

GLDIATR: Protecting the Great Lakes from Internet Trade of AIS

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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



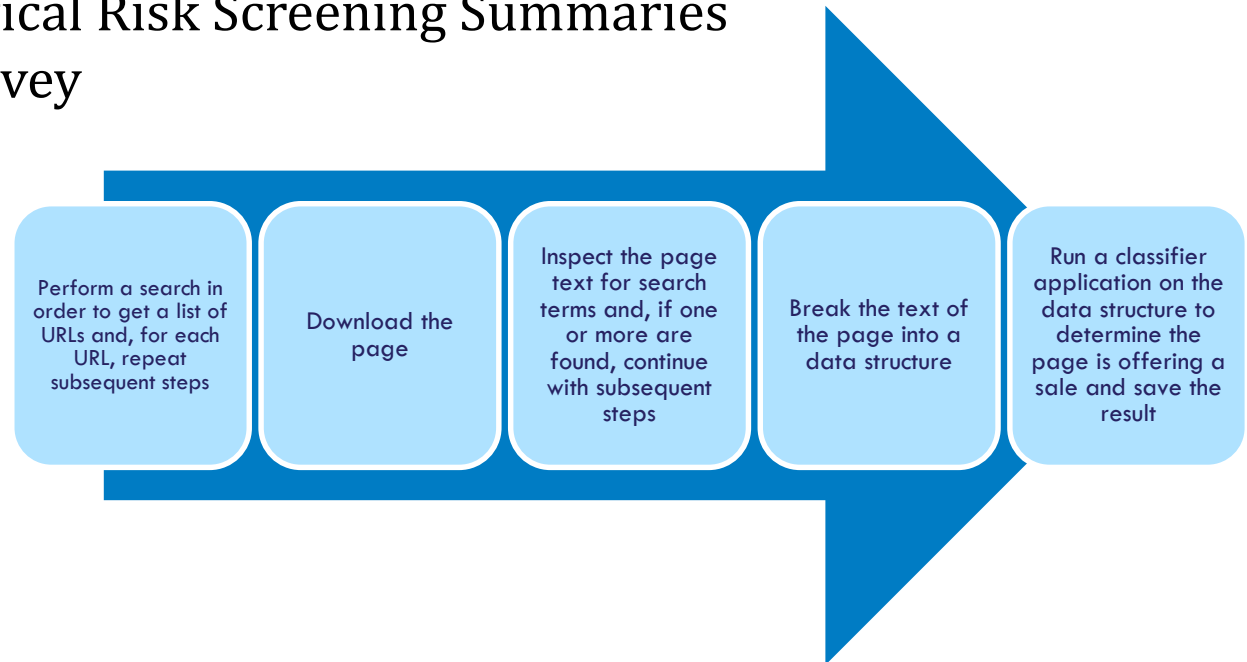
GLDIATR

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

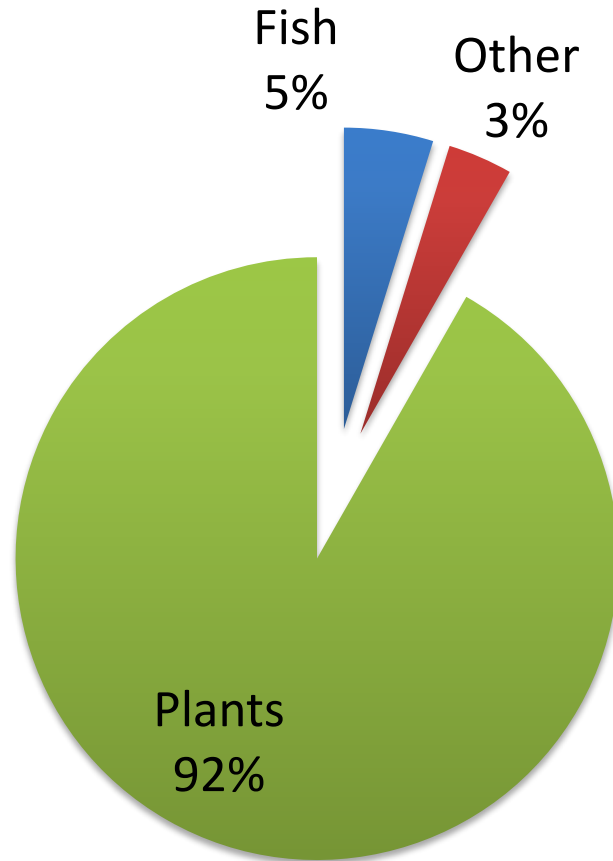
