

GLDIATR: Protecting the Great Lakes from Internet Trade of AIS

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Upper Midwest Invasive Species Conference
October 18, 2016 | LaCrosse, Wisconsin



GLDIATR Great Lakes Detector of Invasive Aquatics in Trade

Internet as an AIS Pathway

- Organisms in trade
 - Intentional and unintentional releases of live organisms that are bought and sold for use in aquariums, nurseries, water gardens, classrooms, aquaculture, as live bait, etc.
- Internet facilitates trade
- WWW is vast and changing
- Species of concern are being sold
- Patchwork of species regulations



Internet Pathway Assessment

- Who...
 - Is selling species we're concerned about?
- What...
 - Species are available for sale?
 - Are regulations/potential invasiveness communicated?
- Where...
 - Website address
 - Physical location



Objectives

Phase I (2012 – 2016)

- Develop and demonstrate software to assess the availability of invasive species via Internet sales
- Provide information and management tools
- Present information on the Internet marketplace, including risks and options for management

Funding: FY12 Great Lakes Restoration Initiative EPA grant

Phase II (2016 – 2018)

- Establish a multi-stakeholder advisory board to oversee upgrades and implementation of GLDIATR
- Enhance the user-based functionality and features of GLDIATR
- Integrate GLDIATR into the day-to-day work of target user groups, including enforcement officers and outreach coordinators
- Ensure delivery of accurate, high-quality information through GLDIATR
- Implement regionally coordinated outreach to Internet-based retailers.

Funding: FY15 Great Lakes Restoration Initiative EPA grant



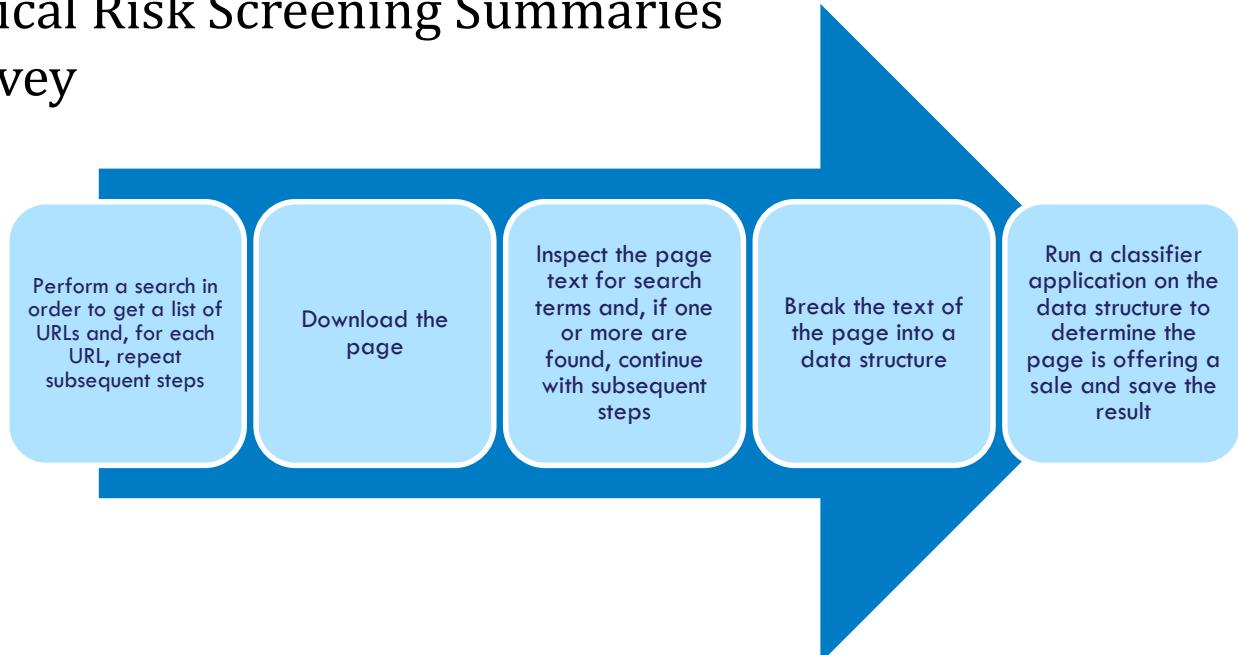
GLDIATR

GLDIATR is able to scan up to 582,000 web-pages per month.

