

Report on Invasive Species Certification in Alaska

In partial fulfillment of contract No. 10-10-047
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John Peter Thompson

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A wide variety of ornamental plant species are imported into Alaska every year. Imports from other ecosystems are a known vector and pathway for invasive species. (Ruiz and Carlton 2003c, Vermeij 2005, Pauchard and Shea 2006, Keller and Lodge 2007, Conn et al. 2008) The large quantity provides a pathway for pathogens, disease and insects not currently found in Alaskan ecosystems, as well as novel plant species introductions. Ecosystem service resources potentially affected include forestry, fishing, agriculture and tourism. 1.5. Ornamental horticulture certification could provide Alaskan consumers and regulators with a tool to lessen the impact of certain known detrimental species to ecosystem services.

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1. Scope of Project

- 1.1. A wide variety of ornamental plant species are imported into Alaska every year. Imports from other ecosystems are a known vector and pathway for invasive species. (Ruiz and Carlton 2003c, Vermeij 2005, Pauchard and Shea 2006, Keller and Lodge 2007, Conn et al. 2008) The large quantity provides a pathway for pathogens, disease and insects not currently found in Alaskan ecosystems, as well as novel plant species introductions. Ecosystem service resources potentially affected include forestry, fishing, agriculture and tourism.
- 1.2. Alaska is currently working to export seed potatoes to China. Presently does not have late blight, *Phytophthora infestans*. Phytosanitary certificates are required for imported tomato starts and seed potatoes. A ornamental; nursery industry certification program could provide ready to use Point-of-Purchase (POP) information to businesses that provide gardeners with advice about not re-using table potatoes bought from the store for seed because of the potential to introduce late blight to Alaska farms. Salmon is major part of the economy and salmon are exported to lower 48 and Asia. Some species such a European bird cherry, *Prunus padus*, are presently being studied for potential impacts to salmon as it has been found spreading along streams in urban areas. The tree is popular for planting throughout the state. (Alaska Natural Heritage Program 2006, Guritz, Cooperative Extension Service, 2008) Other examples include, Japanese knotweed, *Polygonum cuspidatum*, is also a somewhat popular ornamental in Southeast Alaska that is spreading along roadsides and in some instances to water bodies. Himilayan blackberry, *Rubus armeniacus*, has been found growing from root balls of woody ornamentals.
- 1.3. Other industries such as Interior Alaskan barley and oats famers have developed infrastructure to export these products out of Valdez to other parts of the world. Alaska is in a position to export these products to Asia as well. Importation of plant materials that are contaminated with weeds (Canada thistle, perennial sowthistle etc.) or other exotic pests detrimental to cereal crop production may potentially impact this industry. The same dynamics are present in Alaska's beef and red meat industry. The USDA NRCS, conservation innovation grants, funded development of a mobile slaughterhouse to help serve remote ranches that are located near the ocean (e.g. Kodiak island, Aleutian islands etc.). Markets in Alaska are mostly filled because of meat produced on the mainland and competition with meat produced in the lower 48. However, there is potential for a market to Asia. Much of the red meat produced on these remote ranches is organic. Several weeds commonly found in imported products or sold (Canada thistle, perennial sowthistle, common tansy etc.) have potential to impact red meat production.
- 1.4. Presently most areas of Alaska have intact ecosystems that are resilient to the disturbances caused by oil, gas and mineral extraction. If invasive species continue to be imported and spread throughout the state the resiliency of these ecosystems to disturbance from oil, gas and mineral extraction will decrease making restoration after these activities more costly. Further potential for conflicts with renewable resource production, such as salmon, may increase as potential for impact and failed restoration increase.
- 1.5. Ornamental horticulture certification could provide Alaskan consumers and regulators with a tool to lessen the impact of certain known detrimental species to ecosystem services. This proposal initiates a certification trajectory process and framework for stakeholder discussion. The first step in the effort would be a one year project to identify existing private and state stakeholders, to foster dialog on the need for a uniform state certification process which address regional ecosystem concerns, and to develop a model certification program, as outlined below.

