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Report to the Second Regular Session of the 123rd Legislature

Resolve 2007, Chapter 21

“Resolve, Directing the Department of Agriculture, Food and Rural Resources to Study Invasive Terrestrial Plant Species”

Submitted by the Department of Agriculture, Food and Rural Resources

February 1, 2008

Introduction

This legislation directed the Department to conduct a study to develop processes and criteria to assess the danger posed to naturally occurring ecosystems by invasive terrestrial plant species and to determine which invasive plant species are of significant concern. This issue has been gaining momentum within the state and throughout the region for the past several years. In 1996, the Maine Landscape and Nursery Association included this topic at their annual meeting. In 1999, a group spearheaded by a botanist at Acadia National Park produced a brochure entitled Gardening to Conserve Maine's Native Landscape. It suggested alternative native plants to replace those considered invasive. In 2001, the Maine Natural Areas Program produced and the University of Maine Cooperative Extension printed invasive plant fact sheets to complement the 2000 Maine Invasive Plant Survey Atlas, an effort to collect field data on invasive plants in Maine. Much of this data has been added to the Invasive Plant Atlas of New England (IPANE) database. Three years later, the Department produced a brochure describing methods for identifying and managing giant hogweed, a federal noxious weed. That same year it also distributed another brochure regarding purple loosestrife control. In 2006, the New England Invasive Plant Center hosted a meeting for horticulture industry members focusing on invasive plants. The general consensus from the group at this meeting was that the industry needed to be part of the solution by supporting regulation in the future rather than adding to the problem.

Within the past several years Vermont, New Hampshire, Massachusetts and Connecticut have passed regulations regarding the sale and possession of invasive terrestrial plants. All the outreach efforts, data collection and actions taken in other states will help Maine take advantage of available resources and learn from the successes and the failures occurring in our neighboring states.

Approach

The resolve was very clear that this process needed to be inclusive, requiring input from a variety of stakeholders. This is a contentious issue for members of the horticulture industry concerned about the effect on their livelihood while land managers have witnessed the negative impacts invasive plants have on natural areas. With this in mind, the Department convened a public meeting in September 2007 to discuss the invasive plant issue. The assembled group agreed that it was important to look at natural areas in Maine to see which plants are having an impact. They also agreed there should continue to be an effort to provide education and outreach on this topic. Also, they felt Maine should not reinvent the process, but use the work done in the other New England states.

In October 2007, a steering committee, appointed by the commissioner, met to work on the details of the resolve. Members represented the horticulture industry, environmental interests, education and the public. They met three times during the fall, reviewed what had been done in the New England states and agreed on the criteria used in Massachusetts as a basis for our efforts in Maine. Throughout the process minutes, of the

meetings were posted on the Department's web site. The steering committee identified three items written in the resolve to be included in this report:

1. A list of criteria or process for evaluating invasive terrestrial plants.
2. A preliminary list of invasive terrestrial plants.
3. A list of suggestions for preventing introduction and further distribution of these plants.

Criteria for Evaluating Invasive Terrestrial Plants

The draft criteria developed by the steering committee are attached (Appendix 1). During the process of developing the criteria a number of different factors were discussed. The steering committee decided that *prevention* is the key when dealing with any type of invasive species, because once a species is established it is very difficult to control. They also noted the criteria needed to address *potentially invasive plants* not currently established in Maine. Furthermore, they agreed it was important to collect information from neighboring states and provinces, because Maine shares similar climate and growing conditions with Canada more often than states to the south.

There was a lot of discussion regarding hardiness zones and how plants would act in different parts of the state. For example, a plant might have invasive growth traits in York, but would be nonaggressive in Houlton. The steering committee discussed this issue and concluded it would be difficult to monitor, because of the difficulty of tracking a plant to its final location. Following the example above, a plant could be purchased in Houlton, but then be planted in York.

The topic of whether to include cultivars in the list of invasive plants was discussed at length. A cultivar is a cultivated variety of a plant and is basically a subgroup of a species. Cultivars are important in the horticulture trade because they provide new types of plants in the market place. These plants usually vary from the species in that they have a consistent and often unique trait such as flower color, leaf shape or growth habit. Many claim that some cultivars grow differently from the species and therefore should be considered separately from the species when evaluating invasiveness. The steering committee decided that cultivars would be included with a species until scientific evidence is provided to prove the cultivar grows differently than the species.