Species Watch List – 166 species:

- Non-native aquatic species prohibited or regulated by Great Lakes states and provinces (IN, IL, MI, MN, NY, ON, OH, PA, QC, WI)
- GLANSIS Watch List
- GLMRIS Watch List
- U.S. FWS Ecological Risk Screening Summaries
- Stakeholder survey

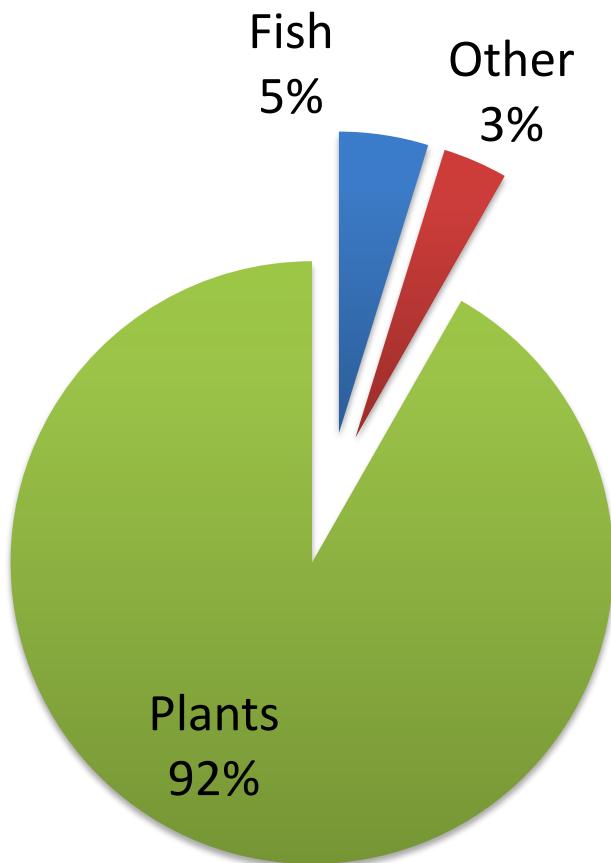
Figure 1. Typical GLDIATR work flow



RESULTS AND ANALYSIS



Species Results



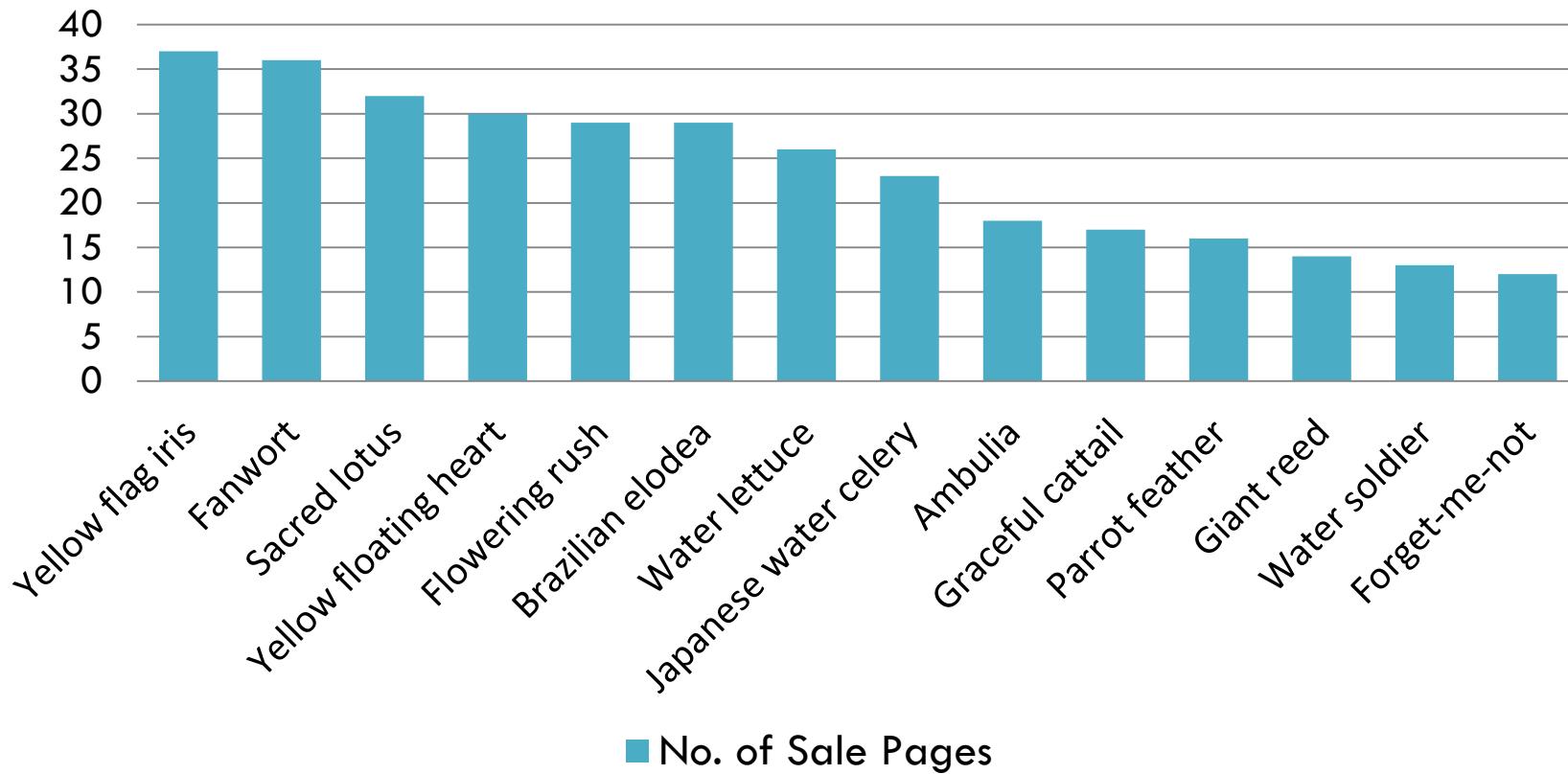
Percentage sale pages by group
(Total number of sale pages = 514)

No. of species found	58 (of 166)
Plants	40
Fishes	11
Other	7
Regulated	49
Non-regulated	9



Species Results

Top 15 Species



Species Results

Great Lakes Governors/Premiers “Least Wanted” AIS	Number of sale pages
Brazilian elodea (<i>Egeria densa</i>)	29
Parrot feather (<i>Myriophyllum aquaticum</i>)	16
Water soldier (<i>Stratiotes aloides</i>)	13
Water chestnut (<i>Trapa natans</i>)	5
Hydrilla (<i>Hydrilla verticillata</i>)	4
Yabby (<i>Cherax destructor</i>)	3
Grass carp (<i>Ctenopharyngodon idella</i>)	1



Species Results

No. of Jurisdictions (N=12) Regulating Species Available for Sale (N=58)





Fanwort
Cabomba caroliniana

- Regulated in: IL, MI, MN, NY, WI
- 1 year management cost at 1 site in Netherlands > US\$480,000 (Matthews et al. 2013)