2. Activities

- 2.1. Work with the Invasive Weeds and Agricultural Pests Coordinator at Alaska Division of Agriculture to arrange a dialogue meeting on the concept of certification including private and public representatives.
 - 2.1.1. Alaska DNR arranged invasive species issues meetings with Alaskan Horticulture industry representatives were held in Anchorage and Juneau in February and Fairbanks in March of 2010. The meetings were conducted as information gathering and listening sessions conducted with an eye to creating a voluntary horticulture industry invasive species initiative. This initiative lays the ground work for collaboration and discussion about invasive species issues and projects both in and by the industry with support to the extent requested by various public partners.
- 2.2. Develop a certification participant working (definition of terms) summary based upon the Aug 2009 certification dialogue meeting for limited distribution.
 - 2.2.1. **Third party certification is an assessment** carried out to ensure compliance with a publicly available technical specification. The assessment with the greatest weight is carried out by an independent, third party organization that is qualified to issue certification when the assessment is successfully completed. Rather than an assessment or certification delivered by an organization or company claiming to comply with industry standards, a third party certification, takes the commitment to quality and accountability further because of the involvement of an external third party to verify that the product or service does indeed comply with the industry standards. (Thompson, 2009)
 - 2.2.2. The **horticulture industry** is focused upon and consists of traditional landscape expectations that, for the most part, are made up of aesthetic or economic choices bolstered by strong human/plant interactions with some secondary consideration for impacts, potential or real, on natural areas and wildlife. The industry works through sales in landscaping and gardening to find and provide immediate cost-effective answers to areas already disturbed by human activity. In his essay, *Invasive Species: Part of the Price of Doing Business*, professor Charles Perrings offers the idea that "... trade in exotic goods comes with significant local economic costs -- in the rush to market, products also bring hitchhikers: invasive species."¹⁵ The collision of need between short term, successful urban/suburban landscape options and long term, potential externalities translates according to The Nature Conservancy into "... invaders,... which often hitched a ride on imported plants distributed by nurseries ... taking a disastrous toll on ecosystems from dying oak trees in California's woodlands to the standing ghosts of dead Fraser fir on North Carolina mountain peaks". (Hall, 2000)
 - 2.2.3. The significant **consensus surrounding the St. Louis Declaration**, which include findings and principles that frame the invasive plant species problem offers a basis for practical and effective ways to address the issues involving the nursery industry and invasive species, it is a principle tool for organizing and guiding a certification program. The six main principles agreed upon in at the meeting provide a framework for constructive design of a certification program. (Thompson, 2009)
 - 2.2.4. Plant introduction should be pursued in a manner that both acknowledges and minimizes unintended harm.
 - 2.2.5. Efforts to address invasive plant species prevention and management should be implemented consistent with national goals or standards, while considering regional differences to the fullest extent possible.
 - 2.2.6. Prevention and early detection are the most cost effective techniques that can be used against invasive plants.

- 2.2.7. Research, public education and professional training are essential to more fully understanding the invasive plant issue and positively.
- 2.2.8. Individuals from many fields must come together to undertake a broad-based and collaborative effort to address the challenge, including leaders in horticulture, retail and wholesale nurseries, weed science, ecology, conservation groups, botanical gardens, garden clubs, garden writers, educational institutions, landscape architects, foundations and government.
- 2.2.9. A successful invasive plant species strategy will make use of all available tools including voluntary codes of conduct (St Louis Workshop , 2001), best management practices and appropriate regulation. Codes of conduct for specific communities of interest are an essential first step in that they encourage voluntary initiative, foster information exchange, and minimize the expense of regulation.
- 2.3. Begin the process of developing a model certification program in cooperation with the Invasive Weeds and Agricultural Pests Coordinator at Alaska Division of Agriculture, public and private stakeholders and industries
- 2.4. Conceptual frames of reference work presented to lay the ground work for a consensual program and partnership between the nursery industry and the natural area land managers.
- 2.4.1. Ecosystem Characteristics (Czech, Batker, Daly, & Farley, 2003):
- 2.4.1.1. Empirical evidence of natural, disturbed and managed ecosystems identifies four key characteristics:
- 2.4.1.2. Change is neither continuous and gradual, nor continuously chaotic. It is episodic, regulated by interactions between fast and slow variables
- 2.4.1.3. Different scale levels concentrate resources and potential in different ways, and non-linear processes reorganize resources across levels
- 2.4.1.4. Ecosystems do not have a single equilibrium; multiple equilibria are common. Ecosystems have processes that maintain stability in terms of productivity and biogeochemical cycles; as well as processes that are destabilizing, which provide diversity, resilience and opportunity
- 2.4.1.5. Management systems must take into account these dynamic features of ecosystems and be flexible, adaptive and experiment at scale levels compatible with the levels of critical ecosystem functions.
- 2.4.2. Considerable discussion was enabled about precepts and definitions and their implications to the people of Alaska and the nursery industry. Below is a partial summary of conversation held during the period of the project contract.
- 2.4.2.1. 1 Alaska invasive plant managers are applying the term invasive to a lot of plants that aren't invasive. The issue of what is invasive is one of definition.
- 2.4.2.1.1. The industry needs to be at the table defining invasive instead of letting others define the issue for them. Not participating leads to the situation the various groups find themselves in at this time – arrayed against one another.
- 2.4.2.2. 2. Alaska invasive plant managers are trying to manage plants and dictate policies on species that aren't causing substantial problems in Alaska (*Prunus* species, *Caragana*, *Lythrum*, *Sorbus*, *Melilotus* as examples). In addition to not causing problems, there is a great benefit brought by these species that cannot be replaced by alternatives, and we will continue to use these plants and promote their use.

