

Terrestrial Invasive Plant Early Detection

Monika Chandler, Minnesota Department of Agriculture

Roger Becker, University of Minnesota

Laura Van Riper, Minnesota Department of Natural Resources

Early Detection Targets

- Target plant species criteria
 - High invasive potential
 - Limited distribution
- Prevent establishment and spread
- Minimize economic and environmental damage

Narrowleaf bittercress,
Cardamine impatiens



Invasive Potential



Oriental bittersweet, *Celastrus orbiculatus*



Japanese hops, *Humulus japonicus*

Strategic Eradication

- Isolated infestations
 - Founder populations and Allee effects
 - Breeding system, self-incompatibility, pollen limitations
- When is eradication cost-effective?
 - Infestations total < 1 hectare (2.5 acres)
 - Infestations total up to 1,000 hectares (2,471 acres)
 - Possible, but very expensive

Rejmánek and Pitcairn (2002) When is eradication of exotic pest plants a realistic goal?

Early Detection Targets



Black swallow-wort, *Cynanchum louiseae*

Scientific name	Common name	
<i>Cardamine impatiens</i>	Narrowleaf bittercress	Map it!
<i>Celastrus orbiculatus</i>	Oriental bittersweet	Map it!
<i>Centaurea solstitialis</i>	Yellow starthistle	Map it!
<i>Centaurea x moncktonii</i>	Meadow knapweed	Map it!
<i>Cynanchum louiseae</i>	Black swallow-wort	Map it!
<i>Digitalis lanata</i>	Grecian foxglove	Map it!
<i>Dipsacus fullonum</i>	Common teasel	Map it!
<i>Dipsacus laciniatus</i>	Cut-leaved teasel	Map it!
<i>Inula britannica</i>	British yellowhead	Map it!
<i>Linnaria dalmatica</i>	Dalmatian toadflax	Map it!

www.mda.state.mn.us/en/plants/pestmanagement/weedcontrol/terrestrial.aspx

Who finds these invasive plants?



Terrestrial Invasive Plant Early Detection Program

- Plant ID
- Mapping
- Compile suggested practices
- Coordinate management efforts
- Communicate with land managers in Minnesota and neighboring states
- Present species of concern to the noxious weed advisory committee



Yellow starthistle, *Centaurea solstitialis*

Terrestrial Invasive Plant Distribution Information Sharing

- Alert partners on invasion fronts
 - Efficient early detection programs
- Improve weed management coordination
- Increase our understanding of weed density and movement
 - Strategic resource allocation



Oriental bittersweet, *Celastrus orbiculatus*

Terrestrial Invasive Plant Early Detection Mapping

The map on the right shows the reported locations of invasive plants and weeds of concern in Minnesota. Choose your species of concern to see reported locations as overlays or "clusters":



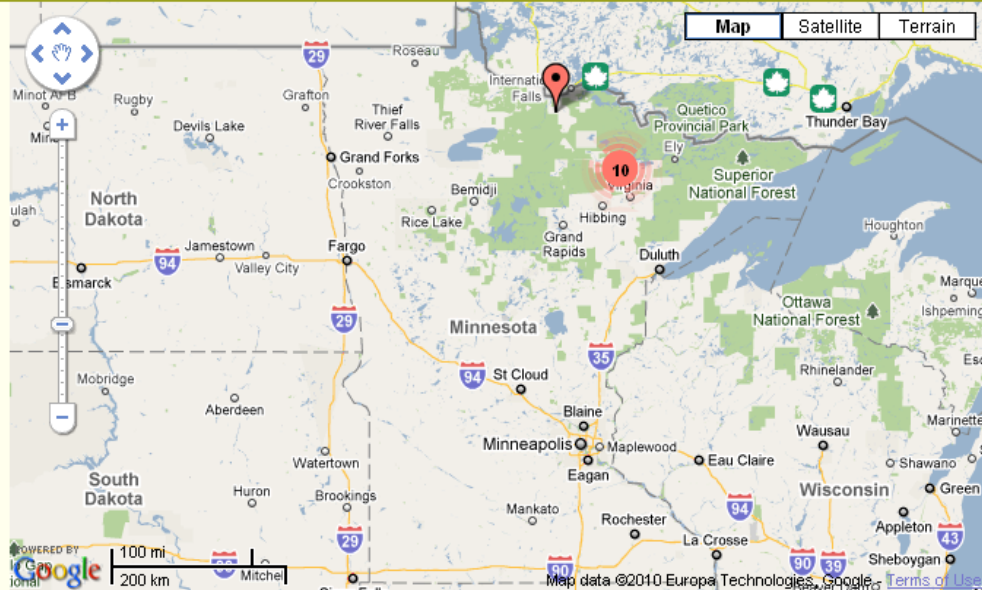
Clusters are color-coded based on the total number, shown in the middle of the symbol. Click on the cluster to zoom in closer.