Brazilian Elodea
Egeria densa

- Regulated in: IL, IN, MI, MN, NY, WI
- \$150,000, 2 year eradication effort in 109 acre lake – Monroe Co., Indiana
 - \$1,400 / acre (Fischer 2016)



Parrot feather
Myriophyllum aquaticum

- Regulated in: IL, IN, MI, MN, NY, WI
- >\$50,000, 3 year eradication effort in 18 acre lake in Steuben Co., Indiana
 - \$2,800/acre (Fischer 2016)
- Priority in Michigan for detection & response



Water Soldier
Stratiotes aloides

- Regulated in: IL, MN, WI
- Active control and eradication program in Ontario's Trent-Severn Waterway





Water Hyacinth
Eichhornia crassipes

- Regulated in: IL, MN, WI
- Millions spent annually to control in Florida
- Active response effort in Lake Onalaska, Wis.
- Priority in Michigan for detection & response



European Frogbit
Hydrocharis morsus-ranae

- Regulated in: IL, IN, MI, MN, NY, WI
- Active detection and treatment program in MI (identified as a priority species; funding multiple projects to map and treat)



Eurasian water milfoil
Myriophyllum spicatum

- Regulated in: IL, IN, MI, MN, NY, WI
- Active management programs in MN and WI
- Active research programs on potential biocontrol and other treatments



Hydrilla
Hydrilla verticillata

- Regulated in: IL, IN, MI, MN, NY, WI & a federal noxious weed
- Active response, control and eradication efforts in IN (\$2.6M & 9 yrs - 809 acre lake), NY and OH



Website Results

- 200 total (unique) websites
 - 125 will ship to the Great Lakes region*
 - 63% located in U.S.

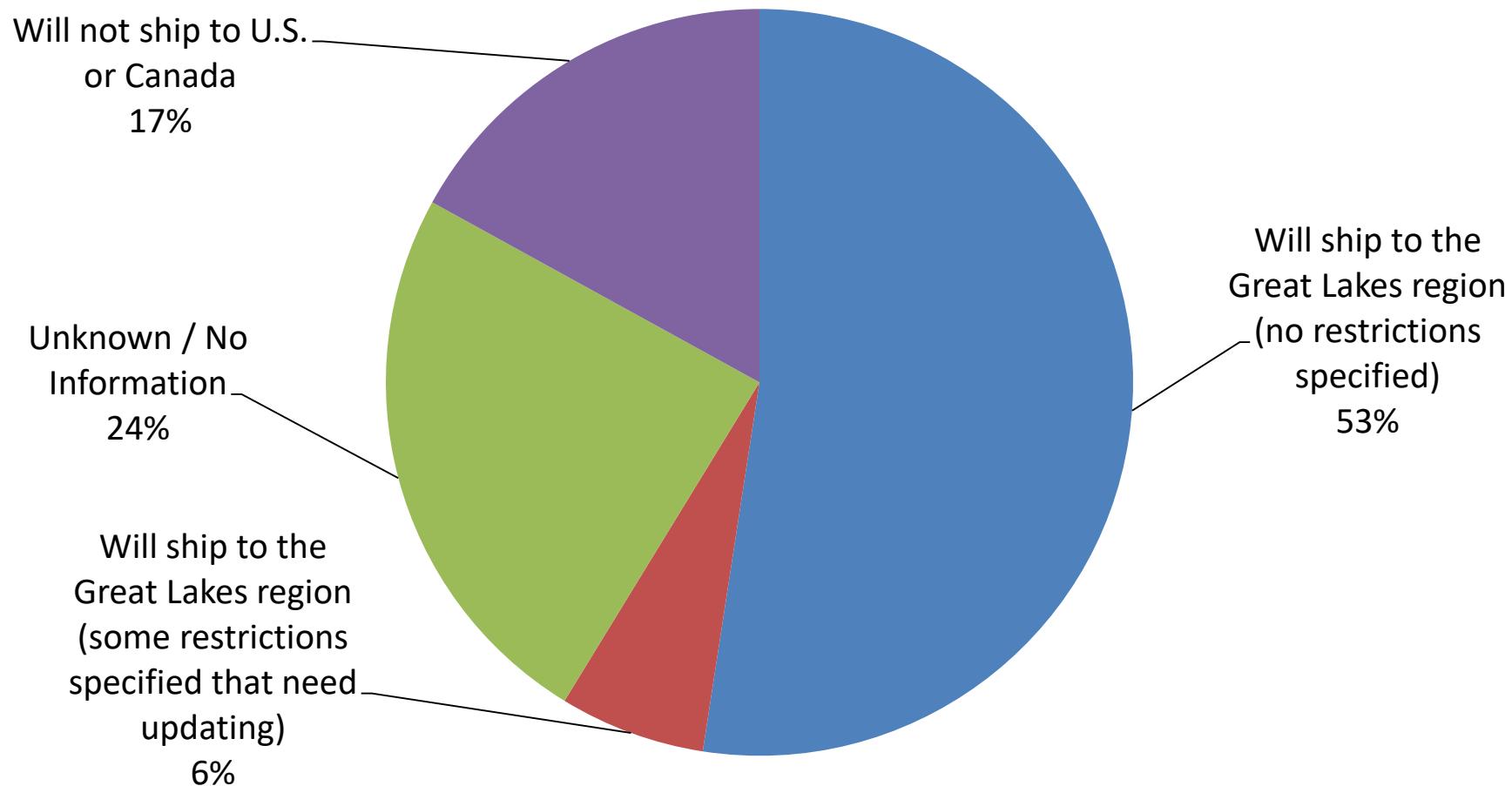
* Does not include sites for which shipping restrictions could not be determined

