

# **Getting Real About Invasive Plants: Prioritize, Strategize, Mobilize**

Connecticut Invasive Plant Working Group

2012 Symposium

University of Connecticut, Storrs, CT

Thursday, October 25, 2012

**Speaker Abstracts, Biographies, and  
Contact Information**



# Getting Real About Invasive Plants: Prioritize, Strategize, Mobilize

Connecticut Invasive Plant Working Group (CIPWG) Symposium  
University of Connecticut, Storrs, CT, Thursday, October 25, 2012

## Speaker Abstracts and Biographies

(Keynote speaker first, other entries alphabetical by speaker's last name)

### TWENTY-FIRST CENTURY TOOLS FOR TACKLING INVASIVE PLANTS: IDENTIFY, PRIORITIZE, MOBILIZE!

*Keynote Speaker: Elizabeth Farnsworth*

Senior Research Ecologist, New England Wild Flower Society

**Abstract:** Invasive species are prevalent on the New England landscape, despite our best efforts to control them. They cost much funding and work to eradicate. We need to prioritize the invasive species we are addressing, and to develop consistent criteria by which we identify the most important taxa to manage. These criteria may include: the rapidity with which these species are spreading; their direct and indirect impacts on rare species and habitats of conservation concern; long-term legacy effects; and how realistic it is to contain further spread. Many invasive species have opportunistically proliferated because larger environmental factors have favored their dominance, particularly during the last 30 years. Among these factors are eutrophication, increasing temperatures, disturbance due to development, and transport mechanisms that promote their propagule pressure and dispersal. In managing invasive species, we need to recognize when we are successfully controlling the invasion both locally and regionally, rather than treating a symptom of these larger ecological changes. All management of invasive species should be treated as an experiment, with appropriate controls and documentation of both methods and short- and long-term results. Desired outcomes (i.e., the recovery of a rare species) should be clearly articulated at the outset and measured throughout a treatment trial. Collateral damage also needs to be reported. We need to share data widely and in a systematic way so that others do not reinvent the wheel. We have a critical mass of science with which to assess and prioritize invasive species. Let's use it and contribute to it. We also have new tools, such as New England Wild Flower Society's Go Botany plant identifier, that can help citizen-scientists quickly identify invasives on the landscape; early recognition and removal are the most effective means of managing invasive species.

**Biography:** Elizabeth Farnsworth is Senior Research Ecologist with the New England Wild Flower Society, and a biologist, educator, and scientific illustrator. She is also Editor-in-Chief of the botanical journal, *Rhodora*. She is currently principal investigator on a National Science Foundation-funded project, *Go Botany*, to develop an on-line guide to the regional flora for teaching botany. She formerly served as Ecologist with the Connecticut Chapter of The Nature Conservancy where she founded a USFWS-funded project to train volunteers to recognize and manage invasive plants. She also conducted research on the ecophysiology of *Phragmites australis*. With Laura Meyerson (URI), she organized the first New England Regional Symposium on Ecology of Invasive Species in February 1999, which resulted in a special issue of the peer-reviewed journal, *Biological Invasions*. She obtained her Ph.D. in biology from Harvard University, M.Sc. from the University of Vermont, and a B.A. with honors in Environmental Studies from Brown University. She is a member of the graduate faculties of the University of Massachusetts at Amherst and the University of Rhode Island, a Master Teacher at the Conway School of Landscape Design, and has taught at Smith College and Hampshire College.

**Greg Bugbee**, Assistant Agricultural Scientist, Connecticut Agricultural Experiment Station, Department of Environmental Sciences, Invasive Aquatic Plant Program

