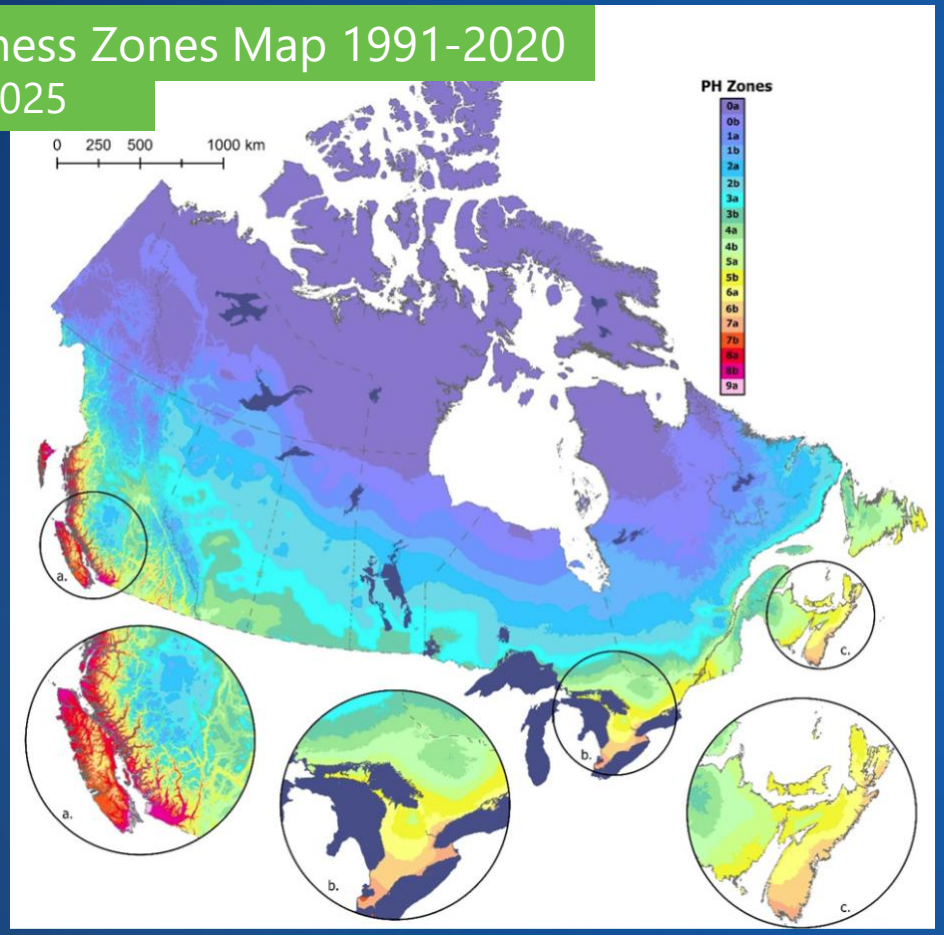
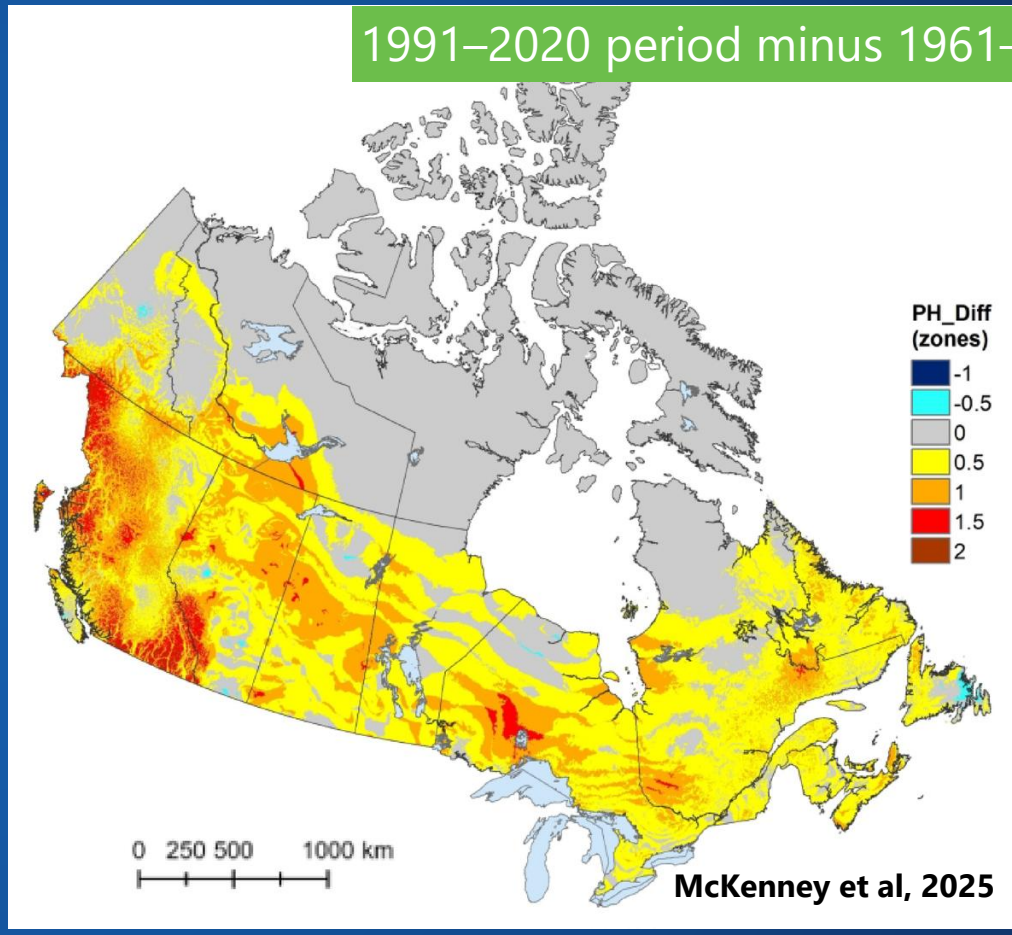
INVASIVE SPECIES & CLIMATE CHANGE

Plant Hardiness Zones Map 1991-2020

New July 2025



1991–2020 period minus 1961–1990



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INVASIVE SPECIES & CLIMATE CHANGE

- Study modelled range shifts of 144 invasive plant species
  - As the climate warms, invasive plant species range shifts north-eastern
- Similar trends for invasive insects

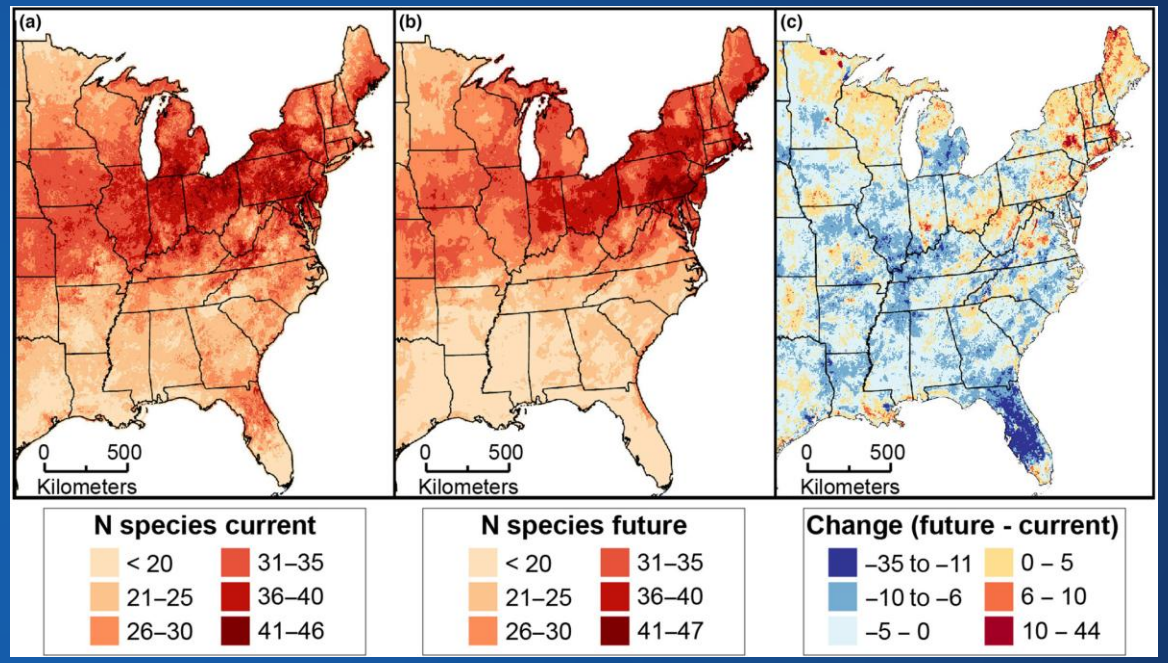

Figure 2. The number (N) of invasive plant species with climatically suitable habitat, a) Current, b) +2° C warming, and c) the difference.(Evans et al. 2023)

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How do they get here?

- Planting in gardens where it then escapes
- Releasing unwanted pets
- Dumping aquarium plants
- Introducing new game species
- Commercial wood imports
- Shipping

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HOW DO THEY SPREAD?

Multiflora Rose

Invasive species spread **Naturally** by:

- Floating downstream
- Animal dispersal (i.e. bird poop)
- Natural movement

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HOW DO THEY SPREAD?

How **Humans** spread invasive species:

- Hitching rides on boat trailers
- Ballast water tanks
- Seeds stuck in hiking boot or tire treads
- Seeds stuck to pets
- Moving firewood
- Not cleaning equipment
- Contaminated soil

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HOW DO WE PREVENT THE SPREAD OF INVASIVE SPECIES?

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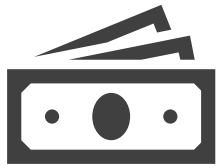
ERADICATION



$$$$

TIME

RESOURCES

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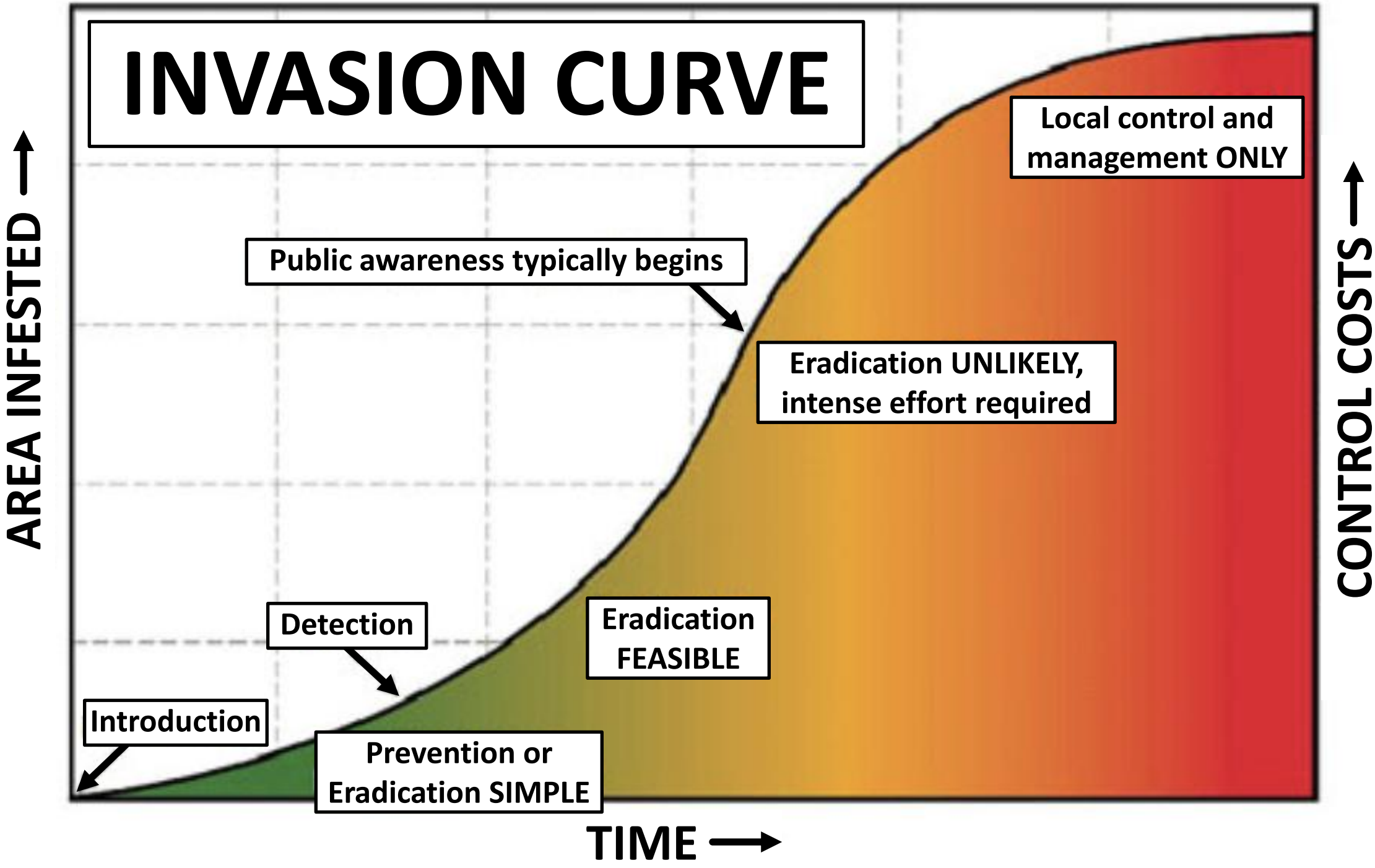
INVASION CURVE
AREA INFESTED
CONTROL COSTS
TIME
Local control and management ONLY
Public awareness typically begins
Eradication UNLIKELY, intense effort required
Eradication FEASIBLE
Detection
Introduction
Prevention or Eradication SIMPLE

HOW DO WE DO THIS?

CLEAN
DRAIN
DRY

Play
Clean
Go

STOP INVASIVE SPECIES
IN YOUR TRACKS.

PlayCleanGo.ca

BUY
LOCAL
BURN
LOCAL

DON'T MOVE FIREWOOD

DON'T LET IT LOOSE

PLANT
WISE

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invasive
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REDUCING SPREAD

Implement Clean Farming Practices

- Clean equipment, boots, and vehicles before moving between fields to prevent the spread of invasive seeds or pests

Avoid Planting Invasive Plants

- Use native species or non-invasive non-native species

Stay Vigilant with Early Detections

- Regularly monitor crops, fields, and the surrounding area for new invasions.