- 2.4.2.2.1. The problem with ecosystem challenges is that by the time everyone agrees there is a problem it is too late. The oil spill in the Gulf is a prime example. Zebra mussels are another example of waiting until there is nothing to be done, as well as pythons in the Everglades. The last example has a powerful market group, the pet industry, still claiming that; 1. It is not their problem, 2. There is no harm, and 3. Their business is worth more than the ecosystem so the balance is tilted in their favor when it comes to deciding courses of action. In fact the entire dialogue in Florida is similar to the conversation are taking place in Alaska with the nursery industry.
- 2.4.2.3. 3. Alaska invasive plant managers are not taking effective action on weedy species that are causing problems (like reed canary grass, purple vetch) and yet we are being harassed about our plants which provide great benefit.
- 2.4.2.3.1. Any one in the working in agriculture knows, it is more effective to keep a weed or pest out than to deal with it once established, which is why there are agricultural weed laws and as federal and state quarantine laws and regulations that currently keep many species at bay. The benefit analysis is real and complicated. The idea of personal gain as a benefit over the greater good is a political question that has no end. The oil spill is causing problems for fishermen and the recreation industry. Some are calling for elimination of drilling which will then put more people out of business. How does one measure the benefit or loss of the individual stakeholders against the needs of the many?
- 2.4.2.4. 4. Weeds are a part of life and are a land management issue, and not a blanket public policy issue. When we have weed problems, we get rid of the weeds from the area we don't want them. We learn to live with them in some areas because they are inevitable. So if there are weeds causing problems somewhere for you, then pull them up and get rid of them. Pre-emptive weed control by discouraging us from using and distributing plants that provide benefits is unfair and we will not support it. In addition we will actively campaign against efforts if land managers continue with their efforts as currently carried out without ample scientific justification. "There might be a negative impact" does not convince us.
- 2.4.2.4.1. Weeds have been a farm, issue since before there was a US Department of Agriculture. Weeds reduce yields. If I have a field next to yours, and you do not keep your weeds down, I will be at the very least annoyed and if those weeds are federal noxious weeds I will seek redress. A property owner has some reasonable requirement to manage his property as far as the land's externalities negatively impact other landholders. This is the case of the tree limb hanging over the property and extends to land planning issues and zoning which Fairbanks is about to find out in spades.. Established law in the US requires a certain public interest when it comes to health issues for example, and you would be hard pressed to allow a known pathogen to continue to infect the neighbors and take no action. If your animals are causing an *E coli* outbreak you are going to be required to do something; your herd cannot infect my crops, knowingly and at will. The invasive species managers are trying to extend the case law through legislation as well as regulation. As a gold mine does not have the right to pollute a neighboring property chemically or to dirty the water in any way that runs through another's property, so industry may not have a right to knowingly effect or "pollute" in any fashion the landscapes around it. Also, what the nursery industry is doing is age old and labeled by economists as externalizing costs to create greater profits. If the nurserymen think that property owners should just remove the invading plants sold by the industry, well that sentiment is likely to result in having the industry pay for the removal of the plants eliminating the externality.