## **NATIVE PLANTS IN CONNECTICUT LAKES AND PONDS – FRIEND OR FOE?**

### **Abstract:**

Our concern over the harmful effects of invasive aquatic plants in lakes and ponds necessitates an understanding of the role of native species. CAES IAPP has documented over 100 native aquatic plant species in Connecticut compared to 14 invasive species. Native species form the basis of the aquatic plant ecosystem and play important roles in habitat enhancement, water cleansing and shoreline stabilization. Native plant coverage of 20-40 percent of the littoral zone is considered optimal to facilitate these processes. Weeds are plants in places where people do not want them. When native aquatic plants interfere with recreation, navigation or simply people's desire to have a water view free from vegetation, controversies over their control can develop. For instance, native lily pads (*Nymphaea* and *Nuphar* sp.) can dominate an ecosystem much like an invasive species. They usually occur in portions of ponds and lakes where the sediment is fertile and the depth is limited. Controlling native species in these locations without removing the sediment and deepening the site will be an ongoing process that can lead to a replacement of a "nuisance" native species with a more problematic invasive counterpart. Some natives, such as southern water nymph (*Najas guadalupensis*), seemingly transform from a good neighbor to the neighborhood bully in a few short years. This could be due to a genetic alteration or a change in conditions such as water chemistry or climate. Balancing the benefits of native species with people's desire for "weed free" water bodies takes education and sometimes highly targeted management practices. (Study by Gregory J. Bugbee, Jordan Gibbons and Jennifer Fanzutti)

### **Biography:**

Greg Bugbee is an assistant scientist at the Connecticut Agricultural Experiment Station, New Haven, in the Department of Environmental Sciences. He is the principal investigator in the Invasive Aquatic Plant Program. He has lead aquatic plant surveys of over 200 Connecticut lakes and ponds and has directed research projects on all facets of invasive aquatic plant control statewide. In addition to his work on nuisance aquatic plants, he oversees the Station's soil testing laboratory. He has a B. S in Agronomy from the University of Connecticut.

**Chris Donnelly**, Urban Forestry Coordinator, CT DEEP Forestry

## **ECONOMICS OF INVASIVE PLANTS**

### **Panel Moderator: 'Economics of Invasive Plants'**

### **Biography:**

Chris Donnelly is the Urban Forestry Coordinator in the CT DEEP Division of Forestry. In this capacity, he works closely with municipalities and professionals involved with trees in all capacities, especially trees that are owned by and cared for by the public. He is a licensed arborist and certified forester, and has more than 20 years of experience working with trees from the perspective of the forester, the arborist and the governmental employee.

**Donna Ellis**, Senior Extension Educator, University of Connecticut Department of Plant Science and Landscape Architecture, Co-Chair, Connecticut Invasive Plant Working Group (CIPWG)

## **INVASIVE PLANT IDENTIFICATION AND BIOLOGICAL CONTROL UPDATE**

### **Abstract:**

Non-native invasive plants are a concern because they establish easily and grow aggressively, disperse over wide areas, displace native species, and reduce biological diversity in wetlands, meadows, forests, and other natural landscapes. These plants invade not only terrestrial habitats but aquatic environments as well, where they can grow and proliferate undetected for many years. Some invasive plants are more familiar to us because of their beauty (purple loosestrife), their poisonous traits (giant hogweed), or the ongoing efforts we spend trying to control them (Oriental bittersweet and Japanese knotweed). During this session we will learn how to identify some of the common invasive plants in Connecticut, including the examples mentioned above as well as autumn olive, common reed (*Phragmites*), garlic mustard, Japanese barberry, Japanese stiltgrass, porcelainberry, and winged euonymus. We will also discuss several species that are new to the state, such as mile-a-minute vine.

Integrated Pest Management (IPM) methods can be used to control invasive plants in natural and managed landscapes, and they include biological, mechanical, cultural, and chemical controls. Biological control involves the use of natural enemies to reduce an invasive plant's population below a biological or economic threshold, and it is a sustainable, low-input method to control invasive plants. Biological control programs for two invasive plants in Connecticut are currently in progress.

Mile-a-minute vine (*Persicaria perfoliata*) is an annual non-native plant that spreads by seed and quickly grows into dense stands that can cover and shade out native vegetation. This invasive species was confirmed in seven additional Connecticut towns during 2012, which brings the total number of towns in the state with confirmed mile-a-minute reports to 31. The Connecticut mile-a-minute vine biological control project completed its fourth year in 2012. Project objectives are to gather data on the release, establishment, spread, and impact of a beneficial weevil, *Rhinoncomimus latipes* on mile-a-minute. Scientists from the University of Connecticut (Donna Ellis, Logan Senack) and The Connecticut Agricultural Experiment Station (Carole Cheah, Todd Mervosh) who are collaborating on the project have introduced approximately 25,000 weevils into 12 Connecticut towns. The scientists are also working with town staff and other volunteers who are assisting with monitoring the release sites.