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PLANT WISE

English

French

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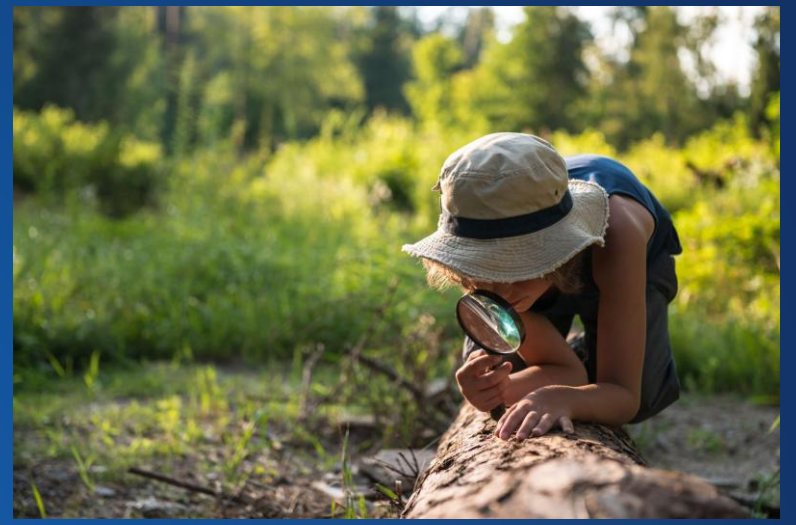
REDUCING SPREAD



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Watchlist Species

Species to keep an eye out for

CFIA Regulated

Canada Food Inspection Agency

- **Plant Health Division**

- Regulatory body for: "Plant pests and invasive species, import, export, trade, fertilizers, soil and soil-related matter, grains and field crops, seeds, cannabis, forestry, horticulture."
- Regulations fall under *"Plant Protection Act" or "Weed Seeds Order"*
  - Restricts the movement of materials to prevent spread.

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Spotted Lanternfly

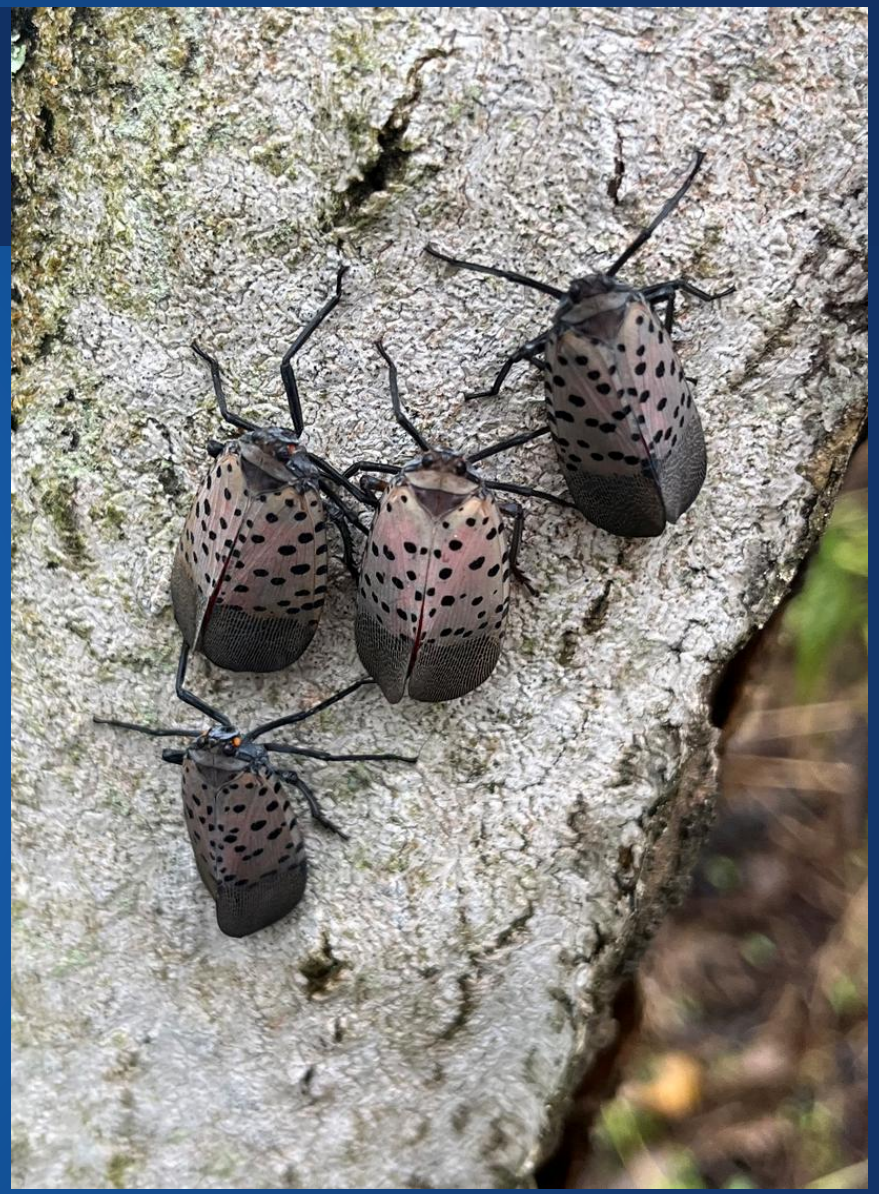
Lycorma delicatula

CFIA Regulated

- Feeds on a wide range of species (over 100 species)
  - **Blueberry** (*Vaccinium angustifolium*) – Nymphs
  - **Blackberries** & **Raspberries** (*Rubus* sp.) – Nymphs
- Means of Spread - Egg masses attached to garden or landscaping items, cars, camper trailers, etc.

Impacts

- Ecological and Economic Impacts are relatively unknown for NS
  - Feeding weakens and can kill plants (Grapes in particular)



Native to: Asia
Not Established in Canada

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Spotted Lanternfly

Lycorma delicatula

CFIA Regulated

Identification

- Adults are ~ 25mm long & 12 mm wide
- Unique appearance

Symptoms: Weeping sap wounds

- "Honeydew" and debris build up on bark can result in fungal and mold growth

Egg Masses

Early-Stage Nymph

Late-Stage Nymph

Adult

Native to: Asia
Not Established in Canada

Photo credits: CFIA

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Eu. Strawberry Blossom Weevil

Anthonomus rubi

CFIA Regulated – Under Consideration


Credit: W Wong

- Pest of plants in the Rose family (Rosaceae)
  - Strawberries (*Fragaria* spp)
  - Raspberries (*Rubus idaeus*) & others…
- First NA record found in 2020 in cultivated and wild hosts throughout the greater Vancouver area.
- One parasitoid wasp attacks this species in BC


Credit: W Wong

Impacts

- Females lay eggs in developing flower buds and sever the stalks
  - Damages buds and reduces fruit yields

Native to: Europe
Established in British Columbia

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Eu. Strawberry Blossom Weevil

Anthonomus rubi

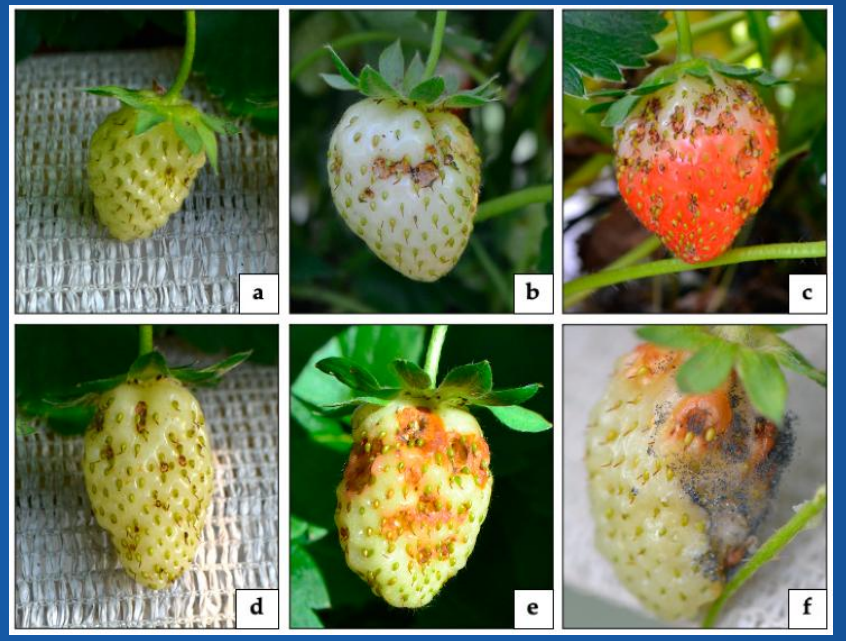
CFIA Regulated – Under Consideration

Identification

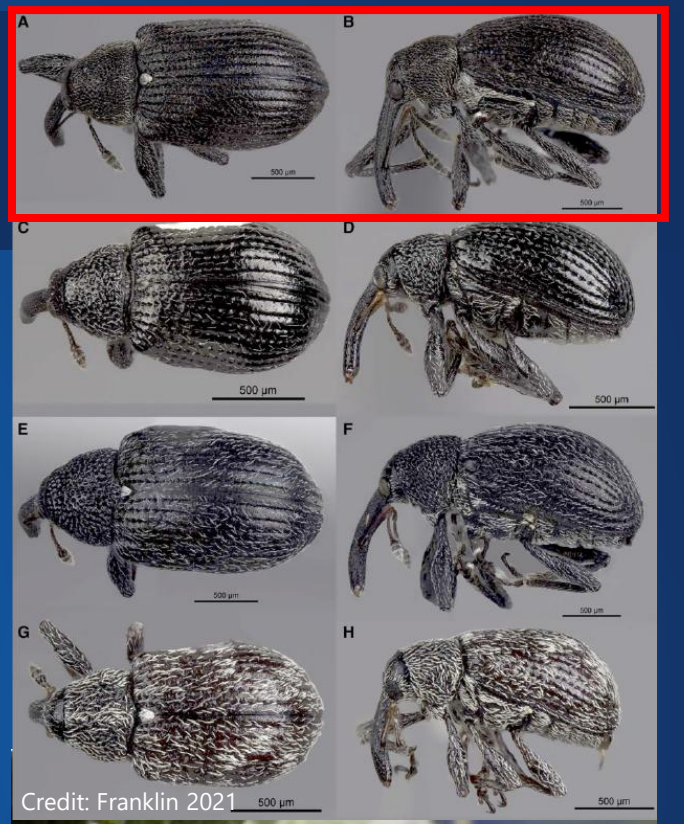
- Small black weevils (2.5 – 3 mm)
  - Bright white patch on scutellum
- 36 species of *Anthonomus* only four are black

Symptoms:

- Broken, unopened buds
- Eggs laid in open flowers can deform the strawberry
  - Scaring, malformation, and rot



Damage caused by *A. rubi* adults on strawberry fruit at different stages: (a) small and green, (b) white and (c) red strawberry; (d) immature malformed strawberry; (e,f) development of molds on damaged fruit (Tonina et al. 2021).



Native to: Europe
Established in British Columbia

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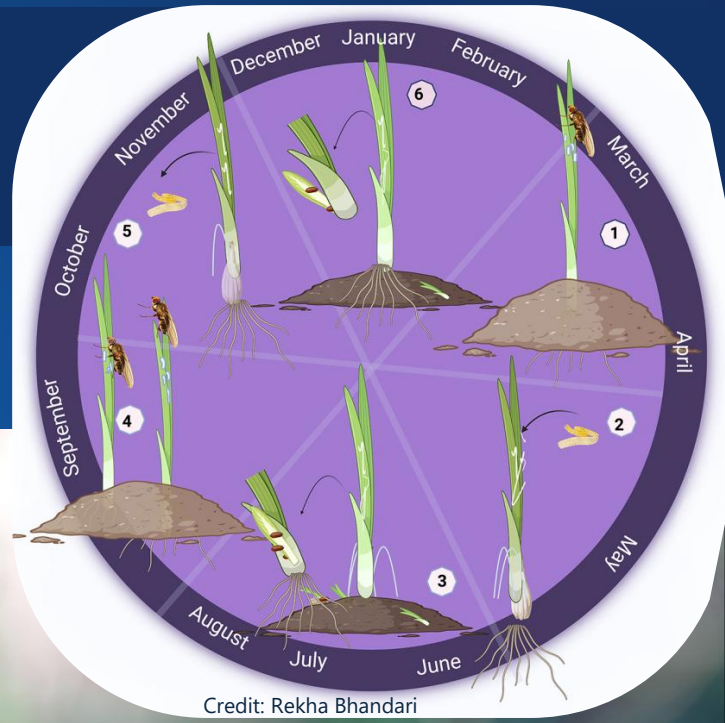
Allium Leafminer

Phytomyza gymnostoma

CFIA Regulated

- Pest of *Allium*, wild and cultivated
  - Chives (*A. schoenopanasum*), garlic (*A. sativum*), leek (*A. porrum*), onion (*A. cepa*), ramps (*A. tricoccum*), and scallion (*A. fistulosum*).
- First discovered in 2015 in Pennsylvania, New Jersey (2016), New York and Maryland (2017),



Credit: Rekha Bhandari

Impacts

- Larvae feeding causes cosmetic damage in foliage
  - Openings for pathogenic fungi and bacteria
  - High rates of damage, including up to 100% crop loss
- Bulb onions are a lower risk, rare to find feeding on bulb


Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org 5550874

Native to: Europe
Not Established in Canada

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Allium Leafminer

Phytomyza gymnostoma

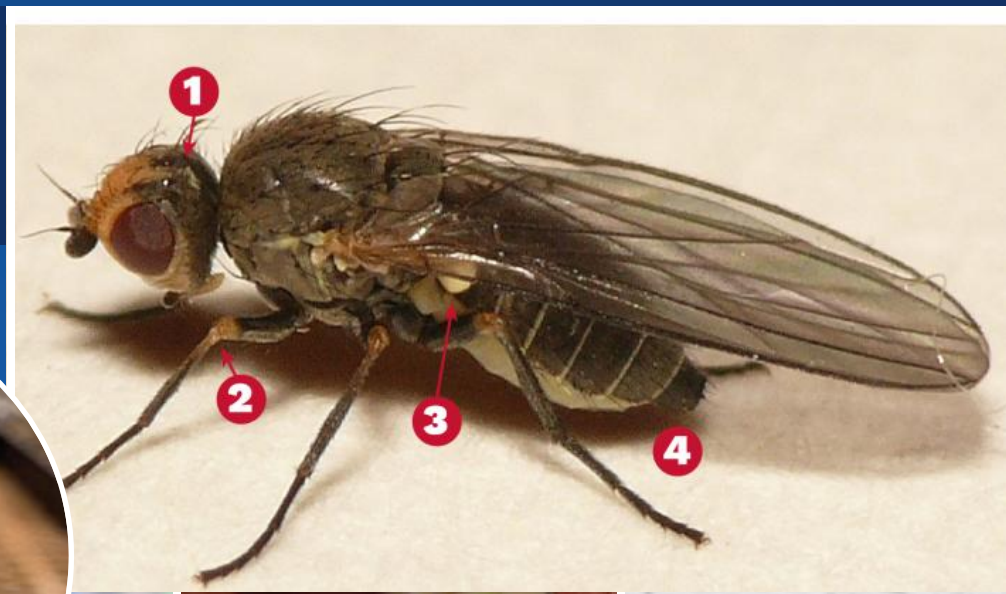
CFIA Regulated

Identification

- Adults are small flies ~ 3 mm, grey – black with a yellow head, distinct yellow “knees”
- Larvae are cream-yellowish up to 8 mm, legless, and lack a distinct head. Two projections at one end
- Pupae are reddish brown, found between leaf layers 3.5 mm long

Symptoms:

- Oviposition scars and feeding galleries on foliage




Credit L. Barringer


Credit: L. Donovall


Credit L. Barringer

Native to: Europe
Not Established in Canada

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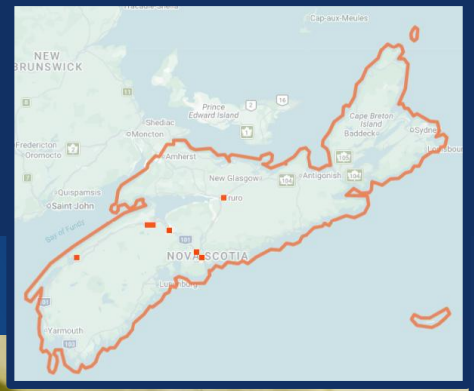
Brown Marmorated Stink Bug

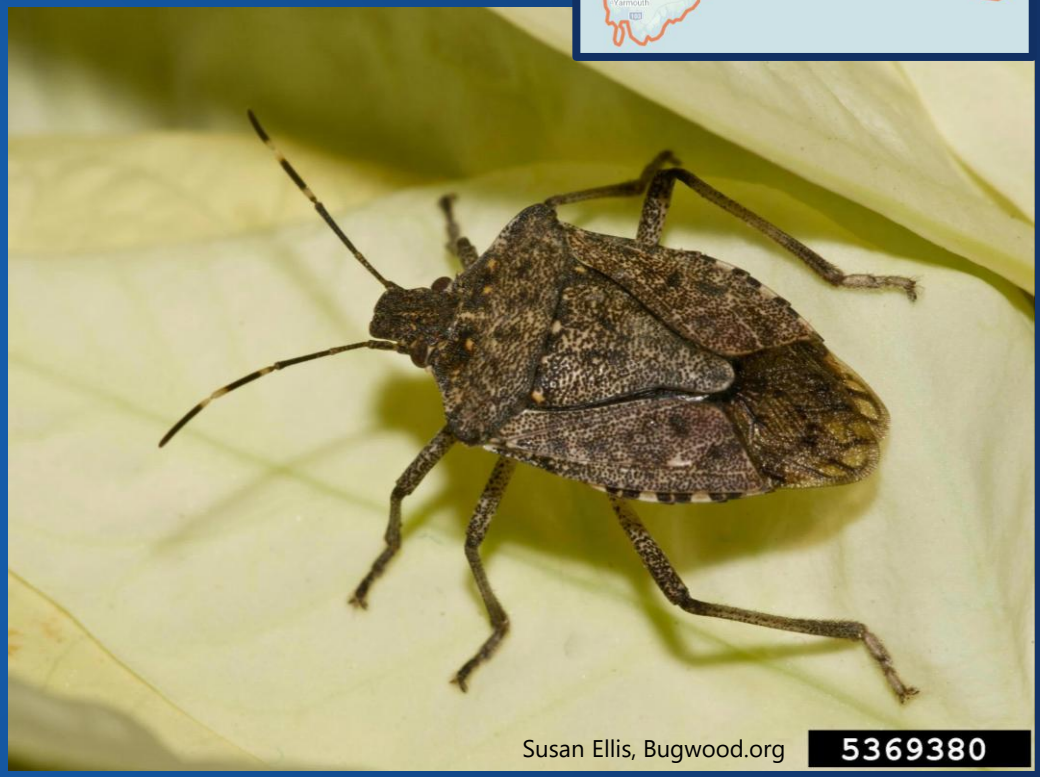
Halyomorpha halys

- 2012 -

Not CFIA Regulated



- Pest of numerous plant types
  - Tree fruit, berries, grapes, vegetables, agricultural crops, ornamental trees and ornamental shrubs
- Highly mobile and shifts hosts
- First NA detection in Pennsylvania in 2001
  - Several provinces – most are detections, not outbreaks
  - Large populations exist in several Mid-Atlantic States



Impacts

- Digestive enzymes cause necrotic areas at the feeding site
  - Fruit, seedpods, buds, leaves or stems of plants.
- Contamination at harvest is also a concern

Native to: East Asia
NS Range: Mainland?

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Brown Marmorated Stink Bug

Halyomorpha halys

- 2012 -

Not CFIA Regulated

Identification

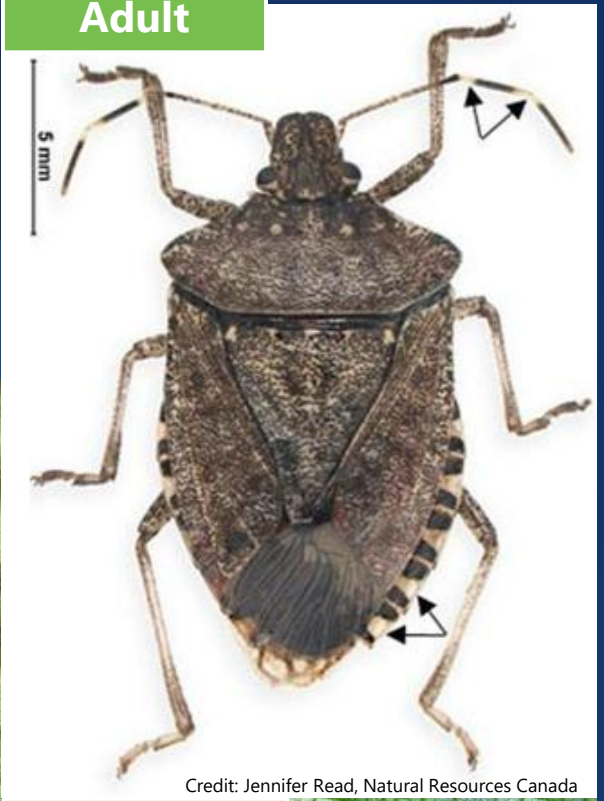
- **Adults**: 13 - 17 mm long, 8 mm wide; 2 white bands on antenna; smooth pronotum; abdominal margins that extend past wings with white inward pointing triangles alternating with dark areas
- **Nymph & Eggs:** Challenging to separate from similar species

Symptoms:

- Discoloured, deformed or corky fruit; abscission or collapse of berries; death of buds; leaf stippling; missing, shrivelled or stained seeds; punctured kernels

Native to: East Asia
NS Range: Mainland?

Adult



Credit: Jennifer Read, Natural Resources Canada

Eggs & 1st Instar

David R. Lance, USDAAPHIS, PPQ Bugwood.org

Credit: Deepak Matadha, Rutgers University.

Late Instars

Gary Bernon, USDAAPHIService, Bugwood.org

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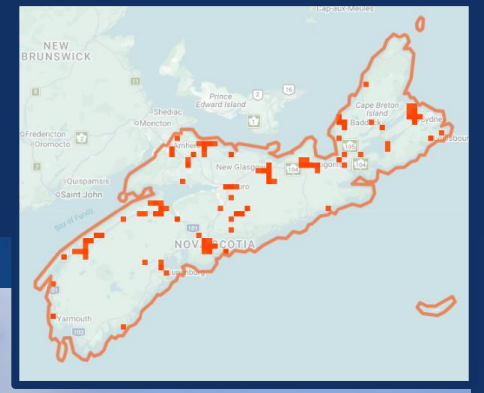
Wild Parsnip

Pastinaca sativa



Impacts

- Invades along roadsides, agricultural fields, and other disturbed areas
- Outcompetes native plants and crops
- Threat to Human Health
  - Sap contains furanocoumarins
  - Burns or blisters when exposed to skin and then to sunlight
- Spreads seeds via wind/rain and on contaminated equipment

Native to: Eurasia
NS Range: Throughout

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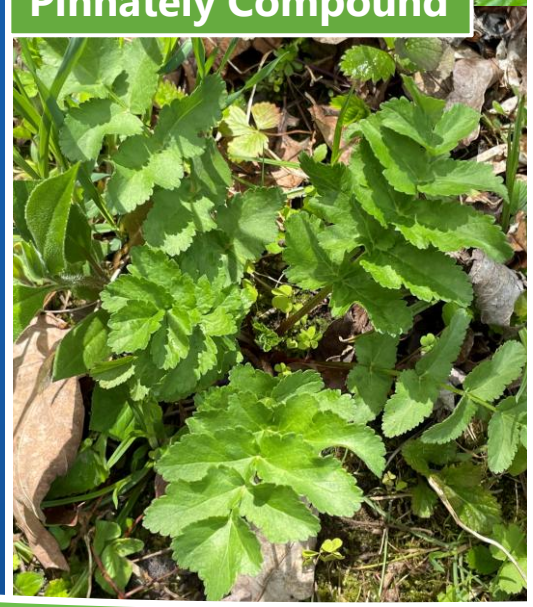
Wild Parsnip

Pastinaca sativa

Identification

- 0.5 to 1.5 m tall when in flower
  - Stems are deeply grooved
- Yellow flowers in “umbrella” shaped clusters
- Alternate leaves along the stem, pinnately compound
  - 2-5 opposite leaflets with diamond-shaped terminal leaflet
- Perennial/biannual plant grows in rosettes until it flowers and dies

Pinnately Compound



Umbel Inflorescence

Grooved Stem

Native to: Eurasia
NS Range: Throughout

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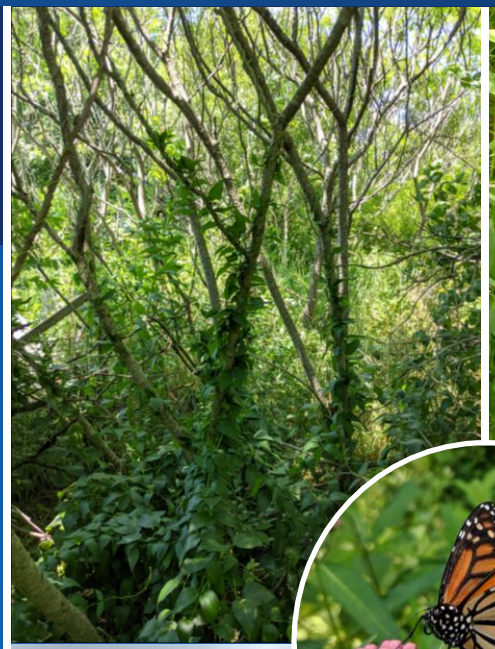
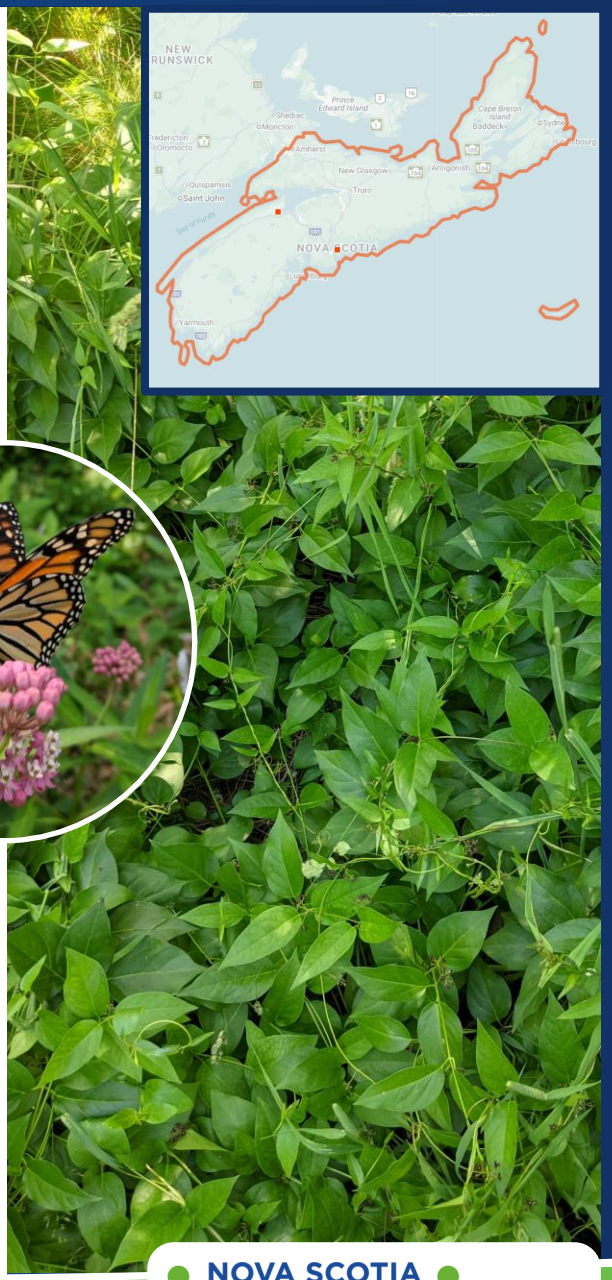
Dog-Strangling Vine

Vincetoxicum nigrum & V. rossicum

Impacts

- Highly competitive plant
  - Outcompetes native plants and can invade fields increasing costs
- Threatens the Monarch Butterfly
  - Studies have found Monarchs will lay eggs on DSV (Alred et al. 2022)
  - Larvae feeding on DSV has been linked with increased mortality (Alred et al. 2022)





Native to: Eastern Europe
NS Range: Kings & Halifax

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Dog-Strangling Vine

Vincetoxicum nigrum & V. rossicum

Identification

- Twining vine with opposite leaves with smooth edges
- 5-pointed Star-shaped flowers
- Late August seed pods split open, releasing fluffy airborne seeds