Meadow knapweed

Scientific Name:
Centaurea x moncktonii
Minnesota-Area reports:
11

To enter your own observations or see more species, visit our partners:

EDDMapS
Early Detection & Distribution Mapping System



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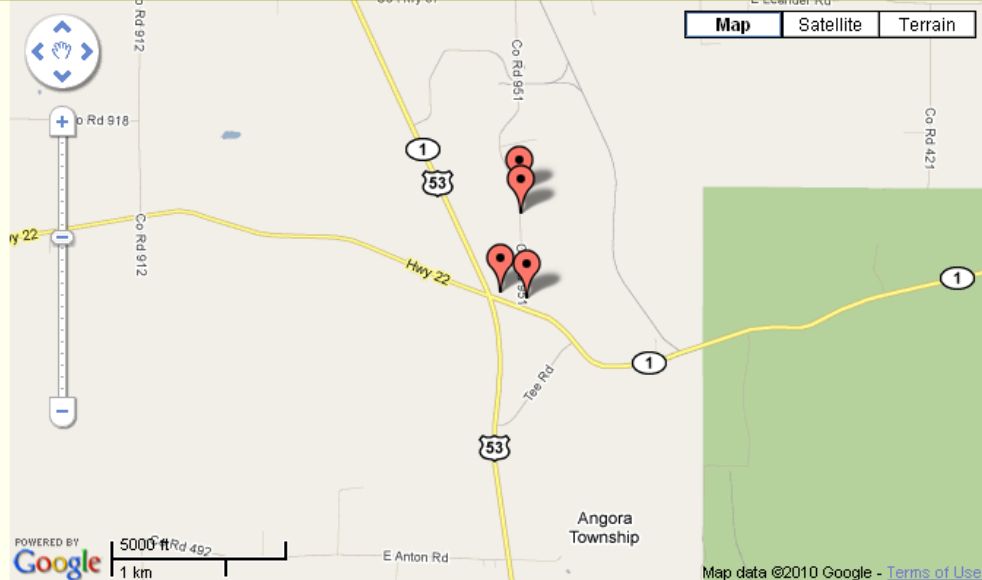
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meadow knapweed

USDA PLANTS Symbol: CEMO6
Invasive Plant Atlas

Centaurea x moncktonii C. E. Britton

Distribution Maps: [State](#) / [County](#) / [Southeast](#) / [Points on Google Maps](#)

Record ID:	632871
Location:	St. Louis County, Minnesota
Source:	Monika Chandler, Minnesota Department of Agriculture
Abundance:	Dense Monoculture
Locality:	NE corner of Hwy 53 and Hwy 1
Comments:	Infestation was reported by T. Jacobson (Mn/DOT). T. Jacobson and G. Kuyava had the species identified by several botanists and reported the infestation.
Area Infested:	4 acres
Coordinates:	47.779741, -92.65484
NADatum:	WGS84
Data Type:	Polygon
Site Name:	Angora01
Identified by:	Definitive identification by Dr. Schimpf and Dr. Pomoroy with UMD
Canopy Cover:	High
Herbarium:	Olga Lakela Herbarium at the University of Minnesota, Duluth - Record ID:
Status:	Not Verified
Observation Date	September 6, 2005
Date Entered	January 6, 2010