Top websites selling to the Great Lakes (most sale pages)

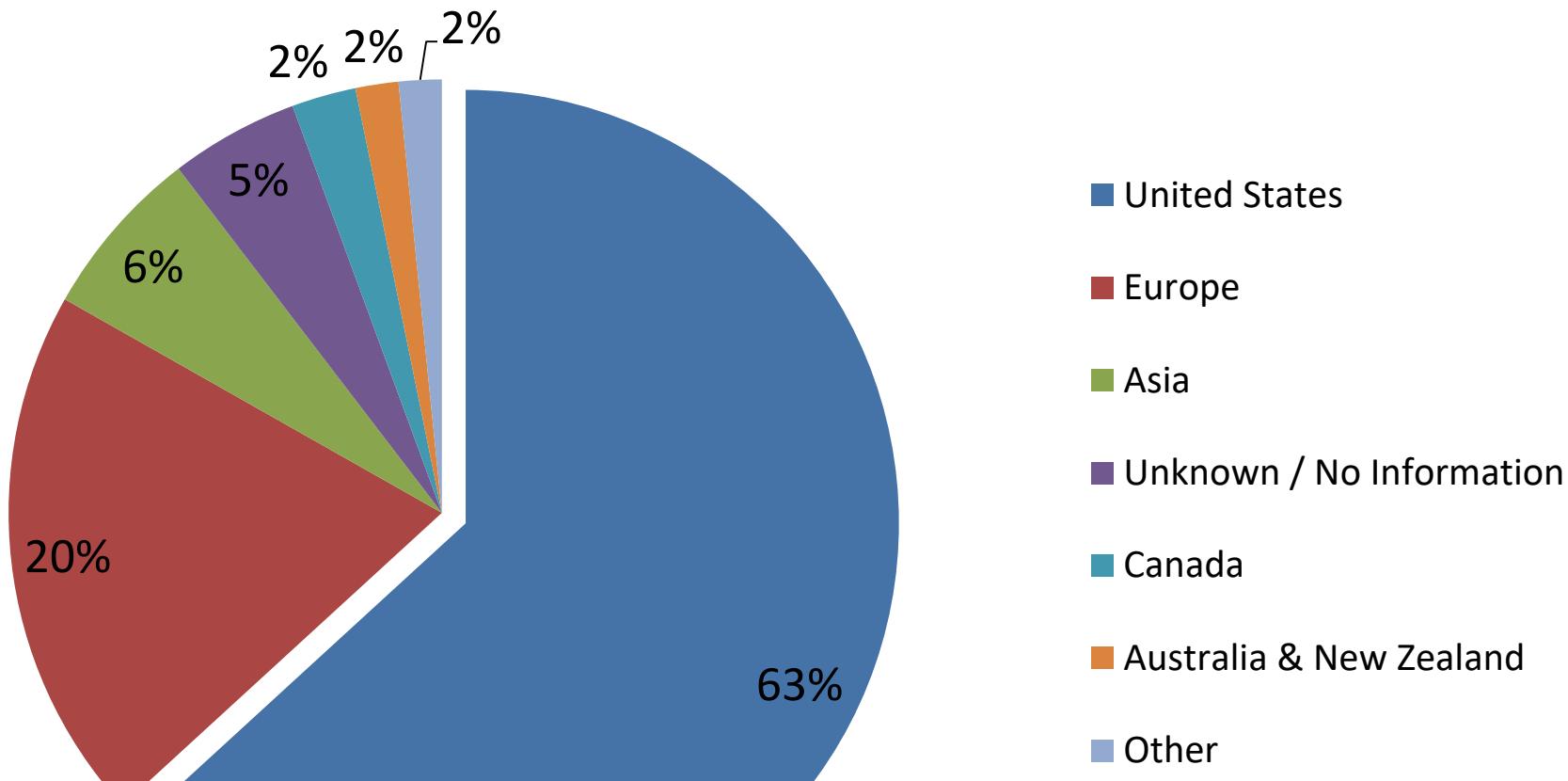
http://www.ebay.com/	24
http://www.amazon.com/	11
http://www.liveaquaria.com/	10
http://www.pondmegastore.com/	9
http://www.aquariumplants.com/	9
http://www.primrose.co.uk/	8
http://www.thegreenmachineonline.com/	7
http://www.waterfordgardens.com/	7
http://www.pondsplantsandmore.com/	6



Shipping Restrictions by Website



Geographic Location of Sellers to the Great Lakes region



Includes Marketplace sites (e.g. eBay) which may reflect more than one location based on the seller



Seller Outreach

- Contacted 162 sellers via email (118), contact form (42), and letter (2)
 - sent July 2015
 - 11 non-automated responses
- 27 sellers made changes
 - 14 sites updated their shipping restrictions for at least one species
 - 14 sites appeared to remove at least one species from their inventory
 - one site made both shipping and inventory changes



Protecting the Great Lakes from the Internet Trade of Aquatic Invasive Species

How you can help

- ❖ **Replace** species in your inventory that are considered invasive to the Great Lakes with non-invasive alternatives.
- ❖ **Learn** about species regulations for Great Lakes states and provinces. *Remember, it is illegal to possess or sell some species!*
- ❖ **Inform** customers of species with invasive attributes and provide information on alternative and non-invasive species, species regulations and associated shipping restrictions, and proper disposal methods for unwanted organisms.
- ❖ **Clean and inspect** animals, plants, and packing materials prior to shipping to ensure that unwanted “hitchhiking” viruses, plants, or animals are removed.
- ❖ **Join** an invasive species awareness campaign, such as *Habitattitude*TM, and help educate customers.

See <http://bit.ly/1JRHOBC> for more information on these activities.