Black Swallowwort
(*Vincetoxicum nigrum*)

Pale Swallowwort
(*Vincetoxicum rossicum*)

Native to: Eastern Europe
NS Range: Kings & Halifax

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Himalayan Blackberry

Rubus bifrons

- Newly observed invasive in Nova Scotia
- In the late 1800s Introduced to North America as a cultivated crop

Identification

- Up to 3 m tall and produces 5 angled canes up to 12 m long that root
- Semi evergreen
- Leaves on flowering canes have a dense fuzz on the underside
- Pinkish white flowers

Native to: Western Europe
NS Range: Yarmouth & Digby

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Himalayan Blackberry

Rubus bifrons

Impacts

- Creates dense large, thorny thickets
  - Outcompete native plants and invades fields
  - Climbs over and into trees
  - Impedes movement of large mammals

Means of Spread

- 7,000 –13,000 seeds per square metre!
- Stem and root fragments

Native to: Western Europe
NS Range: Yarmouth & Digby

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USEFUL RESOURCES

- **Canadian Food Inspection Agency**
  - Federally Regulated Species
    - Invasive insects, plant diseases, invasive plants, and others
  - **https://inspection.canada.ca/en/plant-health/invasive-pests-and-plants**
- **Nova Scotia Invasive Species Council**
  - Invasive species profiles, provincial focus
    - Regulated and not regulated
  - **https://nsinvasives.ca/**
  - Monthly Newsletter
- **Invasives Canada**
  - **https://www.invasivescanada.ca/**

Canada's NISCC NETWORK

National Invasive Species & Climate Change
https://www.niscc.ca/

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Thank you to our Funders:

NOVA SCOTIA
NOUVELLE-ÉCOSSE

Department of Natural Resources and Renewables

Department of Fisheries and Aquaculture

GenomeAtlantic

Canadian Food Inspection Agency
Agence canadienne d'inspection des aliments

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Fisheries and Oceans Canada
Pêches et Océans Canada

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THANK YOU

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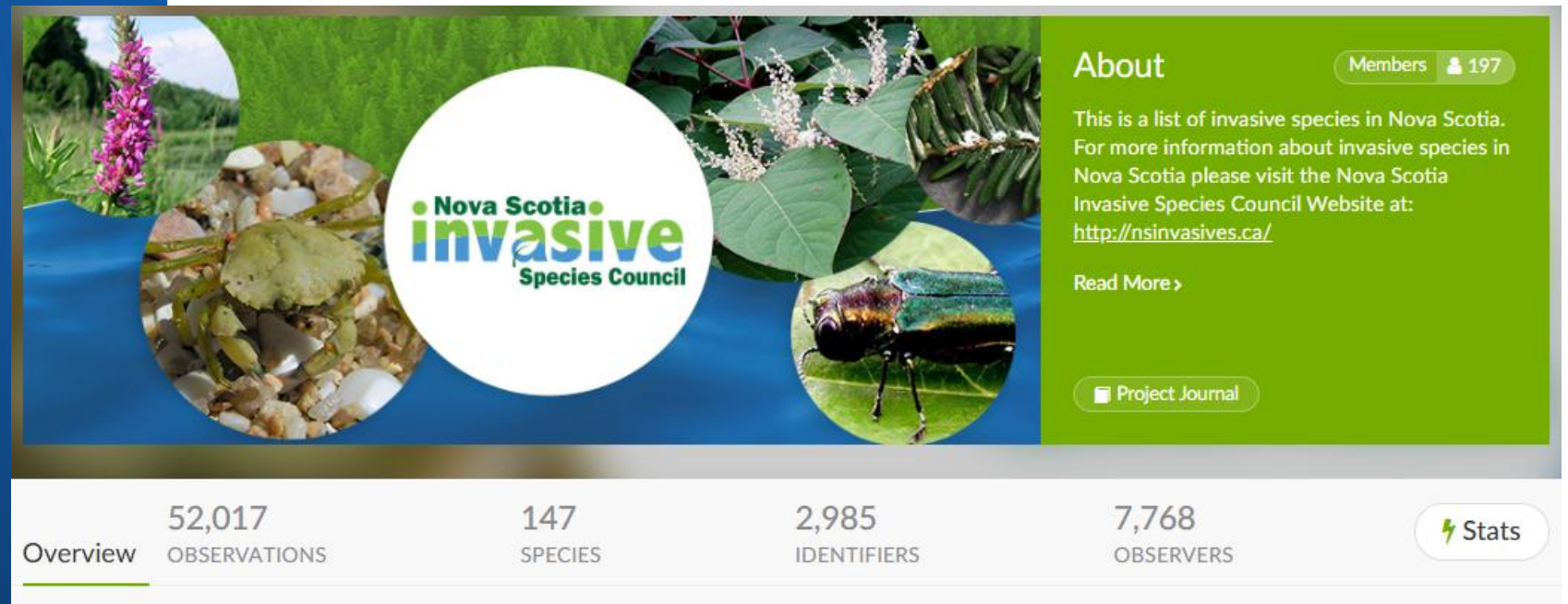
iNaturalist Tutorial

Reporting Sightings of Invasive Species

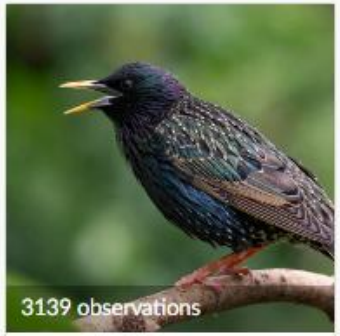
Report Invasive Species

- Report your observations
  - Directly to NSISC at our website
  - Or on iNaturalist
- Add to the important data used to map species distribution
- https://inaturalist.ca/projects/invasive-species-in-nova-scotia



Overview | 52,098 OBSERVATIONS | 147 SPECIES | 2,992 IDENTIFIERS | 7,787 OBSERVERS | Stats

Tussilago farfara
Colt's-Foot



Sturnus vulgaris
European Starling

Centaurea nigra
Black Knapweed

Carcinus maenas
European Green Crab

Rosa multiflora
Multiflora Rose

Solanum dulcamara
Bittersweet Nightshade

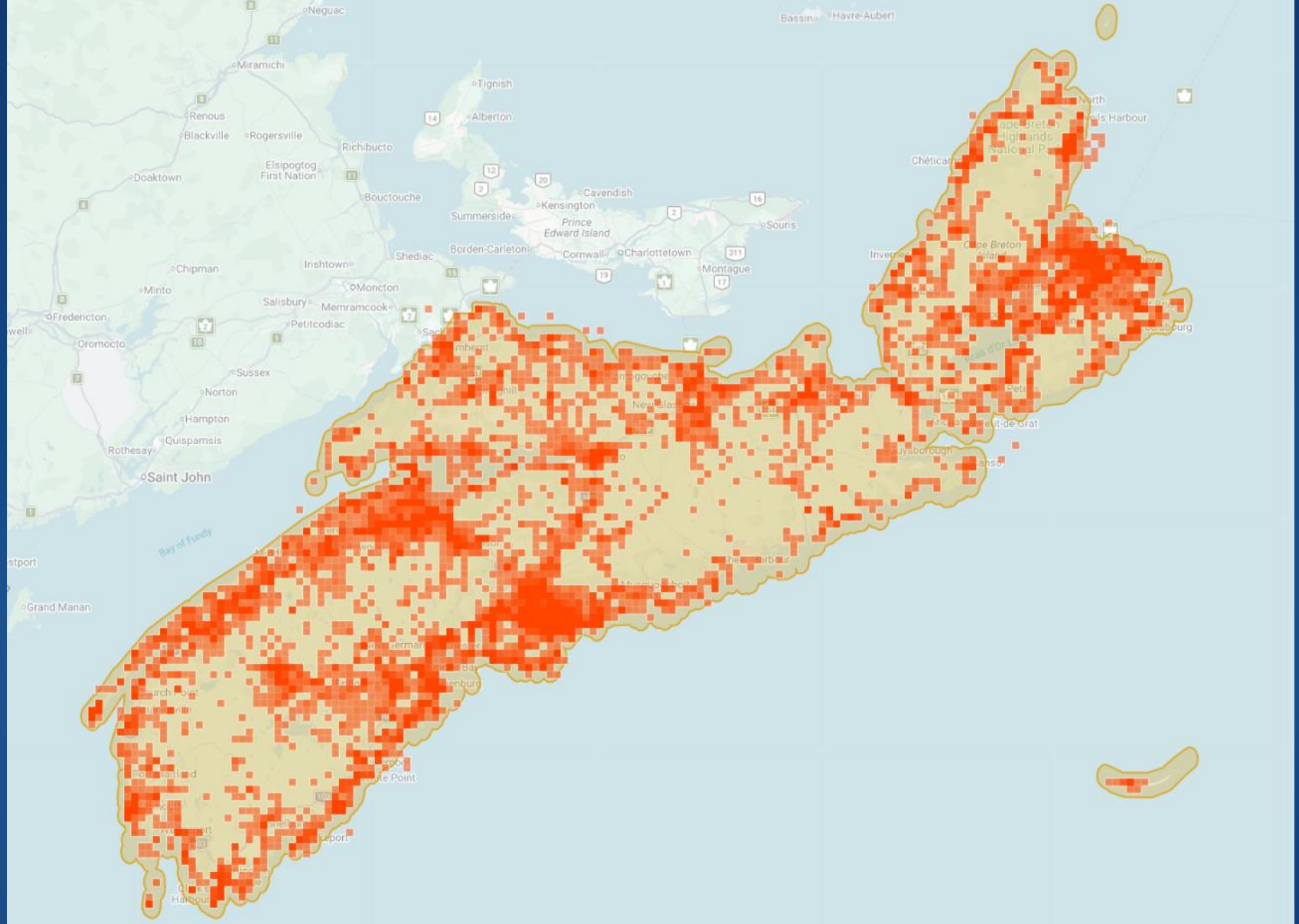
Rosa rugosa
Rugosa Rose

Hypericum perforatum
Common St. John's Wort

Acer platanoides
Norway Maple

Popillia japonica
Japanese Beetle

NOVA SCOTIA invasive SPECIES COUNCIL

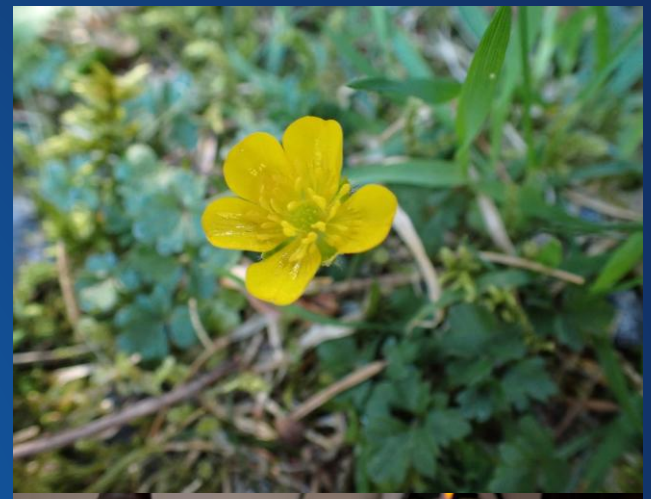


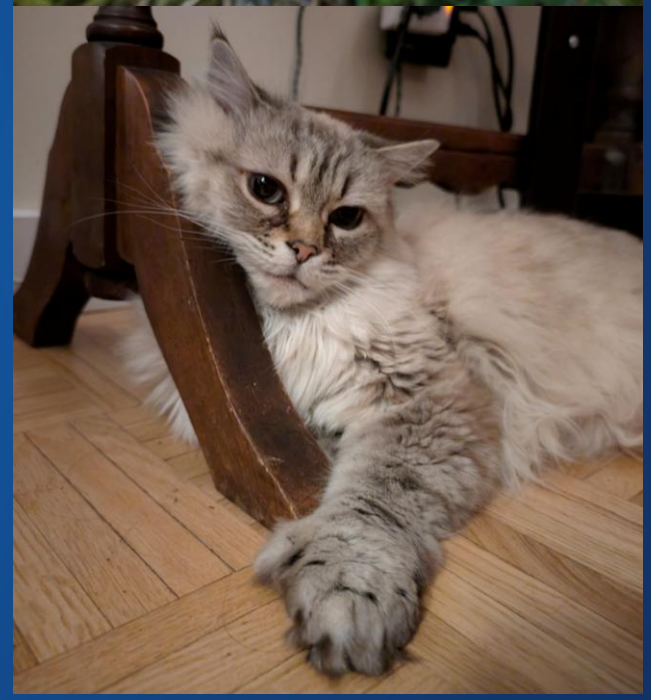
NOVA SCOTIA invasive SPECIES COUNCIL

iNaturalist

What is it?

- Free application for phone and computer browser
- **Mission**: iNaturalist's mission is to connect people to nature and advance biodiversity science and conservation through technology.
- Helps you identify wild plants and animals around you while generating data for science and conservation





NOVA SCOTIA invasive SPECIES COUNCIL

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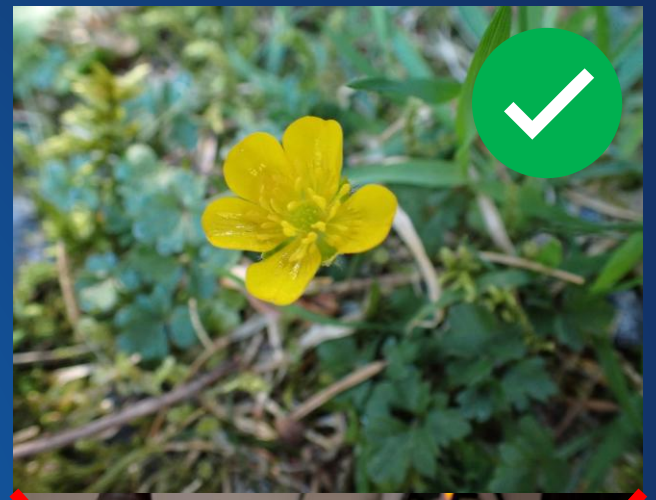
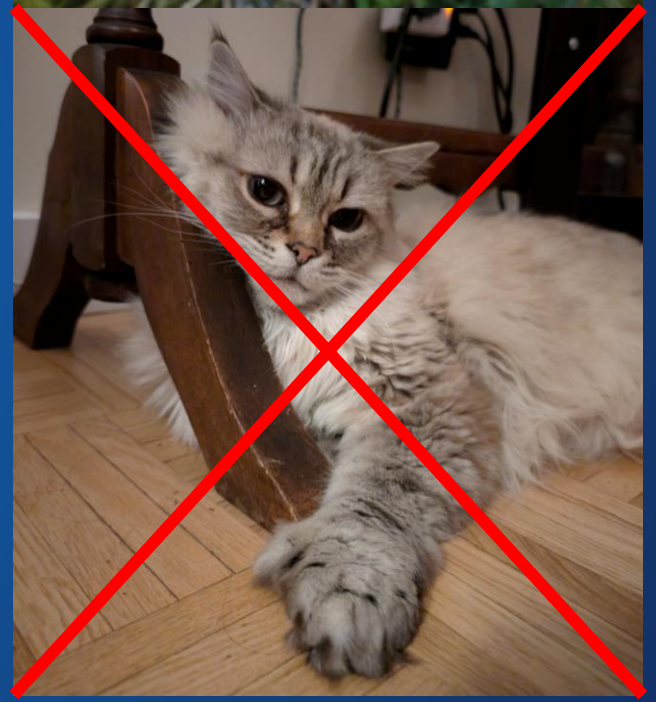




NOVA SCOTIA invasive SPECIES COUNCIL

iNaturalist

How Does it Work?