Figure 1. Typical GLDIATR work flow



RESULTS AND ANALYSIS



Species Results



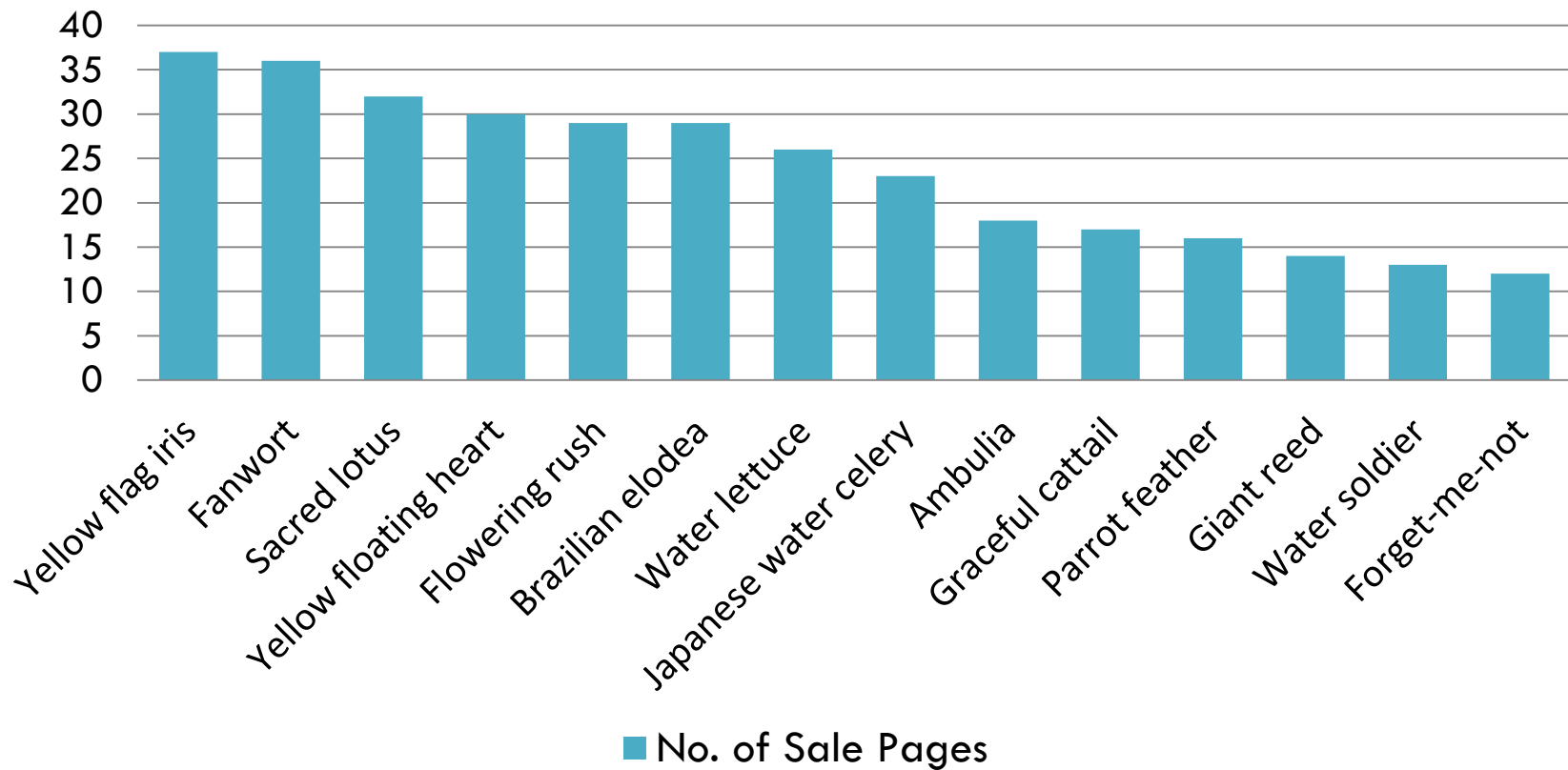
No. of species found	58 (of 166)
Plants	40
Fishes	11
Other	7
Regulated	49
Non-regulated	9

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



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.