*Galerucella* leaf-feeding beetles are approved for biological control of purple loosestrife, and these beneficial insects have been introduced into Connecticut wetlands since 1996. The beetles feed primarily on purple loosestrife and do not prefer other kinds of plants. Feeding injury by the beetles helps to reduce purple loosestrife populations that invade wetland habitats in Connecticut and throughout the United States. The Purple Loosestrife Beetle Farmer Program and website ([www.purpleloosestrife.uconn.edu](http://www.purpleloosestrife.uconn.edu)) were developed at the University of Connecticut in the Department of Plant Science and Landscape Architecture to enhance educational outreach for biological control and to increase the distribution of *Galerucella* beetles in the state. Raising beetles to control purple loosestrife is an exciting opportunity for community involvement by people of all ages. A diverse group of more than 770 Connecticut citizens has received training to participate in the Beetle Farmer Program. The results continue to be excellent, with the introduction of more than 1.8 million *Galerucella* beetles into wetlands where purple loosestrife control is needed. Beetle Farmers and purple loosestrife biological control are topics that have been included in IPM and environmental science curricula for K-8 students developed by University of Connecticut scientists and area teachers.

### **Biography (Donna Ellis) :**

Donna Ellis is a Senior Extension Educator in the UConn Department of Plant Science and Landscape Architecture, where she has worked for 22 years. She has a B.S. in Plant Science from the University of Rhode Island and an M.S. in Plant Science from UConn. Donna conducts Integrated Pest Management (IPM) training programs for the green industry. She teaches at UConn and is involved with educational outreach and applied research for insects, weeds, and pathogens, with an emphasis on invasive plants. Donna coordinates biological control programs for purple loosestrife and mile-a-minute weed. She serves as Co-Chairperson of the Connecticut Invasive Plant Working Group.

**Gwendolynn Flynn**, Environmental Analyst, Connecticut Department of Energy and Environmental Protection

### **AQUATIC INVASIVE SPECIES IN CONNECTICUT**

**Abstract:** Through education, boaters can help prevent the spread of aquatic invasive species. Several common aquatic invasive species, such as Eurasian watermilfoil (*Myriophyllum spicatum*), Curly Pondweed (*Potamogeton crispus*), Water Chestnut (*Trapa natans*), and Zebra Mussels (*Dreissena polymorpha*) in Connecticut waters are discussed as well as the Clean, Drain, Dry method that will help prevent the spread of aquatic invasive species, and information about the DEEP volunteer based Invasive Investigator Program.

#### **Biography:**

Wendy has worked for the Connecticut Department of Energy and Environmental Protection for 9 years. She has been responsible for the Boating Infrastructure Grant Program, Clean Vessel Act Education and Outreach Program, as well as environmental education for boaters. She has generated educational materials outlining AIS and developed the Invasive Investigator Program, which launched in 2011. Wendy also supervises seasonal Boating Education Assistants who are responsible for visiting state boat launches and educating boaters on clean and safe boating practices. She has a Bachelors of Science degree in Coastal Studies from the University of Connecticut.

**William Hyatt**, Chief, Bureau of Natural Resources and Chair, Connecticut Invasive Plants Council

### **CONNECTICUT INVASIVE PLANTS COUNCIL UPDATE**

#### **Abstract:**

The Invasive Plants Council consists of nine members representing government, the nursery industry, scientists, and environmental groups. At the last CIPWG meeting in 2010, a Connecticut Nursery and Landscape Association phase-out of several high seed producing cultivars of Japanese barberry was just beginning, funding for the Council to retain an Invasive Plant Coordinator was still in question, and the bill to allow state Conservation Police to enforce the invasive plant laws had just taken effect.

The Council has made significant progress on these fronts since 2010. The phase-out of high seed producing cultivars of Japanese barberry is continuing, and research at UConn in the area of sterile plants continues as well. In addition, funding for an Invasive Plant Coordinator has been incorporated into the state budget. The support for the coordinator position and operating expenses has been invaluable to the Council and to our efforts to combat the introduction and spread of invasive plants.

**(William Hyatt, Abstract, continued)**

As of October 2012, the Council has added mugwort (*Artemisia vulgaris*) to the state invasive species list as a potentially invasive plant. Further information will be collected about occurrences in Connecticut and the ability of the plants to produce viable seeds and spread to new areas.