1) Upload photos of your observation
2) Include the location (Option to obscure)
3) Select what species you think it is
4) Post observation
5) Other people verify your identification
6) Research Grade
   - 2/3s agree on identification
   - Improve data accuracy

NOVA SCOTIA invasive SPECIES COUNCIL

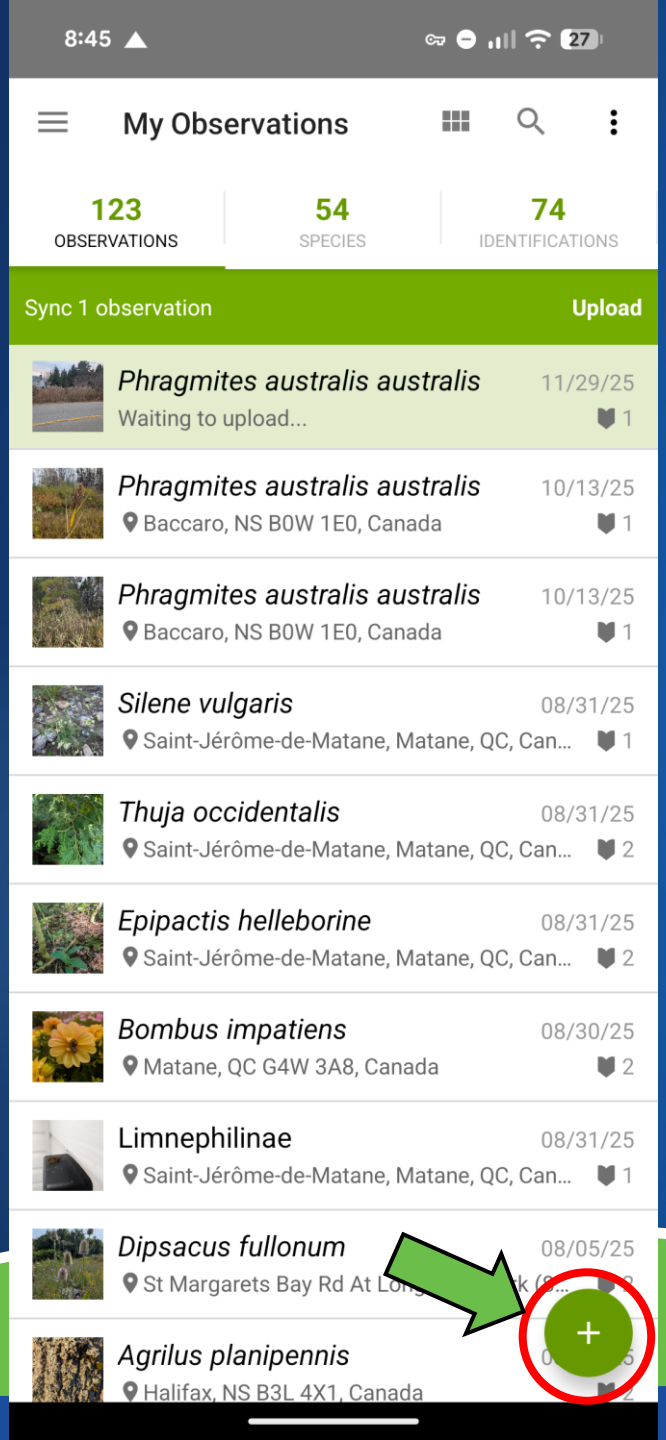
iNaturalist

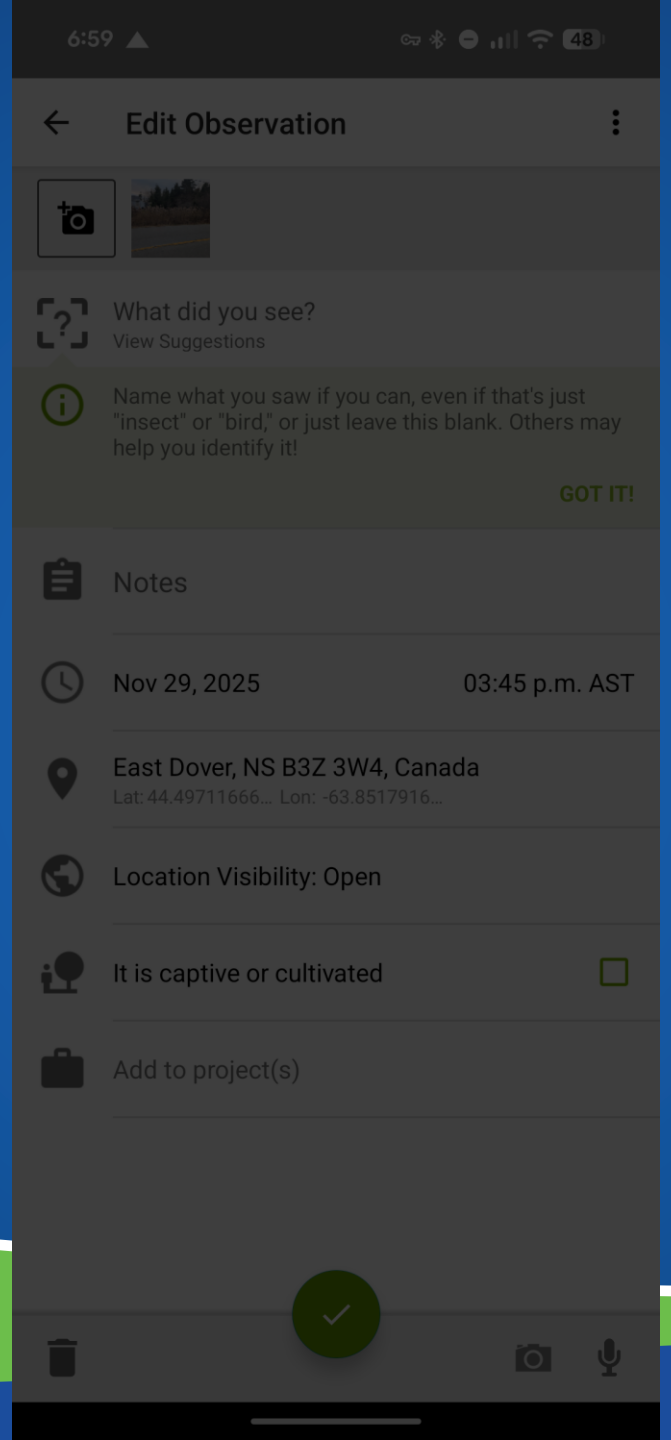
How to Take Good Photos

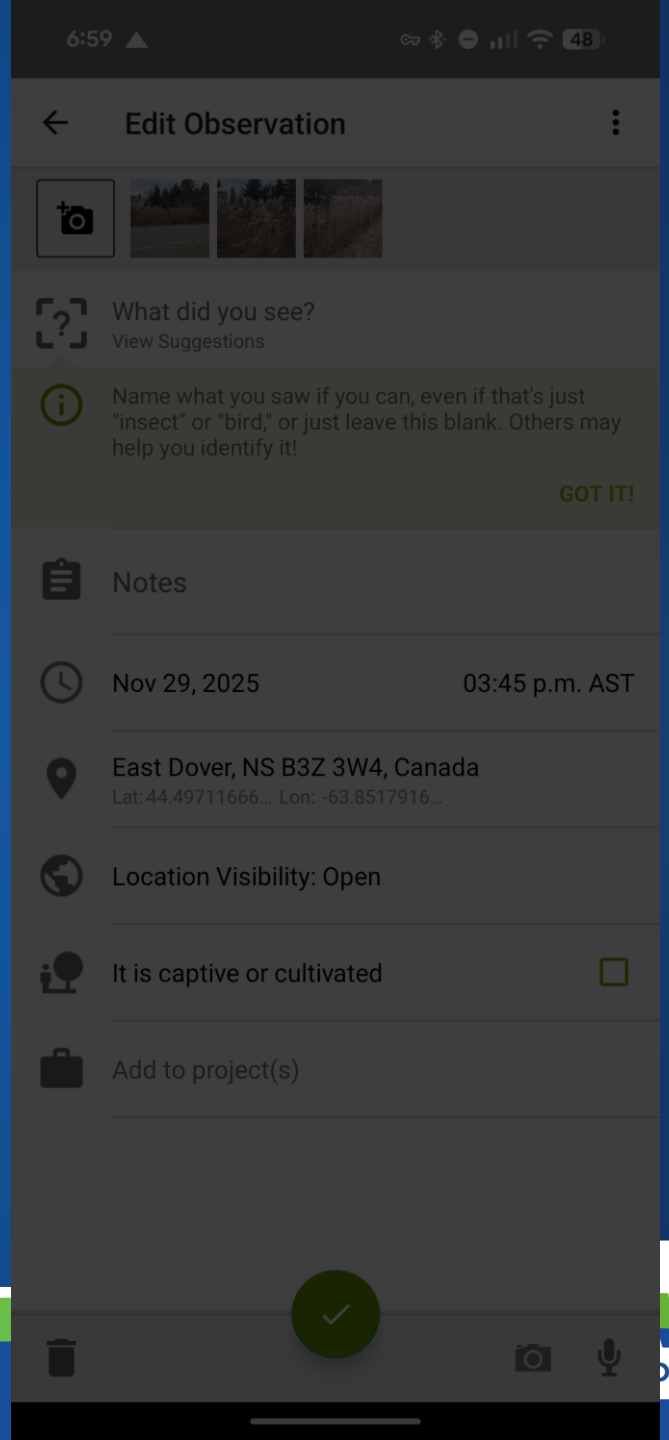
- Specimen is in focus and identifiable
  - Fill the frame with your subject
- Take multiple photos
  - Top, bottom, side, front, and back
  - For plants: **Overall** photo and close-ups of **Fruit**, **Flowers**, **Stem**, and **Leaves**.
  - Infestation size if relevant
- For quick-moving species
  - Take photos as you get closer

Wild Teasel
Dipsacus fullonum

NOVA SCOTIA invasive SPECIES COUNCIL


8:45
My Observations
123
OBSERVATIONS
54
SPECIES
74
IDENTIFICATIONS
Sync 1 observation
Upload
Phragmites australis australis
11/29/25
Waiting to upload...
1
Phragmites australis australis
10/13/25
Baccaro, NS B0W 1E0, Canada
1
Phragmites australis australis
10/13/25
Baccaro, NS B0W 1E0, Canada
1
Silene vulgaris
08/31/25
Saint-Jérôme-de-Matane, Matane, QC, Can...
1
Thuja occidentalis
08/31/25
Saint-Jérôme-de-Matane, Matane, QC, Can...
2
Epipactis helleborine
08/31/25
Saint-Jérôme-de-Matane, Matane, QC, Can...
2
Bombus impatiens
08/30/25
Matane, QC G4W 3A8, Canada
2
Limnephilinae
08/31/25
Saint-Jérôme-de-Matane, Matane, QC, Can...
1
Dipsacus fullonum
08/05/25
Agrilus planipennis
Halifax, NS B3L 4X1, Canada