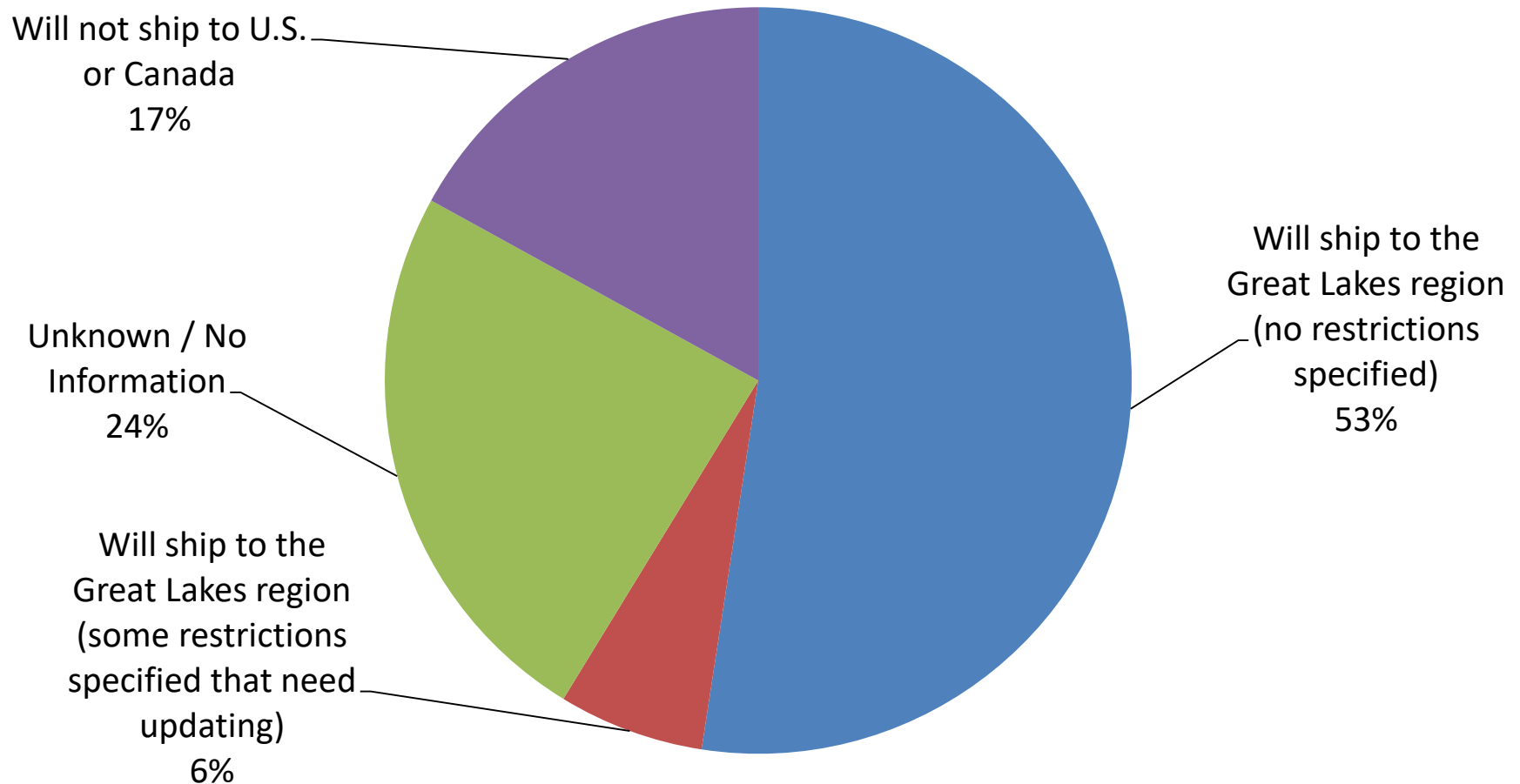
* Does not include sites for which shipping restrictions could not be determined