The Council has supported the development of new Invasive Plant Disposal Guides. These guides were developed to assist homeowners who are dealing with invasive plants on their own properties by enabling them to safely dispose of plant material in a manner that will reduce the likelihood of accidental spread.

The Council also devoted significant time and energy to investigate concerns about various running bamboo species. Several site visits and a field trip by members of the Council led to a decision that yellow groove bamboo and other species of running bamboo in the genus *Phyllostachys* do not meet the criteria for being listed as invasive or potentially invasive plants as set forth in CGS §22a-381b. However, based on damage observed on residential properties, the Council decided it would support legislation that requires education, the installation of containment barriers, and which addresses situations where property owners fail to prevent the spread of bamboo into neighboring properties.

Long-term success in addressing invasive species issues will require on-going coordination at the municipal, state, and federal levels of government and on-going collaboration among academia, NGOs, industry, and government agencies. In Connecticut, the Invasive Plants Council continues to play an important role as a catalyst in this collective process.

**Biography:**

Bill is Chief of the Bureau of Natural Resources at the Department of Energy and Environmental Protection (DEEP), which includes the Inland Fisheries, Marine Fisheries, Wildlife and Forestry Divisions. He is the current chair of the CT Invasive Plants Council, chair of the Association of Fish & Wildlife Agencies Invasive Species Committee, and a member of the Federal Invasive Species Advisory Council. His prior positions with DEEP include Director of Inland Fisheries, Supervisor of Fisheries Management and Senior Fisheries Biologist. Bill also served as a Research Associate at the Institute of Ecosystem Studies in Millbrook, NY, where he did graduate research leading to an MS from the University of Connecticut. Bill has served as President of the Southern New England Chapter and the Northeast Division of the American Fisheries Society, and is the current chair of the CT River Atlantic Salmon Commission.



## **NOVEL ECOSYSTEMS AND THE FORGOTTEN FOOD WEB**

### **Abstract:**

Novel ecosystems — new, historically unprecedented combinations of species caused by environmental change, human actions, introduction of new species and loss of native species — collectively occupy ~40% of the terrestrial ice-free globe. Conservationists differ on whether novel ecosystems are degraded and worthless, or are potentially valuable habitats that should be included in conservation efforts. I think we need to base our assessments on an understanding of both the benefits and deficiencies of novel ecosystems *and* their implications for genetic and species diversity, food web linkages and ecosystem function.

Introduced invasive plant species typically result in decreased plant species diversity and biomass and reduced nutrient uptake in both aquatic and terrestrial ecosystems. As terrestrial native plant species are increasingly replaced with nonnative species, insect biodiversity and biomass plummet. This is especially true for specialist insect species — and most insect species are specialists. Insect are rich in protein and fat and are an essential part of the diet of a wide range of species. As insects become scarce species that depend on them may disappear and complex food webs may become simplified and unstable. Those of us old enough to remember the high “bug splat” density on vehicle windshields ~40 years ago can confirm that insect abundance appears much reduced today, though increases in nonnative plants are probably not the only cause.

Loss of specialist insects is but one example of a widespread “replacement” of specialist species by generalists in many taxa as a result of disturbance and global change. As species become increasingly rare, dispersed or extirpated, we are losing the diverse genetic material needed for evolution and adaptation to change. You can’t evolve if you are extinct.

So what do we do about novel ecosystems altered by introduced species? We must prioritize scarce resources and use a triage approach to management and restoration of novel ecosystems. Sometimes it will be important and possible to restore native species and communities, and sometimes (most times?) we will accept novel ecosystems and work with them. Novel management strategies developed using a “whole ecosystem” approach, and tailored to suit different ecoregions, microclimates, land uses and socioeconomic settings will be needed in order to maximize the conservation value of these altered ecosystems.

