



The Invasive Plant Issue: From the Beginning

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Invasive plants have been a topic of discussion for the past several years and will continue to be in the future. We have witnessed legislation, plant bans, and all sorts of negative information across the country targeted at “non-native” plants. The intent of this article is to review some background on the invasive species issue and highlight information that will aid in our understanding and shape the way we address the issue. Our background review will focus on Executive Order 13112 and in subsequent articles we will examine the two workshops titled *Linking Ecology and Horticulture to Prevent Plant Invasions* held in St. Louis and Chicago and the *Voluntary Codes of Conduct for the Horticulture and Landscape Professions*. The invasive plant issue is extremely complex and crosses many discipline and commodity boundaries. Each has its own perspective...its own interpretation... and its own agenda when addressing concerns over the classification, use, and impact of invasive plants. Executive Order 13112 set the foundation and provided the framework from which invasive plant councils and other related groups have emerged.

Executive Order 13112, February 1999.

Executive Order 13112 states as its purpose “to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause”. Keep in mind that invasive species referred to in the Executive Order include animals, plants, insects, diseases, and any other organisms.

The Executive Order proceeds to identify and elaborate on six sections: definitions; federal agency duties; invasive species council (national); duties of the invasive species council (national); invasive species management plan; and judicial review and administration. The bulk of the pertinent information lies in the management plan, however, each of the other sections provides useful information in qualifying terminology and our interpretation of the Order. The Executive Order is directed at federal agencies and federal public lands, but it solicits cooperation and collaboration with stakeholders in public, commercial, and private sectors. As green industry members, being familiar with the stated purpose and terminology within the Executive Order will aid in our addressing the issue. For the complete Executive Order visit: <http://www.invasivespecies.gov>.

Definitions:

- “Invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm, or harm to human health”.
- “Alien species means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem”.
- “Introduction means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity”.
- “Native species means, with respect to a particular ecosystem, a species

that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem”.

- “Ecosystem means the complex of a community of organisms and its environment”.
- “Species means a group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms”.
- “Stakeholders mean, but is not limited to, state, tribal, and local government agencies, academic institutions, the scientific community, nongovernmental entities including environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners”.
- “Control means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions”.

A detailed examination of the definition of “invasive species” first focuses on the word alien. Further elaboration in the management plan describes alien as synonymous with non-native, non-indigenous, and exotic. The Executive Order is very specific in that alien is defined with respect to a given ecosystem. Considering alien plants as

coming from other continents is straight forward. However, a native plant from a given native plant community can be alien or non-native in an adjacent plant community if it was not an original member of that community. A prairie species is an alien when introduced into an upland plant community. Most of the information that is printed about invasive

plants is coupled with the word non-native, "Invasive Non-native Plants" or "Non-native Invasive Plants". Although using the synonym non-native is correct accordingly to the National Invasive Species Council Management Plan, it is misleading because most people perceive this only to mean plants introduced from foreign countries. Their knowledge of

native plant communities and local ecosystems is limited. Native plants outside their original ecosystem can potentially be non-native invasive plants. Also, by using the term "Non-native Invasive Plants" it implies that "Native Invasive Plants" or "Invasive Native Plants" are acceptable.

Our next focus is on the word, "introduction". Introduction is defined as the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity. Introduction raises several questions on dispersal mechanisms and the dispersal distance. Plant use by humans is intentional and targeted. We use plants in a given location for a given purpose. Whether a plant is potentially invasive has to do with unintentional movement. Unintentional movement is a result of reproductive characteristics and dispersal mechanisms (natural and unnatural) over some defined distance which most assessment systems identify as one kilometer. Natural dispersal mechanisms include wildlife (mammals and birds), wind, and water. Unnatural dispersal is associated with human activity and could be related to domestic animals, equipment use, fill or borrow materials, recreation, or dumping. A plant may not be considered truly invasive if its only means of dispersal is through unnatural means.

A word not actually part of the definition but implied through the use of alien and introduction is ecosystem. The definition of ecosystem refers to the complex of a community of organisms and its environment. Invasiveness may be specific to an ecosystem as outlined in the management plan. "Determining whether a non-native plant is invasive requires a context specific analysis. For example, a species may cause harm in one type of ecosystem, but not in others. Because ecosystems are dynamic, their vulnerability to invasion changes over time. Thus, it would be impossible to develop a definitive or complete list of invasive species at the national level". References to native and non-native in the definitions make it seem that the ecosystems in question are natural areas. Natural areas are considered areas

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having native plant and animal species, long undisturbed soil systems, and hydrological regimes relatively intact or under restoration. Some consider natural areas as having been intact and undisturbed since European settlement. In the case of managed ecosystems, these are altered and may or may not retain original soil or hydrological conditions. When land is developed, changes to the soils, hydrology, and other environmental factors often impact the area beyond reclamation to the original native ecosystem as is the case with urban areas. Most of the information we receive in our area on invasive species originates with the natural resource community and has to do with their influence or impact on natural ecosystems. Little is ever mentioned or referenced with respect to managed or disturbed ecosystems.