A list of definitions is included with the criteria to clarify the meaning of a number of terms. Not all quantifying terms were defined such as "numerous" and "high numbers". This was to allow flexibility particularly if a species inhabited a specialized habitat. The steering committee acknowledged there would still be subjective interpretation using the criteria.

Preliminary List of Plants

The steering committee was able to evaluate a few plants to test the criteria. A datasheet was developed for each species to collect references specific to each plant. The committee relied on the Invasive Plant Atlas of New England (IPANE) website

(<http://nbiinin.ciesin.columbia.edu/ipane/>) for much of the information. This is a very valuable reference as it contains the most current data regarding distribution of some species in Maine. Once the datasheet was completed, a worksheet was used posing the criteria as questions to determine if specific plants met each of the criteria. A sample data sheet and work sheet are included with this report. (Appendix 2) The plants evaluated and the outcomes were as follows:

Lonicera morrowii (Morrow's honeysuckle) – Invasive
Elaeagnus umbellata (Autumn olive) – Invasive
Celastrus orbiculatus (Oriental bittersweet) – Invasive
Rhamnus cathartica (Common buckthorn) – Invasive
Rosa multiflora (Multiflora rose) – Invasive

The plants listed above are a preliminary list to use as examples to test the criteria. They do not represent a regulated list of plants.

This process of evaluating plants takes time and expertise, hence the short list of plants. Species with abundant information listed on the IPANE web site can be evaluated quite quickly. If a person must track down other referenced material to determine the invasive characteristics or distribution it can be very time consuming. When Massachusetts was developing their list, the state and private donors contributed \$71,000 to hire a consultant to help establish the process, vet the criteria and evaluate the 83 plants for invasiveness. (<http://massnrc.org/mipag/index.htm>) In Vermont the process for evaluating plants took several years, because the evaluations were completed by committee members as time permitted. The resources required to evaluate plants, must be a consideration as the state moves forward with this process.

Preventing the Introduction and Further Distribution of These Plants

In Maine, the Department licenses all businesses selling rooted plants. This program includes two nursery inspectors who regularly monitor these businesses for the presence of plant pests and substandard plant material. During their routine inspections these employees could also look for invasive plants being sold. It should be noted they already have some experience looking for invasive plants as the Department has partnered with the Department of Environmental Protection to keep an eye out for regulated invasive aquatic plants that might be sold at garden centers.

Outreach and education are important to the overall success of this initiative and will continue through various means. The Department will target the Maine horticulture industry through its nursery licensing database and interactions and contacts with professional associations such as Maine Landscape and Nursery Association, Ornamental Horticulture Council, and Maine State Florists' and Growers' Association. The University of Maine Cooperative Extension can help with education. The Department's membership with the National Plant Board will also allow interaction with other states regulating plant pests and invasive plants enabling contact with out-of-state plant dealers.

Throughout this process the Department has developed an email list of interested parties and will continue to keep them informed. The Department is also aware of the importance of utilizing IPANE volunteers, land managers and field botanists to collect field data regarding species impacting the Maine landscape.

Recommendations

These recommendations must be accomplished in the sequence as presented below.

1. Finalize and approve the criteria.
2. Designate and develop resources for an agency person and staff to perform or oversee the plant evaluations.
3. Establish a steering committee to review the results of the evaluations, provide additional input and approval of the listings.
4. Promulgate rules to formalize the criteria, process and terrestrial invasive plant list. These rules could be promulgated under the authority of 7 MRSA Chapter 405A.

Acknowledgements:

The Department would like to thank the following for their efforts:

Ann Gibbs, Maine Department of Agriculture – Committee Chair and Primary Author

Steering Committee Members

Ellen Blanchard, Public Member

Don Cameron, Maine Natural Areas Program, Department of Conservation

Mark Faunce, Ornamental Horticulture Council

Dale Pierson, Maine Landscape and Nursery Association

Nancy Sferra, The Nature Conservancy

Lois Stack, University of Maine Cooperative Extension

Appendix 1

Maine Criteria for Evaluating Non-Native Terrestrial Plant Species (Draft 12/07)

The following criteria must be met for a species to be considered in any of the three categories (**INVASIVE, LIKELY INVASIVE or POTENTIALLY INVASIVE**) of invasive plant. The species must:

1. Be non-native to Maine.
2. Have the potential for rapid growth, dissemination and establishment in minimally managed habitats.
3. Have the biological potential for widespread dispersion and for dispersing over spatial gaps.
4. Have the biological potential for existing in high numbers or large colonies away from intensively managed artificial habitats.
5. Have the potential to displace native species in minimally managed habitats.