6:59
Edit Observation
What did you see?
View Suggestions
Name what you saw if you can, even if that's just "insect" or "bird," or just leave this blank. Others may help you identify it!
GOT IT!
Notes
Nov 29, 2025
03:45 p.m. AST
East Dover, NS B3Z 3W4, Canada
Lat: 44.49711666... Lon: -63.8517916...
Location Visibility: Open
It is captive or cultivated
Add to project(s)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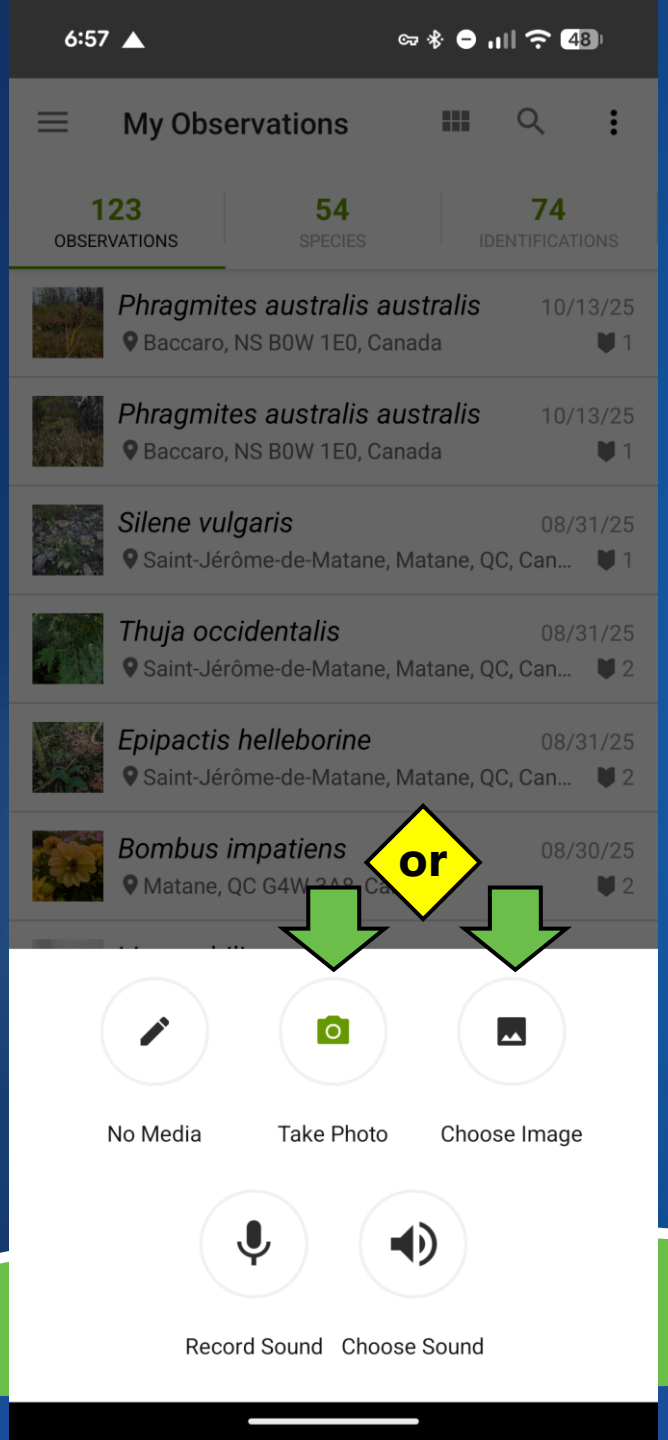
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My Observations
123
OBSERVATIONS
54
SPECIES
74
IDENTIFICATIONS
Phragmites australis australis
10/13/25
Baccaro, NS B0W 1E0, Canada
1
Phragmites australis australis
10/13/25
Baccaro, NS B0W 1E0, Canada
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Silene vulgaris
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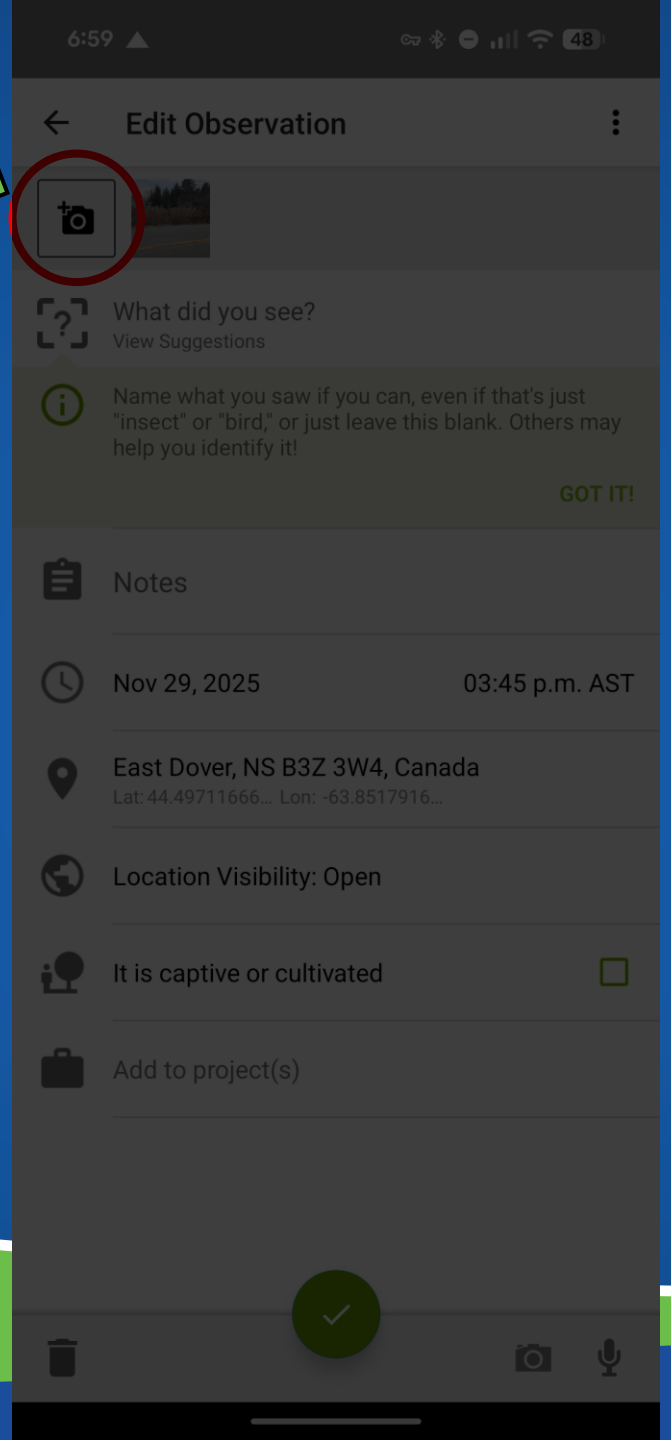
Saint-Jérôme-de-Matane, Matane, QC, Can...
2
Bombus impatiens
08/30/25
Matane, QC G4W
2
or
No Media
Take Photo
Choose Image
Record Sound
Choose Sound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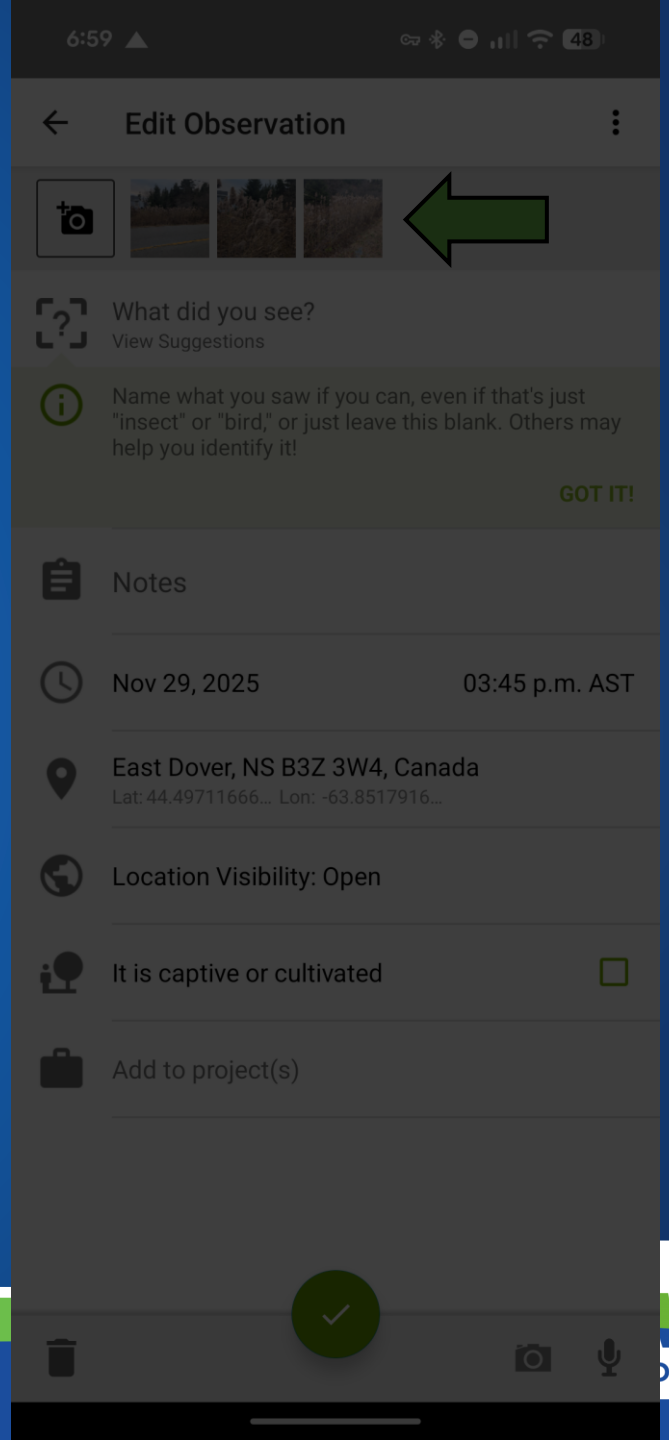
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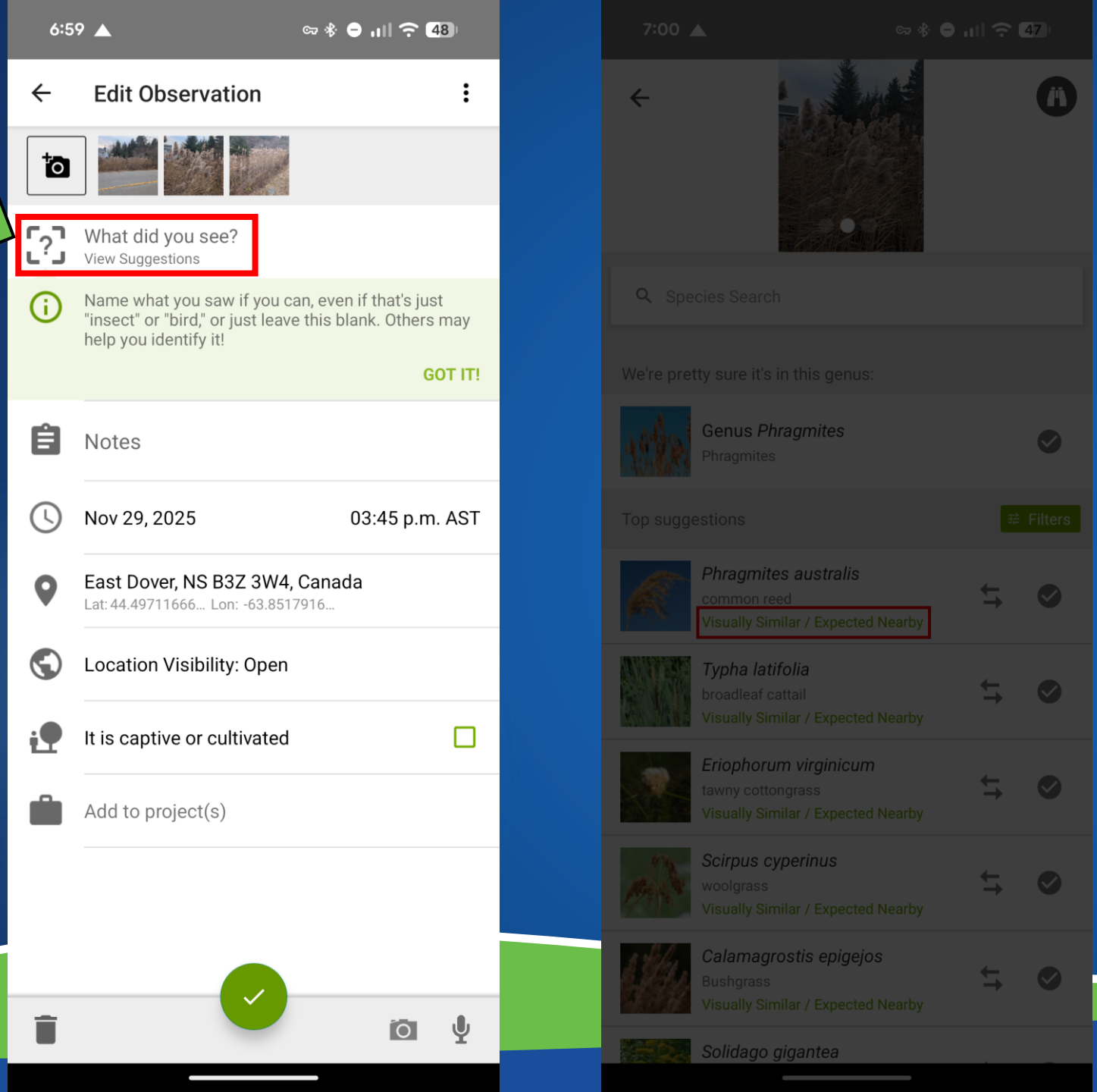
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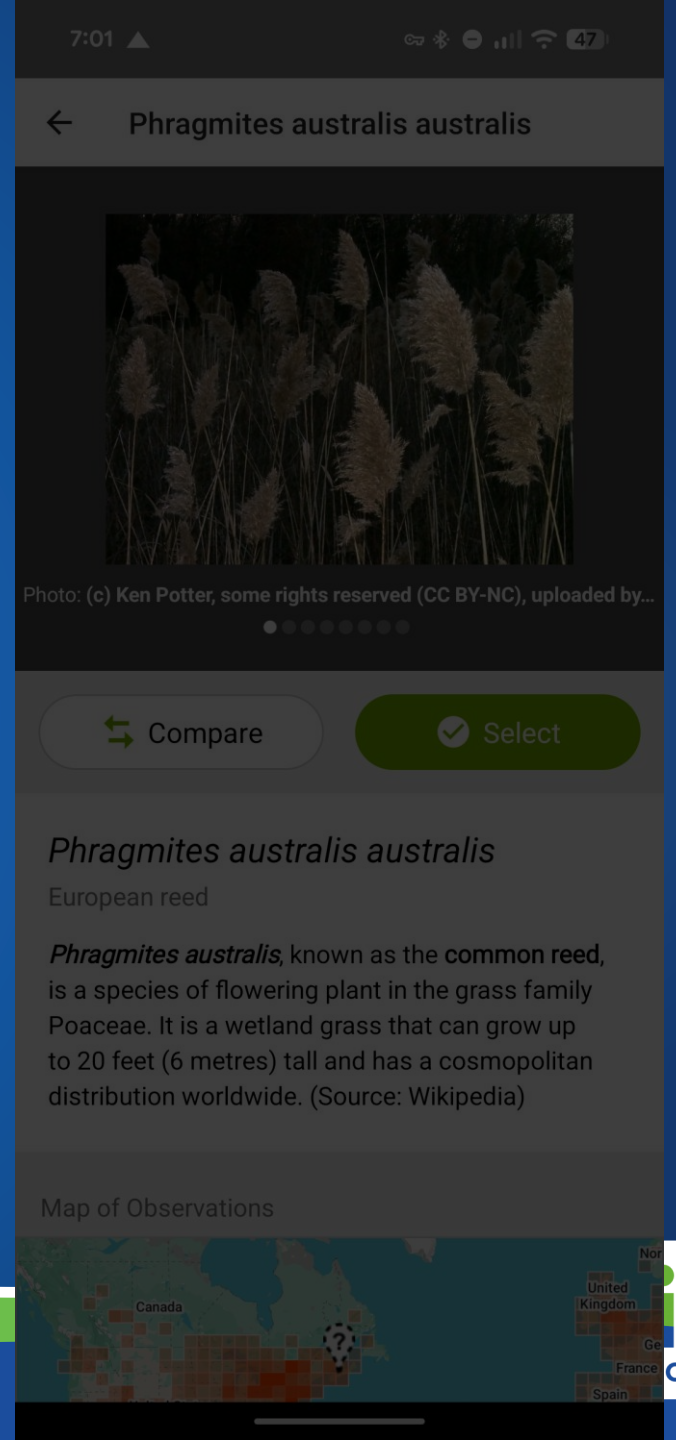
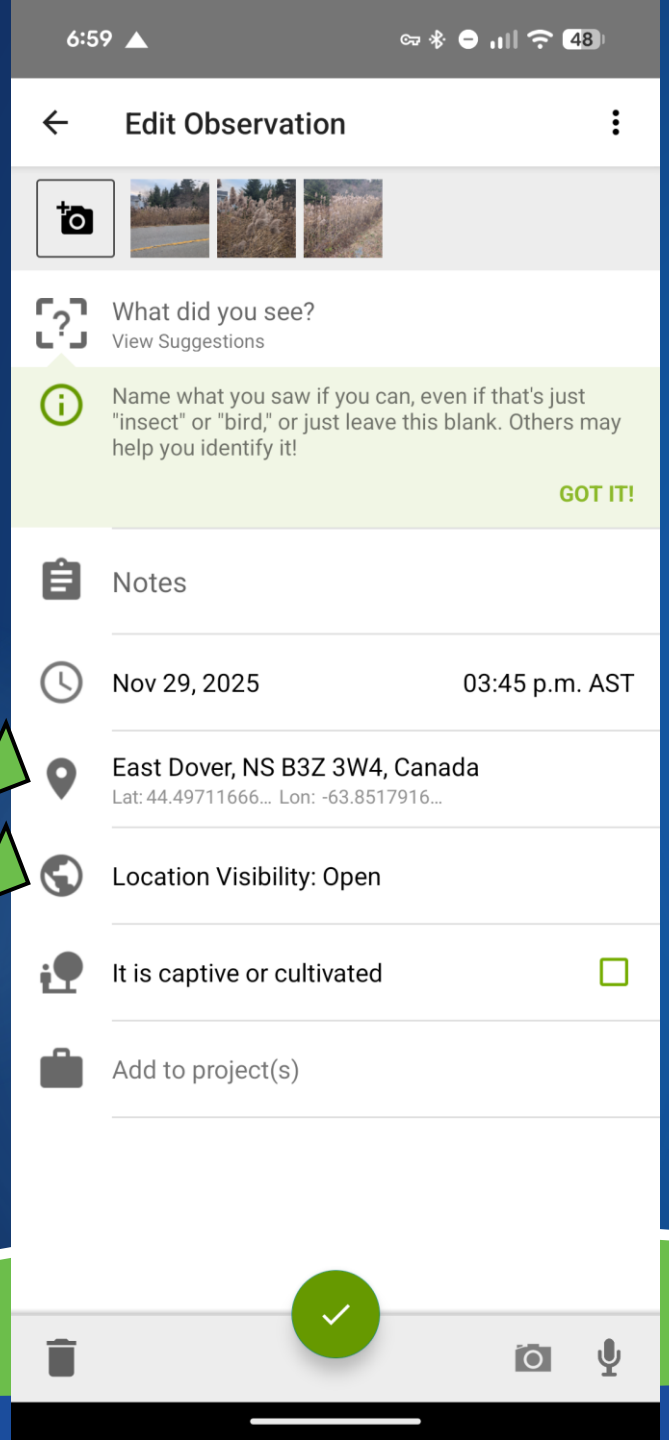
03:45 p.m. AST
East Dover, NS B3Z 3W4, Canada
Lat: 44.49711666... Lon: -63.8517916...
Location Visibility: Open
It is captive or cultivated
Add to project(s)