GLDIATR Great Lakes Detector of Invasive Aquatics in Trade

Jurisdiction	Invasive Species Regulation Information	Contact Information
Illinois	Illinois Injurious Species List and Regulations www.dnr.illinois.gov/adrules/documents/17-805.pdf Aquaculture Contacts & Regulations, Fish Importation Regulations & Approved Aquatic Species List www.ifishillinois.org/programs/aquaculture.html	Kevin Irons, Illinois DNR, Manager, Aquaculture and Aquatic Nuisance Species Program, kevin.irons@illinois.gov
Indiana	AIS Illegal Possession Rules www.in.gov/dnr/fishwild/files/fw-AIS_PossessionRules.pdf Indiana Aquatic Invasive Species Information www.in.gov/dnr/fishwild/3628.htm	Eric Fischer, Indiana DNR, Aquatic Invasive Species Coordinator, efischer@dnr.in.gov
Michigan	Michigan Invasive Species Laws www.michigan.gov/dnr/0,4570,7-153-10370_59996-270798--,00.html	<i>Plants and insects:</i> Mike Bryan, Michigan DARD - Pesticide & Plant Pest Management Division, bryann@michigan.gov <i>All other species:</i> Seth Herbst, Michigan DNR - Fisheries Division, herbstS1@michigan.gov
Minnesota	Minnesota Invasive Species Laws www.dnr.state.mn.us/invasives/laws.html	Kelly Pennington, Minnesota DNR, AIS Prevention Coordinator, Kelly.pennington@state.mn.us
New York	New York Invasive Species Regulations www.dec.ny.gov/animals/99141.html	518-402-9405, isinfo@dec.ny.gov
Ohio	Ohio Administrative Code: Chapter 1501:31-19 Wild Animal Regulations codes.ohio.gov/oac/1501%3A31-19	Ohio Division of Wildlife, 1-800-WILDLIFE(945-3543), wildinfo@dnr.state.oh.us
Ontario	How Ontario Combats Invasive Species www.ontario.ca/environment-and-energy/how-government-combats-invasive-species Ontario Fishery Regulations laws-lois.justice.gc.ca/eng/regulations/SOR-2007-237	Natural Resources Information Centre, 1-800-667-1940, mnr.nric.mnr@ontario.ca
Pennsylvania	Aquatic Invasive Species www.fishandboat.com/ais.htm Pennsylvania Noxious Weed List www.pacode.com/secure/data/007/chapter110/chap110toc.html Pennsylvania Code, Title 58 (See Chapters 63, 71, 73, 137) www.pacode.com/secure/data/058/058toc.html	Jim Grazio, Pennsylvania DEP, jagrazio@state.pa.us
Quebec	Regulation respecting aquaculture and the sale of fish www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/C61_1/C61_1R7_A.HTM	<i>Aquatic invasive animal species:</i> Ministère des Forêts, de la Faune et des Parcs, 1-877-346-6763, services.clientele@mffp.gouv.qc.ca <i>Aquatic invasive plant species:</i> Ministère du Développement durable, de l'Environnement et de la Lutte aux changements climatiques, 1-800-561-1616, info@mddelcc.gouv.qc.ca
Wisconsin	Wisconsin Invasive Species Rule (NR 40) dnr.wi.gov/topic/invasives/classification.html	Dreux Watermolen, Wisconsin DNR, Science Information Services Section Chief, Dreux.Watermolen@wisconsin.gov
United States	Noxious Weed List: 7 U.S.C. 2801 et seq plants.usda.gov/java/noxious Lacey Act Injurious Wildlife: 50 C.F.R. §16.1 et seq www.fws.gov/injuriouswildlife	
Canada	Aquatic Invasive Species Regulations (SOR/2015-121) laws.justice.gc.ca/eng/regulations/SOR-2015-121/index.html	



SUMMARY AND NEXT STEPS



Summary (Phase I)

- Internet trade is an issue
 - High-risk species are available
 - Appears consistent with what is known about species common to trade pathway (e.g., popular water garden and aquarium plants)
 - Domestic AND International sources
 - Finding species that are actively managed
- Assessment tool: useful as an indicator of what is in trade, inc. emerging species of concern
- Prioritization tool: target management activities, prevalence in trade