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- 2.4.2.5. 5. We can handle our own weed and pest control just fine, and do not need your assistance with hitchhiking pests.
- 2.4.2.5.1. Alaskan potatoes come to mind. There is no country in the world that does not recognize the need to control pests in order to keep their own agriculture up and running. There is a pathogen held at bay by APHIS now that would wipe out the geraniums in one season; surely the Alaskan industry would like APHIS to keep it out
- 2.4.2.5.2. 6. If you have evidence that there are substantial negatives caused by plants we sell, we will certainly listen. We do not intend to sell harmful plants, but the burden is on you to convince us that plants we are selling are harmful. We are entirely unconvinced.
- 2.4.2.5.2.1. This is the heart of matter. The industry needs to lead not follow; define not be dictated to. Because it does not participate and does not like what is put forward, it finds itself bounded and constrained by other outside constituencies. It needs to be doing the defining not the other way around. In this new world of viral communication the industry needs to be protecting itself by being proactive. The war of ideas is with industry's customers and industry must not assume that the market will remain its ally forever unchanging. Last week in West Virginia I made a presentation in which I said that the discipline and experience of horticulture and the industry. And I am telling horticulture it needs to pay attention to the biologists and other scientists. The change in climate and the speed of change is resetting the limits of plant viability. The landscape is changing fast and we shall not preserve it in my life time or yours in its present state. The nursery industry has the tools to help decide which plants to save and which to let go, how to manage these present landscape challenges, and the nursery man has the skill-sets to manage the novel landscapes coming. And new invasives even worse are on their way. I expect kudzu to show up in Alaska soon; your cherry will become the Bradford of the great north, but will be taking advantage in the dramatic climate shifts as well as population explosions and development rather than simply beating down the great open spaces. With warmer weather your farmers will begin to grow crops to feed the world and will compete for space with natural areas being the losers. The distinction of a weed or an invasive species will be non-existent for they are even now in reality the same thing, the wrong plant in the wrong place.
- 2.5. Attend a meeting convened by Invasive Weeds and Agricultural Pests Coordinator at Alaska Division of Agriculture in January to discuss a proposed suite of certification programs and opportunities with state stakeholders.
- 2.5.1. The Anchorage meeting in January 2010 produced a general consensus that a market based opportunity was worth considering. Time allocation and resource concerns were raised as the participants did not feel they could dedicate external time or costs to such a project but were willing to embrace some as of yet undefined product. Industry representatives suggested strongly to start small and to keep the program simple at least at first.
- 2.5.2. The meeting in January 2010 in Juneau participants echoed the no resource for direct support concern, and, unlike their Anchorage peers were less enthusiastic about a "Save for Alaska" list or program. The issue of invasive species as a concern to the general public seemed well entrenched if not entirely accepted in its entirety by the industry audience in Juneau. Over-all there seemed to be a willingness to continue discussion in some format.
- 2.5.3. The February 2010 meeting in Fairbanks, highlighted the industry's concern about the lack of major ornamental escapes on any reasonable wide-spread scale presents challenges for the project. Reports from USGS contacts working with natural area managers the Yukon Territory, Canada

maybe of some use to Alaska DNR going forward. The European cherry has escaped in northern Canada according to secondary sources and their reaction may or may not be of some use to Alaska DNR.

- 2.6. Develop a marketing plan for use by industry, government, and non profits
 - 2.6.1. Provided content for a state web site dedicated to discussion about ornamental and landscape invasive species
 - 2.6.2. Initiated conversation on the concept of a plant labeling effort. Nursery plants would be labeled “Safe for Alaska” or “PlantAlaska”. Industry members expressed some interest but pointed out the lack of resources or time to actually pull such an effort together. Such a consumer education process could look to national programs such as “BePlantWise” (Be PlantWise. Be PlantWise. [Online] 2009. <http://www.beplantwise.org/>) and the ” Sustainable Sites Initiative” (The Sustainable Sites Initiative. Sustainable Sites Initiative. [Online] 2008. <http://www.sustainablesites.org/>) will for ideas and benefit from an outreach program. Consumer demand for the certification program as a buying guide is key to lasting success; the market must find value in the concept for it to succeed. Value will be secured by information, and comprehension of the importance of the end result and perceived gain of nursery certification

3. Considerations

- 3.1. Because the Alaskan Nursery industry has no formal organizational structure and remains a loose aggregation of individuals operating on an informal share-network, efforts to enable and enhance a true industry dialogue will be a challenge. The size of the industry and the distance between operations and centers of activities make it highly unlikely that the industry will be able to support even a part time association in the near term. The University of Alaska and its extension service as well as other state and non profit organizations might consider supporting educational programs that offer the horticultural industry members classes in using internet tools that would allow for regular direct low cost communication among the industry. Among these web 2.0 tools for example would be “Skype” and “Google docs”. One-on-one contact, by phone and in person where possible will be instrumental in moving any project forward. The information web site that has been developed as part of the project could be in part or in whole turned over to the nursery industry to provide them a communication vehicle administered by them for their industry as they address invasive species and other ecological issues.
- 3.2. To the extent that the University of Alaska and Extension do not coordinate their outreach strategies and goals, resulting mixed messages may become a significant challenge to any eventual product development. At least in the beginning, considerable time and effort should be directed to establishing and communicating common purpose. Public agencies will need to be working in partnership on establishing a nursery industry presence in the Alaskan invasive species conversation.
- 3.3. Communication in Alaska with its large geographic regional separations is a core, critical obstacle that needs to be addressed in any effort to bring the nursery industry together and then to a broader structured dialogue. While personal outreach on the part of Alaska DNR employees will be helpful enabling a reasonable and affordable (free) service for industry to being its internal discussion as well as to provide industry with information and resource access. To this end a web based, interactive, limited access site seems to offer a good start. The site, content should explore the inclusion of a resource and link page, a public agency invasive species related activities page, an industry list serve or comment page, Twitter site, Facebook page, and weblog capabilities. Ideally, industry would decide which parts of the site were member only and which pages might be public accessible.