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

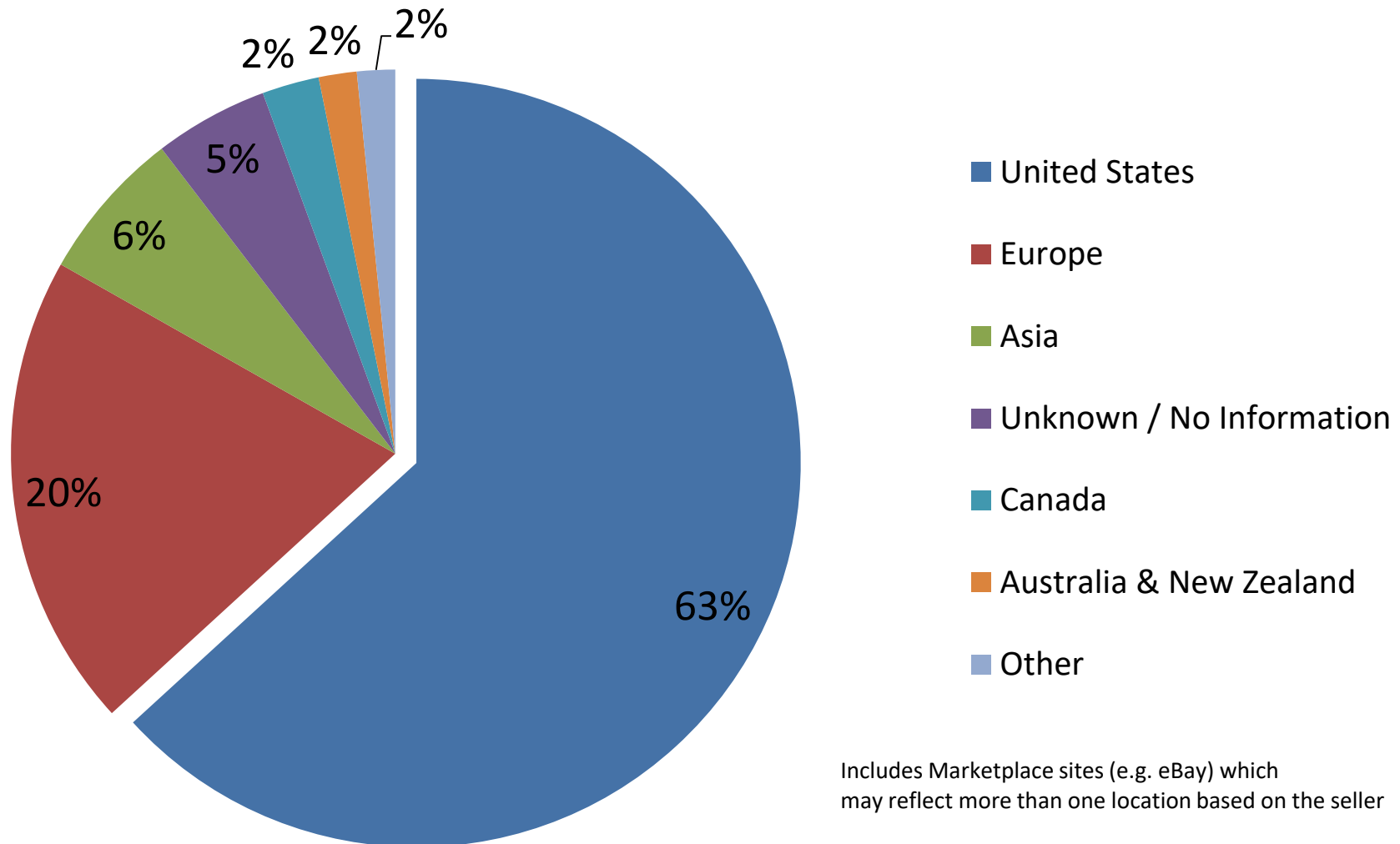
http://www.ebay.com/	24
http://www.amazon.com/	11
http://www.liveaquaria.com/	10
http://www.pondmegastore.com/	9
http://www.aquariumplants.com/	9
http://www.primrose.co.uk/	8
http://www.thegreenmachineonline.com/	7
http://www.waterfordgardens.com/	7
http://www.pondsplantsandmore.com/	6



Shipping Restrictions by Website



Geographic Location of Sellers to the Great Lakes region



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™*, and help educate customers.

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



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.iron@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, bryanm@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=/C_61_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



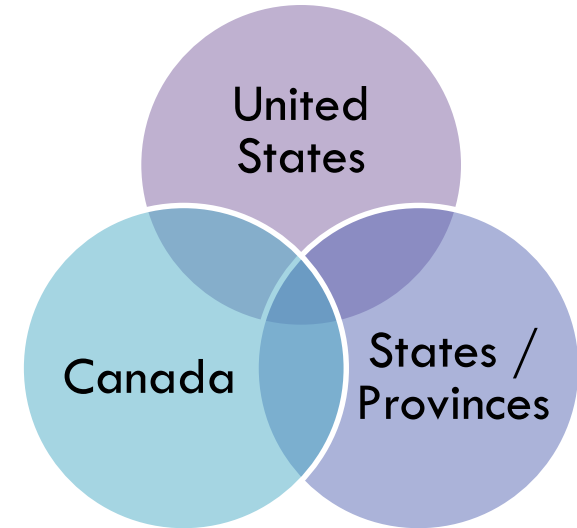
Next Steps (Phase II)

- 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



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