Species to be designated INVASIVE must also meet all (6and7) of the following criteria. The species must:

6. Be widespread in a region or habitat type(s) in Maine. **AND**
7. Have many occurrences of numerous individuals or colonies that displace native species in minimally managed habitats in Maine.

Species to be designated LIKELY INVASIVE must meet the following criteria. The species must:

1. Be naturalized in Maine (persist without cultivation) and must meet one of the following criteria (2or3)
2. Have at least one occurrence in Maine that has high numbers of individuals forming dense stands in minimally managed habitats. **OR**
3. Have demonstrated to be invasive in nearby states and provinces or areas with similar climates, but its status in Maine is unknown or unclear. (this may result from lack of field experience with the species or from difficulty in species determination or taxonomy)

Species to be designated POTENTIALLY INVASIVE must meet all of the following criteria. The species must:

1. Have no known naturalized occurrences in Maine.
2. Have demonstrated to be invasive in nearby states and provinces or areas with similar climates.
3. Be anticipated to naturalize in Maine.

Definitions

Biological potential – The ability of a species to increase its numbers, either sexually and/or asexually

Invasive plant – A non-native species that has spread into native or minimally managed plant communities (habitats) in Maine. They cause economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to native species. *As defined here “species” includes all synonyms, subspecies, varieties, forms and cultivars of that species unless proven otherwise by a process of scientific evaluation.*

Likely invasive plant – A non-native species that is naturalized in Maine, but is not widespread, but has been found to be invasive in other states or provinces with similar climates.

Minimally managed habitats – Minimally managed habitats are habitats where management efforts and investments of time, money and labor are infrequent or non-existent. These habitats may have been intensively managed by humans at one time in history. In some instances, management may be more intense, but management is done for conservation purposes and is primarily aimed at preserving elements of biological diversity such as an imperiled species or critical natural communities. Minimally managed habitats are similar to “natural areas” but the distinction is made in order to remove bias, misconceptions or ambiguities that surround the term natural areas.

Non-native – A species that is not native or naturally occurring (based on its biology, phylogeny, distribution and current knowledge of the species) within Maine. A species may be native to North America, but non-native in Maine. Synonymous with non-indigenous, exotic or alien.

Potentially invasive plant – Non-native species not currently known to be naturalized in Maine, but that can be expected to become invasive within minimally managed habitats within the state.

Spatial gaps – This term is used in reference to the ability of a species to disperse away from existing occurrences. The concept of crossing spatial gaps is used to distinguish those species that can disperse over discontinuities and become established elsewhere from species that spread across a habitat only by continual, uninterrupted growth.

Appendix 2

Species: *Lonicera morrowii* Gray (Morrow's Honeysuckle)

Status: None/**Invasive**/Likely/ Potential

Non-Native Terrestrial Invasive Plant Work Sheet - Maine

1. Is the species nonnative to Maine?

Yes or No

Reference/Justification: (Gleason and Cronquist 1991), (Haynes and Vining 1998)

If yes go to #2. If no stop.

2. Answer the following 4 questions

Does it have the potential for rapid growth, dissemination and establishment in minimally managed habitats?

Yes or No

Reference/Justification: abundant fruit production, bird dispersed, open fields to shaded forests (IPANE website, Invasive Plants – Brooklin Botanical Garden 1996 (BBG))

Does it have the potential for widespread dispersion and for dispersing over spatial gaps?

Yes or No

Reference/Justification: bird dispersed, capable of invading bogs, fens, lakeshores, sandplains and other habitat types, vegetative sprouting, ornamental (NPS web site, BBG, IPANE web site)

Does it have the potential for existing in high numbers or large colonies away from intensively managed artificial habitats?