### **Biography:**

Dr. Marilyn Jordan is a Senior Conservation Scientist for The Nature Conservancy on Long Island. She received her Ph.D. in plant ecology and soil science in 1971 from Rutgers University. She did research in forest ecology, microbial ecology, aquatic ecology, nutrient cycling and land application of wastewater before moving to Long Island in 1992 to work for The Nature Conservancy. Her work for The Nature Conservancy has included invasive plant science, novel ecosystems, fire ecology, ecological monitoring, atmospheric deposition and conservation planning. She has assisted The Nature Conservancy and partner agencies in carrying out ecologically sound management of lands and fresh waters on Long Island and beyond. One of her accomplishments has been working with the Brooklyn Botanic Garden and a committee of stakeholders to rank 178 nonnative plant species for invasiveness in both New York State and the Long Island Invasive Species Management Area. Species ranked invasive are now prohibited from sale in Nassau and Suffolk Counties on Long Island.

**Jennifer Kaufman**, Natural Resources and Sustainability Coordinator, Town of Mansfield

**CAN WE AFFORD TO CONTROL INVASIVES? CAN WE AFFORD NOT TO?**

**Panelist: 'Economics of Invasive Plants'**

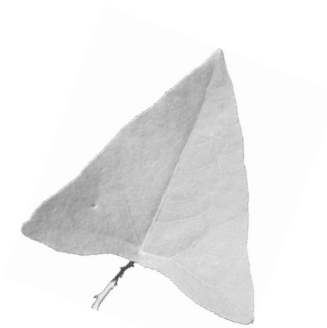
**Abstract:**

Managing invasives is expensive and takes creative partnerships and juggling of resources. It requires hours of volunteer and staff time that could be spent on creating trails, hosting educational events to promote town parks and preserves. However, **not** managing invasives is even more expensive over the long term. The Town of Mansfield has over 2,500 acres of parks, preserves, and natural areas and is committed to maintaining and restoring native habitat within the Town's natural areas for the benefit of the public. Challenging economic times and competition for Town resources have required Mansfield to think creatively about invasives control. Demonstrating to municipal leaders the benefits of managing invasives has been essential to garnering town financial support for this work. Jennifer Kaufman, Mansfield's Natural Resource and Sustainability Coordinator will discuss how her town has leveraged public funds, volunteer resources, and researchers to pay for invasive control. She will also discuss strategies to develop a message to residents and municipal leaders that invasive control is worthy of town resources.

**Biography:**

As the Town of Mansfield's Natural Resources and Sustainability Coordinator, Jennifer has been controlling invasives in Mansfield's Parks and Preserves since 2000. She also is involved with the planning, acquisition, and management of town parks and natural areas. Since 2006 she has worked with the USDA NRCS Wildlife Habitat Incentive Program (WHIP) in four town natural areas to control of non-native invasive species to encourage native flora.

In addition to her work with the Town of Mansfield, Jennifer served as the Project Director of the CT AGvocate Program. In this role, she worked with 14 towns in eastern Connecticut to provide a forum for municipal officials, agricultural producers and other stakeholders to strengthen the farm-friendliness of CT Towns. Jennifer has an MS in Natural Resources Planning from the University of Vermont and a BA in Psychology from Bates College.





**George Knoecklein**, Founder, Northeast Aquatic Research, LLC

## **ESTABLISHING PRIORITIES AND DEVELOPING STRATEGIC PLANS FOR LAKE MANAGEMENT**

### **Abstract:**

Successful lake management requires a commitment to a consistent, long-term, re-evaluation of a planning document. The preparation of the planning document requires collaboration between all of the users groups to help develop a list of problems and concerns. List of problems can be prioritized by severity of the threat to ecology or lake health, or by degree of impairment to recreational use. Often lakes with infestations of non-native aquatic plants are forced to develop a planning document due to the significant degree of impairment caused by one or two invasive species. In these cases priorities have been established by the severe loss of use. Once management targets have been determined, choosing a method of control can be daunting. Charting a course through different alternatives requires scientific understanding of both the causes of the problem and the dimensions of the intended control, the degree of feasibility of each of the methods to provide desired results, and a process to track trial-and-error progress once started. Strategic planning involves using scientific knowledge of the problem to identify the most feasible alternative and then to closely monitor effects. Feeding-back evaluation results to the planning document provides for the opportunity to re-prioritize the problem list and the most-favored alternatives list. This talk discusses ways to prioritize lake problems and discusses the process of developing a strategic planning document to successfully manage lakes.