7:00
Species Search
We're pretty sure it's in this genus:
Genus Phragmites
Phragmites
Top suggestions
Filters
Phragmites australis
common reed
Visually Similar / Expected Nearby
Typha latifolia
broadleaf cattail
Visually Similar / Expected Nearby
Eriophorum virginicum
tawny cottongrass
Visually Similar / Expected Nearby
Scirpus cyperinus
woolgrass
Visually Similar / Expected Nearby
Calamagrostis epigejos
Bushgrass
Visually Similar / Expected Nearby
Solidago gigantea


7:01
Phragmites australis australis
Photo: (c) Ken Potter, some rights reserved (CC BY-NC), uploaded by...
Compare
Select
Phragmites australis australis
European reed
Phragmites australis, known as the common reed, is a species of flowering plant in the grass family Poaceae. It is a wetland grass that can grow up to 20 feet (6 metres) tall and has a cosmopolitan distribution worldwide. (Source: Wikipedia)
Map of Observations
Canada
United Kingdom
France
Spain


6:59
Edit Observation
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View Suggestions
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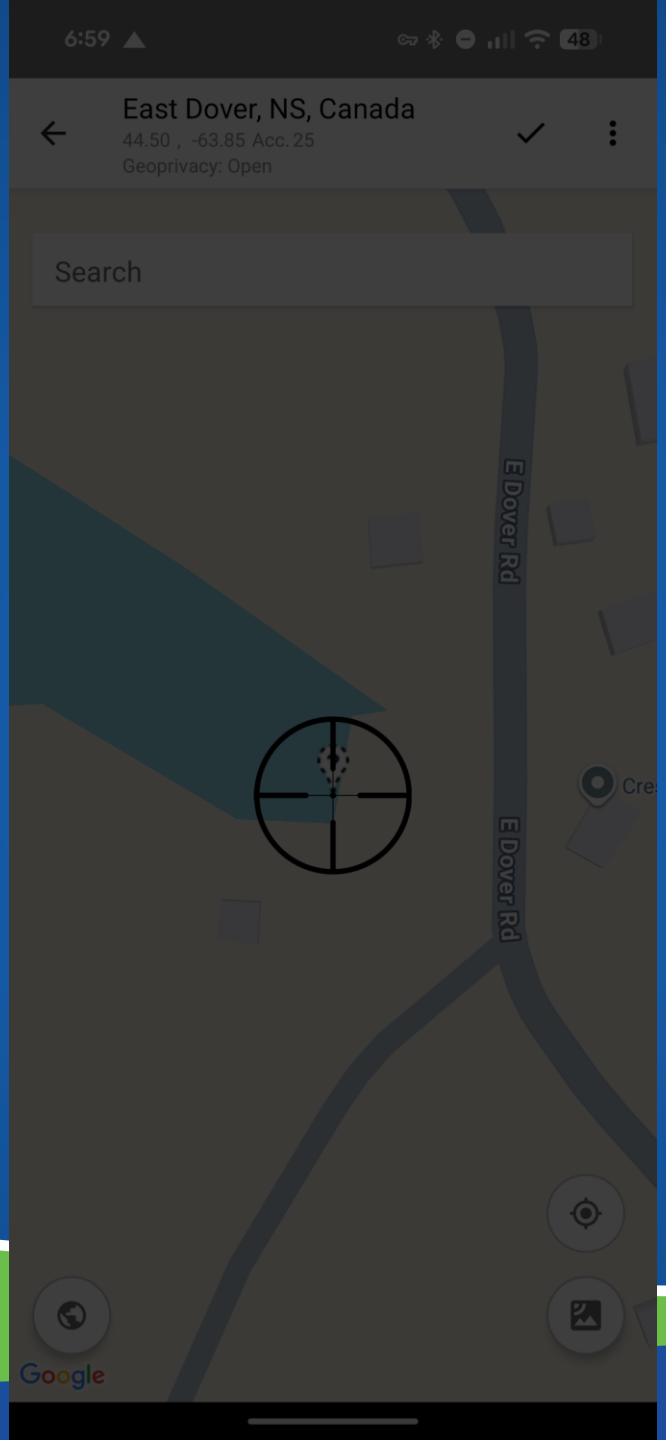
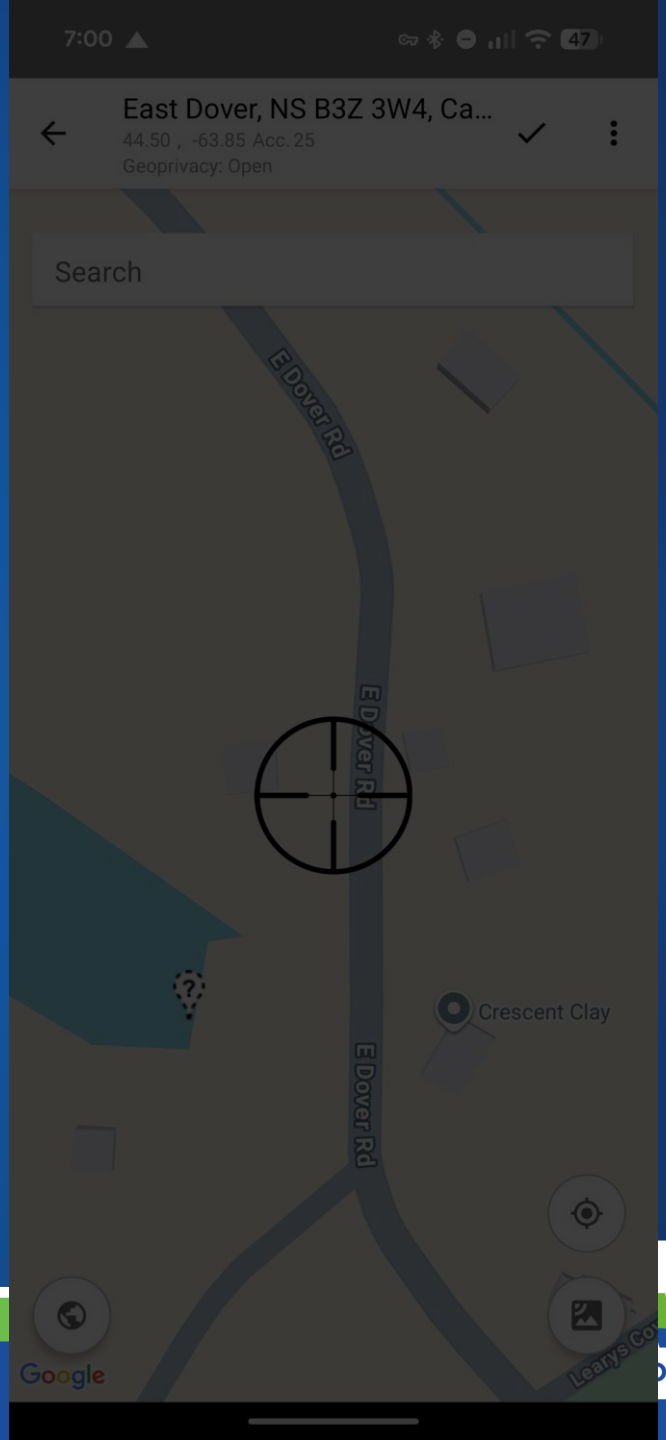
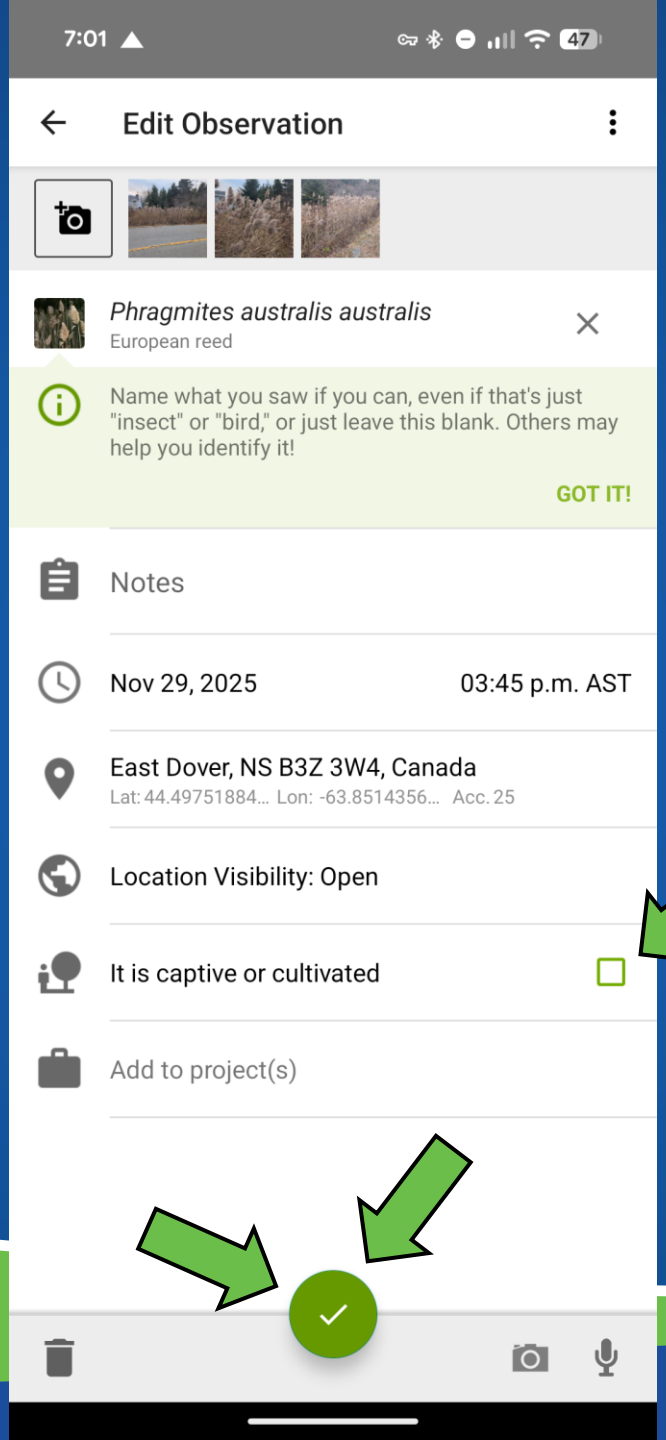
Nov 29, 2025
03:45 p.m. AST
East Dover, NS B3Z 3W4, Canada
Lat: 44.49711666... Lon: -63.8517916...
Location Visibility: Open
It is captive or cultivated
Add to project(s)


6:59
East Dover, NS, Canada
44.50 , -63.85 Acc. 25
Geoprivacy: Open
Search
E Dover Rd
Google