Photo Caption: meadow knapweed flower, T. Jacobson



Photo Caption: meadow knapweed infestation, T. Jacobson



Objectives

- Notify early detection coordinators and land managers about target species
 - Additional network development needed
- Receive data from land managers
- Coordinate management
- Monitor infestations

Grecian foxglove, *Digitalis lanata*

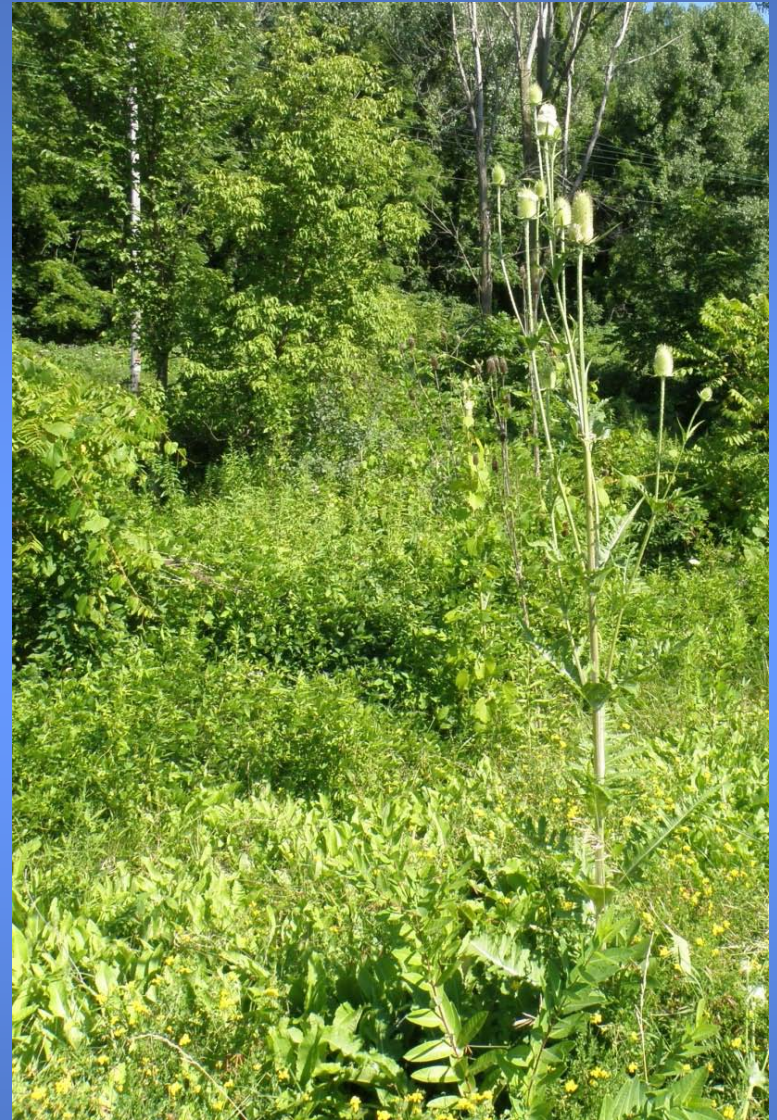


Contact Information

Monika Chandler, 651-201-6537
MN Dept. of Agriculture
Monika.Chandler@state.mn.us

Roger Becker, 612-625-5753
University of Minnesota
becke003@umn.edu

Laura Van Riper, 651-259-5090
MN Dept. of Natural Resources
Laura.Vanriper@state.mn.us



Cutleaf teasel, *Dipsacus laciniatus*