### **Biography:**

George Knoecklein began his limnological career at Michigan State University in 1978 where he worked on US EPA Clean Lakes projects at Lake Lansing Michigan and Skinner Lake Indiana until graduation in 1981. After finishing his MS degree, George moved to the Upper Peninsula of Michigan where he was involved in a team quantifying impacts to St. Mary's River ecosystem due to Great Lakes shipping traffic. In 1985, he moved his family to Connecticut where he has been investigating and attempting to slow eutrophication of lakes ever since. After finishing his PhD in 1997 from the University of Connecticut, George founded Northeast Aquatic Research, a consulting firm based in Connecticut specializing in studying/managing lake water quality and aquatic plant communities.

**Mark Lavoie**, Partner, Colonial Seed Company

## **“NATURES TOOLS” : VEGETATION OPTIONS ON CHALLENGING SITES**

**Panelist: ‘Growers of Locally Native Plants Tell All’**

### **Biography:**

Mark Lavoie is currently a Partner with the Colonial Seed Company, collectors and purveyors of native seed, plant plugs, plant genetic research, and habitat restoration services; also Pilgrim Plant Protection LLC, a Biological and Botanical Pesticide research and supply company.

Mark's extensive work history included herbicide research under Dr. John Ahrens at the State of Connecticut's Valley Laboratory (1973), and plant culture and production manager for The Robert Baker Companies. In 1979 - 2003 Mark served as executive director of the Stanley Park of Westfield. While at Stanley Park, Mark managed the parks award-winning AARS Public Rose garden as well as an AARS rose test garden. He was also a national AARS test rose judge. Park gardens included The American Rhododendron Society Massachusetts Chapter display garden, and The American Wildflower Society's collection garden. Stanley Park also featured an arboretum, along with perennial, herb, fruit, and native plant collections. Mark is a well versed horticulturist and site manager. Mark was a member the Peoples to People International Program where he served as part of The United States Horticulture Delegation to China in 1985 and Russia in 1987.

**Hope Leeson**, Botanist and Rhody Native Coordinator, The Rhode Island Natural History Survey

**RHODY NATIVE™, LOCALLY SOURCED, LOCALLY GROWN**  
**Panelist: ‘Growers of Locally Native Plants Tell All’**

**Abstract:**

Rhody Native™ was formed as a project of the Rhode Island Natural History Survey (RINHS) in 2009 as an initiative to build the state’s capacity to produce genetically diverse native plants for habitat restoration and landscape design. With ecological and design concerns focused on sustainable landscapes and preservation of genetic diversity, the use of native plants has become actively encouraged around the country. However, the selection of native species available in Rhode Island is limited, and their genetic origin is not local. Despite Rhode Island’s capacity for plant production and strong consumer interest in local products and native plants, the structure of the plant trade and small margins have kept sources of Rhode Island ecotypes from the market. The Rhody Native Initiative strives to work with the horticulture industry to produce locally sourced native plants.

**Biography:**

Hope Leeson is the botanist for the Rhode Island Natural History Survey and since 2010, has coordinated the Rhody Native initiative. She holds a Bachelor of Arts degree from Brown University and has twenty-five years of field experience for wetland delineation, invasive and rare species inventories, and native plant seed collection. Hope is also an educator, focusing on botany, plant ecology, and invasive species. Before invasive plants became omnipresent on the landscape, Hope worked with the Rhode Island Wild Plant Society to engage homeowners and the Rhode Island Department of Transportation to plant native species. The Rhody Native initiative brings her work full circle.

**Christopher Mattrick**, Botany and Invasive Species Program Leader, White Mountain National Forest

**WINNING THE BATTLE WITH INVASIVE SPECIES WITHOUT LOSING YOUR MIND**

**Biography:**

Chris Mattrick lives and plays with his family in the White Mountains of New Hampshire where he is the Botany and Non-native Invasive Species Program Manager for the White Mountain National Forest. Chris was formerly the Senior Conservation Programs manager for the New England Wild Flower Society where he managed endangered and invasive plant management projects and the Society’s Plant Conservation Volunteer Program. Chris has a BS in recreation management from the University of Vermont and a MS in environmental studies from Antioch New England.