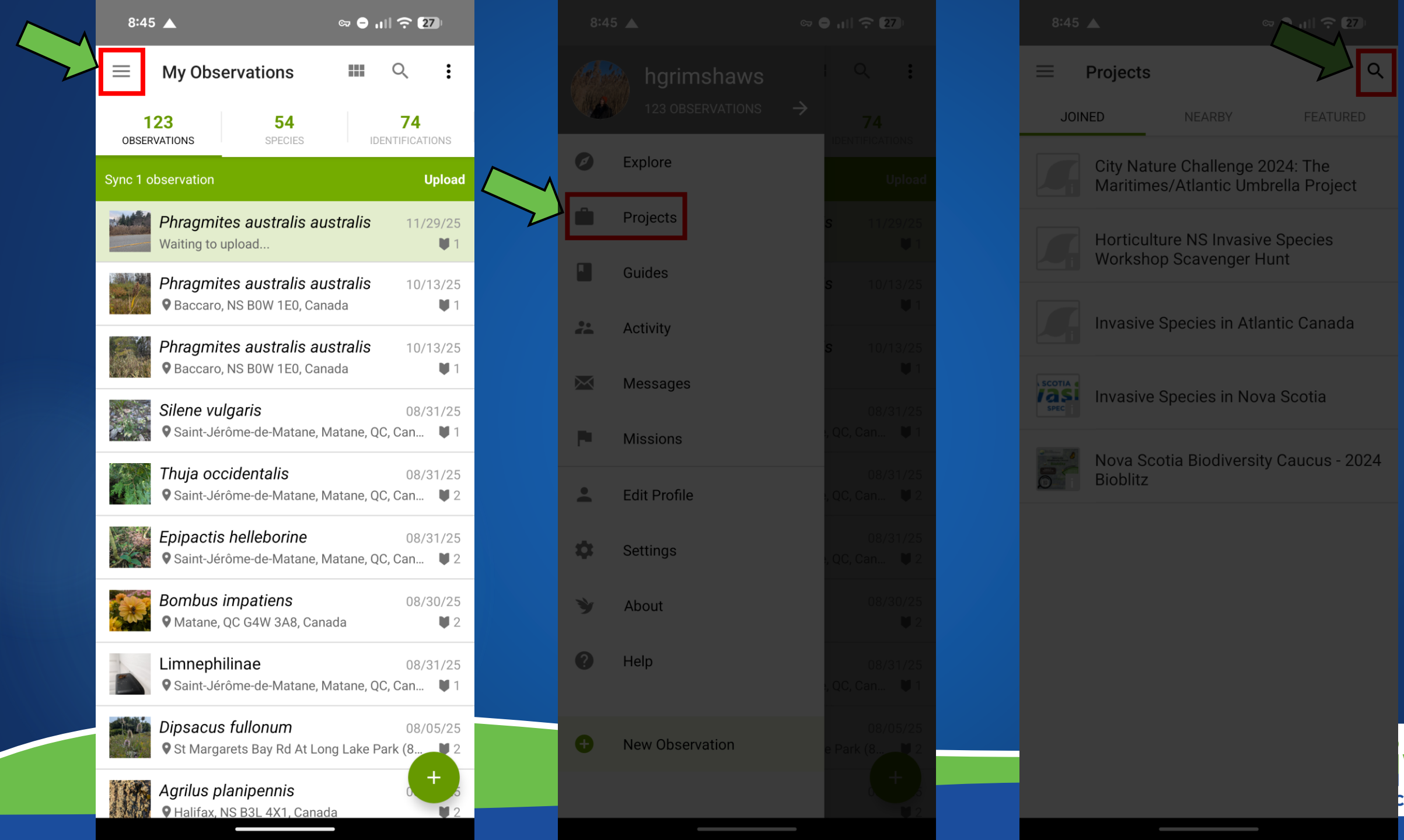

7:00
East Dover, NS B3Z 3W4, Ca...
44.50 , -63.85 Acc. 25
Geoprivacy: Open
Search
E Dover Rd
Crescent Clay
Google



Don’t select this for true reports
this makes the report casual grade

NOVA SCOTIA invasive SPECIES COUNCIL

Any Questions?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Upload
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11/29/25
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1
Phragmites australis australis
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Baccaro, NS B0W 1E0, Canada
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Silene vulgaris
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Saint-Jérôme-de-Matane, Matane, QC, Can...
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Bombus impatiens
08/30/25
Matane, QC G4W 3A8, Canada
2
Limnephilinae
08/31/25
Saint-Jérôme-de-Matane, Matane, QC, Can...
1
Dipsacus fullonum
08/05/25
St Margarets Bay Rd At Long Lake Park (8...
2
Agrilus planipennis
Halifax, NS B3L 4X1, Canada
2
hgrimshaws
123 OBSERVATIONS
Explore
Projects
Guides
Activity
Messages
Missions
Edit Profile
Settings
About
Help
New Observation
Projects
JOINED
NEARBY
FEATURED
City Nature Challenge 2024: The Maritimes/Atlantic Umbrella Project
Horticulture NS Invasive Species Workshop Scavenger Hunt
Invasive Species in Atlantic Canada
Invasive Species in Nova Scotia
Nova Scotia Biodiversity Caucus - 2024 Bioblitz

Any Questions?

Japanese Beetle

Popillia japonica

- First Canadian observation
  - Yarmouth 1939
- Abundant from July – August

- **Impacts**
  - Grubs feed on roots of turf lawns
  - Adults are aggressive feeders of over 250 host plants
    - Blueberries, roses, blackberries, grape vines, maples, etc.

Native to: Japan
NS Range: Mainland

NOVA SCOTIA invasive SPECIES COUNCIL

Japanese Beetle

Popillia japonica

Control Options

- Nematodes
  - Applied to turf in late summer/early fall
- Manual removal of adults
  - Knocking the beetles off into soapy water
- Pheromone traps
  - Effectiveness debated
  - Study has indicated increased abundance and spillover
  - Placement determines effectiveness.

Native to: Japan
NS Range: Mainland

NOVA SCOTIA invasive SPECIES COUNCIL

Common Reed

Phragmites australis australis

- Perennial wetland grass
  - Grows up to 5m!
- Introduced in the 1800s by seeds in soil ballasts or by horticulture trade
- Earliest record in Canada: Annapolis Royal in 1910
- Spreads through underground rhizomes, above-ground stolons, and seeds
  - Intentional plantings

Common names:

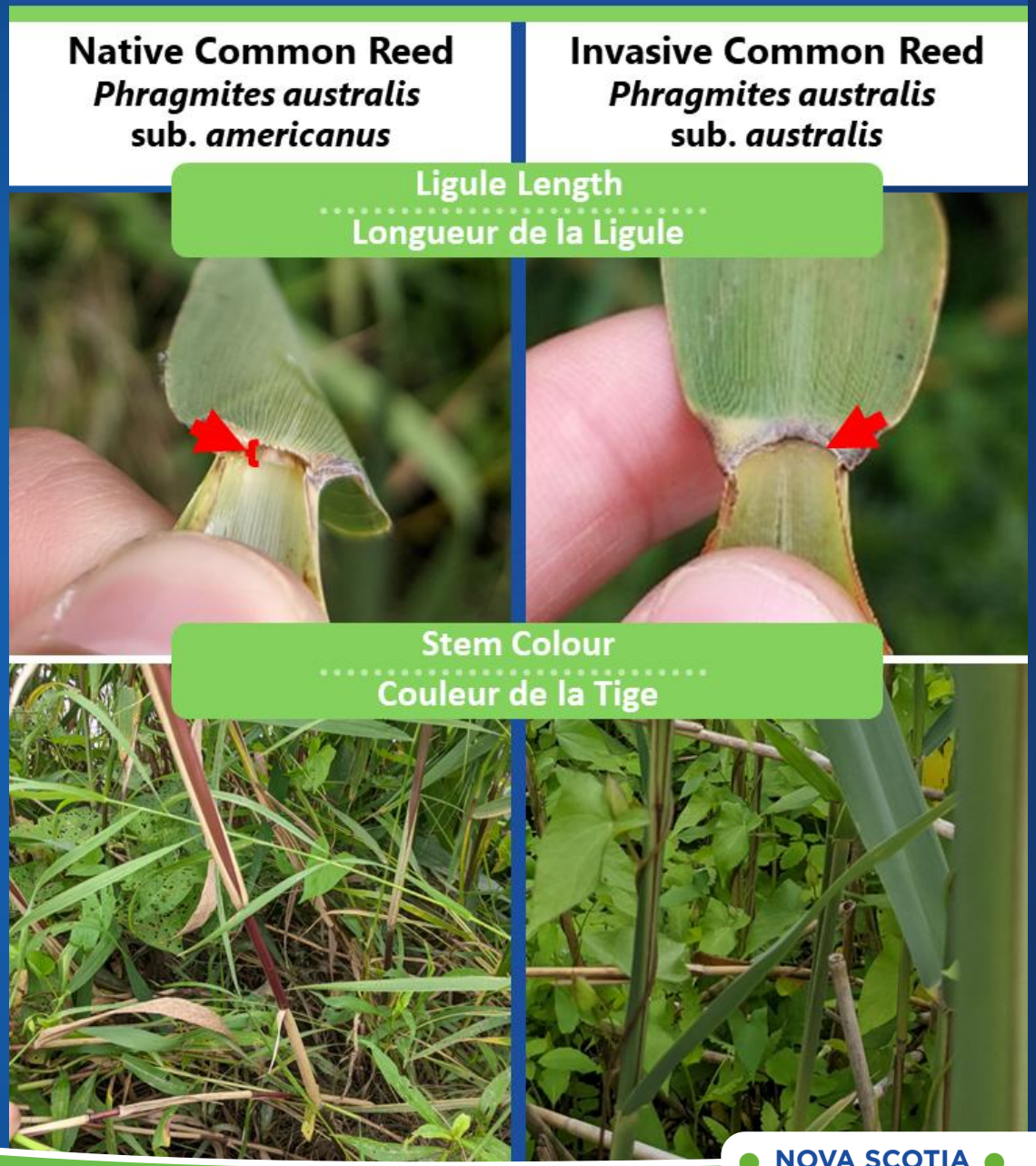
European Common Reed, Common Reed, Common Reed Grass, and Elephant Grass

Native to: Eurasia
NS Range: All Counties

NOVA SCOTIA invasive SPECIES COUNCIL

Invasive or Native Phragmites?

- Difficult to differentiate between the native and invasive subspecies
- Several characteristics should be examined
  - Stem colour
  - Leaf colour
  - Ligule length
  - Seed head



Native to: Eurasia
NS Range: All Counties

NOVA SCOTIA invasive SPECIES COUNCIL

Impacts of Invasive Phragmites

- **Biodiversity**
  - Out competes native plant species
  - Reduces habitat quality
- **Ecosystem function**
  - Reduces water levels
  - Flattens wetland topography
- **Infrastructure**
  - Invades agricultural fields
  - Block highway sightlines

Native to: Eurasia
NS Range: All Counties

NOVA SCOTIA invasive SPECIES COUNCIL

Jumping Worms

Amynthas spp., Metaphire spp., Pheretima spp.

- Rapidly change soil properties
  - E.g. Water retention, nutrient cycling
  - Alters soil structure, making it difficult for plants to grow in natural habitats
- Spread by contaminated soil

Photo credits: Helen Phillips/Erin Cameron

Identification

- Will thrash when disturbed
- Adults have a pale ring that circles the entire body (clitellum)

Native to: East and Southeast Asia
NS Range: Halifax

NOVA SCOTIA invasive SPECIES COUNCIL

Giant Hogweed

Heracleum mantegazzianum

- Threat to biodiversity and human health
- Giant hogweed sap contains toxins that when exposed to sunlight cause severe dermatitis
- If the sap gets in the eyes it can cause permanent blindness

Identification

- Grows very tall, 1.5 to 5 m!
- Thick, green/purple, bristly stems
- White, upwards facing flowers in summer, which can be up to 60 cm across!
- Pronounced jagged leaves up to 1.5 m wide and 3 m long

Giant Hogweed stems showing purple coloration and bristles

Native to: Europe and Asia
NS Range: Cape Breton, Cumberland, Kings, Halifax

NOVA SCOTIA invasive SPECIES COUNCIL

Giant Hogweed Look A Likes

Invasive

Giant Hogweed

Invasive

Woodland Angelica

Angelica sylvestris

Native

Common Cow Parsnip

Heracleum maximum

Invasive

Queen Anne's Lace

Daucus carota

Glossy Buckthorn

Frangula alnus

- Forms dense stands which can replace wetland and shoreline plant communities and take over forest understories, even eliminating tree seedlings.
- Reduces biodiversity

Identification:

- Glossy oval leaves with prominent veins with smooth leaf edges
- Blackish-brown bark and spotted gray, inner bark yellow
- Produces red berry-like fruits which turn black when ripe

Native to: Asia, North Africa, & Europe
NS Range: Wide Spread

NOVA SCOTIA invasive SPECIES COUNCIL

Native to: Europe

Scotch Broom

Cytisus scoparius

- Invades sunny, disturbed sites such as rangelands, roadsides, and areas of recent logging
- Lives up to 25 years and produces seeds that survive for 30 years in the soil
- Identified by its yellow flowers, flat pod-shaped fruit and green stems

Impacts

- Shades out native plant species
- Toxic to livestock
- Increase forest fire intensity

Japanese Knotweed

Reynoutria japonica

- Grows in urban habitats and thrives in full sunlight
- Grows in thick clumps that block out sunlight, effectively shading out native species and reducing biodiversity

Identification

- Oval to triangular leaves with flat base
- Stems are hollow and smooth
- Blooms in August
- Winged, triangular, small, and shiny fruit
- Grows in large bamboo-like clumps.

Native to: Eastern Asia
NS Range: All Counties

NOVA SCOTIA invasive SPECIES COUNCIL

Multiflora Rose

Rosa multiflora

- Woody shrub that grows up to 3 m tall and 4 m wide
- Introduced as an ornamental plant in the late 1800s and early 1900s
- Animals disperse their seeds
- Can spread vegetatively as well

- **Impacts**
  - Outcompete most native plants, and reduces biodiversity in habitats where it established

Native to: Eastern Asia
NS Range: All Counties

NOVA SCOTIA invasive SPECIES COUNCIL

Goutweed

Aegopodium podagraria

- Perennial ground cover
- Spreads primarily through rhizomatous growth, up to 70 cm a year!
- Seeds aid in dispersal as well
- Brought as an ornamental ground cover

- **<u>Impacts</u>**
  - In closed-canopy forests, it produces dense vegetative mats that outcompete native plant species for resources.
  - Significantly reduces biodiversity

Native to: Europe & Northern Asia
NS Range: All Counties

NOVA SCOTIA invasive SPECIES COUNCIL