The last part of the definition that needs elaboration is, “does or is likely to cause economic or environmental harm, or harm to human health”. “Does or is

likely to cause” is fairly broad, however, economic or environmental harm, and harm to human health is specific. Even more so is the word “harm”. Classifying or labeling a plant as invasive requires evaluation and assessment related to documented economic, environmental harm or harm to human health. According to the management plan, “A risk-based approach is mandated by the Order and requires consideration of the likelihood that an invasive species will establish and spread as well as the degree of harm it could cause”. In addition, it goes on to discuss “fair, feasible, risk-based screening system... developed modifications to the screening system or other comparable management measures to formulate a realistic and fair phase-in evaluation”. The Executive Order also has a provision for excusing a plant’s invasiveness when its benefits clearly outweigh the potential harm. Under Federal agency duties, it states that, “shall to the extent practicable and permitted by law, not authorize, fund,

or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions”.

Management Plan, National Invasive Species Council (2001)

As directed by the President, the Council was required to develop a management plan to act as a blueprint for Federal action “to prevent the introduction of invasive species, provide for their control, and minimize their economic, environmental, and human health impacts”. Importantly, it is stated that the “focus of the Plan is on those non-native species that cause or may cause significant

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negative impacts and do not provide an equivalent benefit to society”.

The Management Plan adopted six guiding principles to aid in development of the plan:

- 1) Take action now. “Many alien species are non-invasive and support human livelihood or a preferred quality of life. Only those alien species that cause substantial, negative impacts to the environment, economies, and human health fall under the scope of the Invasive Species Council”.
- 2) Be cautious and comprehensive. “Invasions are often unpredictable: caution is warranted in the intentional and unintentional relocation of all non-native organisms. Policies that address the problem of invasive species will be most effective if they are consistently applied (across pathways, means of invasion and invaders), are comprehensive in scope, and taken in the consideration of all stakeholders”.

3) Work smart, be adaptive. “Efforts to manage invasive species are most effective when:

- they have goals and objectives that are clearly defined and prioritized; and they are:
- proactive rather than reactive;
- based on current biological, social, and economic information;
- applied rapidly, even when a reasonable degree of uncertainty is present; and
- benefit a diversity of stakeholders”.

4) Find balance. “The prevention and management of invasive species can support economic growth and sustainable development and should be incorporated into policies to meet these objectives. Strive for control methods that are scientifically, socially, culturally, and ethically acceptable and provide the desired affect on the target organism while minimizing the negative impact on the environment”.

5) Pull together. “Coordination and an effective regulatory framework are required at the Federal level, and a complimentary, flexible approach is needed to address the complex, broad needs of stakeholders at more local levels”.

6) Be inclusive, meet specific needs. “Everyone has a stake in the management of invasive species and therefore needs to be involved in efforts to address the problem. Education and outreach programs on invasive species will be most effective when they target the information needs and interests of specific audiences, indicate that positive progress can be made, and recommend specific actions”.

These guiding principles reflect the values and experiences of the diverse stakeholders involved with the issue and provide direction for the action to be taken. Using these guiding principles the Council identified nine interrelated

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areas considered priorities in addressing the problem.

These nine areas are: Leadership and Coordination; Prevention; Early Detection and Rapid Response; Control and Management; Restoration; International Cooperation; Research; Information Management; and Education and Public Awareness. Although this plan outlines responsibilities, duties, and action by Federal agencies, interwoven is the cooperative relationship among all stakeholders.

The Management Plan defines the problem and outlines action by Federal agencies in cooperation with stakeholders. It provides a reasonable framework from which we can address the issue. However, problems have arisen with individual interpretation of the intent of the Order when addressing concerns over the classification, use, and impact of invasive plants and the subsequent action that should be taken. Individual discipline and commodity perspectives

play a significant role in the way information is developed and promoted. Each has its own perspective...its own interpretation...and its own agenda when addressing the issue.

So, where does this bring us? The horticulture and landscape professions have been chastised for contributing to the problem. Contrary to points mentioned in the Executive Order, we have not always been at the table when discussing the invasive plant issue, assessing the scientific and economic credibility of the information, and contributing to what would be considered reasonable and realistic solutions. As an industry we have tended to be more reactive than proactive. The time has come for us to be a part of the solution. Executive Order 13112 set the foundation and provided the framework from which we will begin to contribute. The MNLA Invasive Plant Task Force has been charged with education and outreach. We will follow the examples set by guiding

principles adopted by the National Invasive Species Council: Take action now; Be cautious and comprehensive; Work smart, be adaptive; Find balance; Pull together; and Be inclusive, meet specific needs. What began as articles on the invasive plant issue in the February issue of *The Michigan Landscape*TM will continue. We will present background information, keep you informed on the current status of the issue both nationally and in Michigan, solicit your input, present strategies to address the issue locally and with your customers, and finally, suggest ways in which you can contribute. The first step in that contribution can be through your membership in the Michigan Invasive Plant Council. From its inception, the council has been open to all disciplines, commodities, and organizations involved in the invasive plant issue. Please consider joining and being part of the solution. 



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