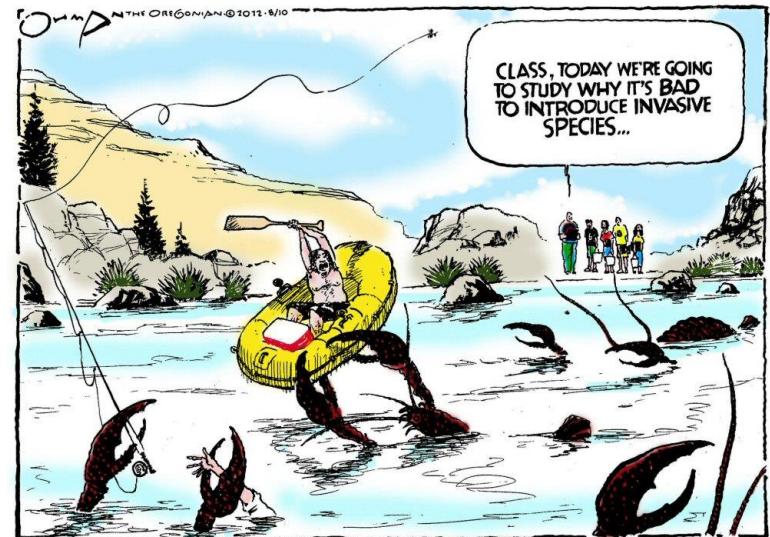
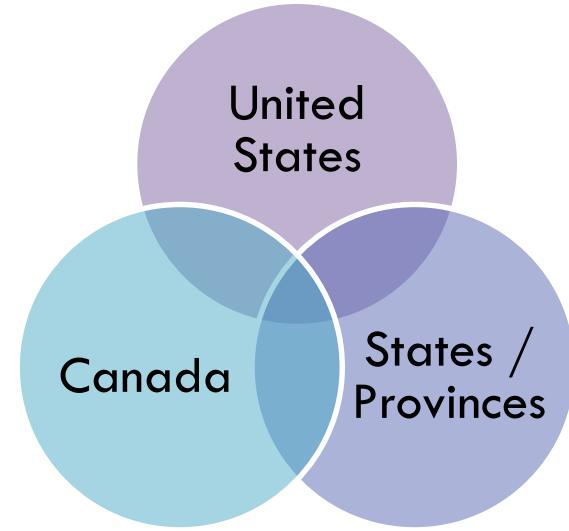
Next Steps (Phase II)

- Implement GLDIATR enhancements
 - Geographic location information
 - Case management system
 - Improved reporting
- System updates
 - Update SWL
 - Direct more search effort to priority species
 - Improve classification
- Work with Advisory Committee & Users
 - Input on system enhancements and updates
 - Target and implement management activities to reduce species availability
 - User training workshops



Beyond GLDIATR

- Harmonization of species rules
 - U.S. and Canada
 - CGLSLGP AIS Task Force
- Coordination of management across jurisdictional boundaries
- Partnerships with industry
 - Marketplace sites (Amazon, eBay)
- Outreach and education
 - Retailers
 - Regulations
 - Native alternatives
 - Best practices
 - Consumers
 - Choosing species – appropriateness and native alternatives
 - Do not release



Acknowledgments

- **GLC Staff**

Tim Eder, Steve Cole, Christine Manninen, Guan Wang, Jeff McAulay, Greg Parrish, Beth Wanamaker, Katherine Hollins, Sarah Cook, Lisa Denys, Ceci Weibert, Melanie Adam, Bryan Comer, Margaux Valenti, Amanda Sweetman

- **RightBrain Networks**

Jamie Begin, Mike Gimbel, Donna Campbell

- Dr. Bing Liu, Technical Advisor, UIC

- U.S. Environmental Protection Agency