Yes or No

Reference/Justification: abundant fruit production, forms a dense shrub layer (NPS web site)

Does it have the potential to displace native species in minimally managed habitats?

Yes or No

Reference/Justification: may compete with native bush honeysuckles for pollinators resulting in reduced seed set for native species, alters habitats (NPS web site)

If yes to all 4 questions above continue to #3. If no to any stop.

3. Answer the following 2 questions

Is the species widespread in a region or habitat type in Maine?

Yes or No

Reference/Justification: found in 8 counties, both inland and coastal (IPANE web site)

Does it have many occurrences of numerous individuals or colonies that displace native species in minimally managed habitats in Maine?

Yes or No

Reference/Justification: see above justification

If yes to these 2 questions it is considered INVASIVE in Maine. If no to either of the last 2 questions continue to #4.

4. Is the species naturalized in Maine?
Yes or No Reference/Justification

If yes then continue to #5. If no go to #6.

5. Answer the following questions

Does the species have one occurrence in Maine that has high numbers of individuals forming dense stands in minimally managed habitats?
Yes or No Reference/Justification

Has the species demonstrated to be invasive in nearby states and provinces or areas with similar climates, but its status in Maine is unknown or unclear?
Yes or No Reference/Justification

If yes to either one of the above 2 questions the plant is LIKELY INVASIVE. If no to both questions proceed to #6.

6. Answer the following 3 questions

The species has no known naturalized occurrences in Maine?
Yes or No Reference/Justification

The species has demonstrated to be invasive in nearby states and provinces or areas with similar climates?
Yes or No Reference/Justification

The species is anticipated to naturalize in Maine in the future?
Yes or No Reference/Justification

If yes to the last 3 questions the plant is considered POTENTIALLY INVASIVE. If any are no then stop.

Completed by Ann Gibbs 1/08

Invasive Plant Datasheet

Lonicera morrowii Gray, Morrow's Honeysuckle

Taxonomy

Family: Caprifoliaceae

Synonyms: *Caprifolium morrowii* Kuntz

Native range or region

Eurasia, Japan (Gleason & Cronquist 1991) (Dirr 1998)

Biology

Life form – woody shrub

Naturalized – yes

Dispersal – birds, vegetative sprouting, ornamental

Habitats – open fields to shaded forests, most successful in the sun

Biological potential – abundant fruit production, bird dispersed, dense shrub layer decreasing resources for other plants

Reported Invasiveness

Exotic bush honeysuckles can rapidly invade and overtake a site, forming a dense shrub layer that crowds and shades out native plant species. They alter habitats by decreasing light availability, by depleting soil moisture and nutrients, and possibly by releasing toxic chemicals that prevent other plant species from growing in the vicinity. Exotic bush honeysuckles may compete with native bush honeysuckles for pollinators, resulting in reduced seed set for native species. In addition, the fruits of exotic bush honeysuckles, while abundant and rich in carbohydrates, do not offer migrating birds the high-fat, nutrient-rich food sources needed for long flights, that are supplied by native plant species.

Have the greatest habitat breadth and are capable of invading bogs, fens, lakeshores, sandplains and other uncommon habitat types.

<http://www.nps.gov/plants/alien/fact/loni1.htm>

Distribution

Maine Counties (IPANE)

AND	ARO	CUM	FRA	HAN	KEN	KNO	LIN	OXF	PEN	PIS	SAG	SOM	WAL	WAS	YOR
		x			x	x		x	x		x			x	x

Spread and Impacts

G&C 1991:occasionally escaped in our range.

BBG invasive plants: colonize wide variety of habitats

Herbarium Records

11 specimens in 8 counties and 10 towns

References

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Gleason, H. A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern US and Adjacent Canada. NY Botanical Garden

Haines A. and T.F. Vining. 1998. Flora of Maine. V.F. Thomas Co, ME

Invasive Plant Atlas of New England web site (<http://nbii-nin.ciesin.columbia.edu/ipane/>)

National Park Service web site (<http://www.nps.gov/plants/alien/>)

Randall J.M. and J. Marinelli eds. 1996. Invasive Plants – Weeds of The Global Garden. Brooklyn Botanical Garden, Inc. NY.

Completed by Ann Gibbs 1/08