- 3.4. The interlude and distraction of the business cycle will make contact with industry difficult at best during the next few months. Alaska DNR should follow through with its contacts with industry representatives in Juneau and Anchorage. Specifically, DNR should try to establish a range of plants that the trade already considers environmentally problematic in south and coastal Alaska. Dialogue in Fairbanks needs to be of a broader nature, and might focus in part on any possibility of bringing the public gardens of the University of Alaska into the conversation. Fairbanks will benefit greatly from its inclusion in the web site and will participate at some level on the creation of autonomous organizations more readily than on specific lists or protocols.

4. Recommendations

- 4.1. Alaska DNR should host another round of conversation in the late summer or early fall of 2010 that would best be part of or attached to some related scheduled event. The facilitation of such an event or gathering would allow, as a collateral outcome, interested industry members to consider the creation of a nascent horticulture industry association. The identification of key industry leaders willing to take part in further conversations and initiatives is necessary for progress to be made on any variation of a certification program. The state and its collaborators should make use of seasonal workshops and seminars that provide information to the nursery industry to enable business to business policy discussion time as well as facilitated panel question and answer opportunities in the programs. Allowing time for the nursery industry to conduct “business” within a program and perhaps providing facilitation if requested would serve to provide a platform for further open conversation and input from the industry.

The upcoming release of a strategic state plan for invasive species sometime in October would provide an excellent basis for further discussion, dialogue and conversation. If the report can be made public a few weeks before the October 2010 invasive species meeting in Fairbanks, Alaska, a concerted marketing effort should be undertaken to get the word out about the public comment period and the document’s content. All media channels should be considered. For example garden writers and speakers, key industry members, garden clubs, public and private gardens and the environmental community. Time should be created in the October program for presentation, questions and answers as well as group or panel discussion on the contents and merit. The strategic plan’s release can provide an impetus for continuing conversation about the role of horticulture in Alaska’s ecosystems.

- 4.2. A preliminary report should be undertaken which includes a listing of existing federal, state and, to the extent possible, local laws and regulations influencing and or impacting quarantines and nursery certification, as well as plant inspections and international obligations. Complementary issues related to certification include compensation and liability. While these topics are not directly part of a certification program, they will have considerable bearing on the conversation and tangential influence on the certification program. The State of Alaska is actively reviewing its policies, laws and regulations. The conclusion of a white paper enumerates the issues, challenges and problems from a public agency’s perspective:

“Invasive weeds and agricultural pests, in Alaska, are an ever increasing problem to natural resource producers, the public interest, and industries such as tourism. As development of infrastructure and industries continues more opportunities for invasive species to become established will be created. Acting now by updating regulations, further defining pest lists and implementing control of established pests will help prevent resource damage in Alaska. Other states are experiencing significant resource damage from invasive weeds and agricultural pests, and are responding by updating their regulations, revising lists and implementing control measures. In Alaska, the opportunity exists to learn from other states, and take action before the invasive plants and agricultural pests have significantly impacted natural and agricultural resources.” (Graziano, 2010)

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- 4.3. Care must be taken to balance two opposing lines of thought: At some level many nursery and landscape operators feel that there is some truth in D. Theodoropoulos' statement that "There is an idea, popular in some circles, that 'non-native' species are somehow harmful, that 'aggressive exotics' can invade ecosystems and destroy 'native species'. It surprises me to see the public and biologists alike uncritically accept this absurd notion." (J. L. Hudson (Theodoropoulos, D.), 1997) On the other hand, the position of many land managers is starkly contrasted with the ecological position of: "Biological pollution is the movement of living organisms, either accidentally or intentionally, from the places where they evolved to new environments where a lack of natural enemies permits their population to explode. These organisms, sometimes called invasive exotic pests, threaten our crops, our forests, and perhaps even our very existence. Biological pollutants, like chemical pollutants, are here because of human activities. But unlike chemical pollutants, biological pollutants cannot be reduced or prevented by legislation. Once biological pollutants are imported, they grow, adapt, multiply and spread on their own unless direct, vigorous, and often costly actions are taken to stop them." (Britton, 2004)

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