**Todd Mervosh**, Weed Scientist and Diagnostician, The Connecticut Agricultural Experiment Station, Valley Laboratory

## **CONTROL OPTIONS FOR INVASIVE PLANTS**

### **Abstract:**

A wide range of methods can be utilized to control invasive plants. Some questions that should be addressed before mobilizing an invasive plant control effort include the following:

- 1) How large is the infestation?
- 2) Do invasive plants dominate the site, or are desirable (native) plants part of the mix?
- 3) What type of invasive plant(s) are present: monocots or dicots; annuals, biennials or perennials; herbaceous or woody?
- 4) How well established are the invasives: first-year seedlings or older, deep-rooted plants?
- 5) How accessible is the site for people and equipment?
- 6) Are there environmental restrictions (ponds, streams, wetlands, endangered plants)?
- 7) Is the site adjacent to another property, and will your control efforts impact that property?

Depending on the answers to these questions, the most appropriate strategy will involve one or more of the following options:

- Manual / Mechanical – pull, dig, till, cut, mow, etc.
- Controlled Burning – fire (with burn permit) or propane torch.
- Chemical Control – herbicide(s) sprayed on foliage, applied directly to cut stumps or lower bark, or applied to soil.
- Biological Control – limited option in CT: purple loosestrife and mile-a-minute weed biocontrol programs.

My presentation will focus primarily on the proper use of herbicides for control of invasive plants. The herbicides glyphosate, triclopyr and imazapyr are widely used in weed control programs. I will discuss the herbicidal properties of these chemicals as well as their impacts and fate in the environment.

### **Biography:**

Todd Mervosh is a weed scientist and diagnostician with The Connecticut Agricultural Experiment Station (CAES) at the Valley Laboratory in Windsor, CT. A native of Illinois, he earned a B.S. degree at the University of Illinois, a M.S. in agronomy at the University of Wisconsin, and a Ph.D. in agronomy / weed science at the University of Illinois.

Dr. Mervosh joined the staff of CAES in 1994. He conducts weed control research in a variety of crops, especially nursery plants (ornamentals) and Christmas trees. He also conducts experiments on management of non-native invasive plants including Oriental bittersweet, Japanese knotweed, pale swallow-wort, Japanese stiltgrass and mile-a-minute vine. He has been actively involved in the Connecticut Invasive Plant Working Group since its inception in 1997.

Dr. Mervosh provides information to growers, property managers and the general public about weeds and invasive plants, with emphasis on proper use of herbicides in vegetation management programs. He also has diagnostic responsibilities in the general inquiry office at the Valley Laboratory.

**Doug Pistawka**, Senior Arborist, Connecticut Light and Power

## **ECONOMIC IMPACT OF INVASIVE PLANTS ON CL&P POWER LINES**

**Panelist: 'Economics of Invasive Plants'**

### **Abstract:**

Connecticut Light & Power spends millions of dollars annually managing invasive plant species that have the potential to interfere with its electrical facilities serving 1.2 million customers in 149 cities and towns across Connecticut. Invasive vines have the potential to grow up poles and wires while invasive tree species have the potential to grow into or fall onto electrical equipment, disrupting electrical service. Invasive shrubs can spread into dense thickets on rights-of-way, impeding foot and vehicular access if left unchecked. Invasive plants must be managed for public and line-worker safety, visual and physical access for patrols, line work, vegetation management and power outage restoration activities. This presentation identifies the costs involved in managing invasive plant species along roadside power lines, and transmission and distribution rights-of-way and investigates storm and emergency restoration costs attributed to invasive plants.

### **Biography:**

Doug Pistawka is a Senior Arborist with Connecticut Light and Power's Vegetation Management Program. He has 25 years of vegetation management related experience with CL&P, U. S. Forest Service, U. S. Fish and Wildlife Service, Asplundh Tree Expert Company and Environmental Consultants Inc. He has a BS and MS in Resources Management and Policy from the SUNY College of Environmental Science and Forestry, is a Connecticut Licensed Arborist, ISA Certified Arborist and Connecticut ROW Pesticide Supervisor. He is a Past President of the CTPA and New England Chapter ISA and served as Chairman of the Thomaston Inland Wetlands Commission. He received the CTPA Award of Merit and Connecticut Urban Forest Council Professional Outstanding Urban Forestry Award and often lectures at CTPA's Arboriculture 101 course and Meskwaka Tree Project at Connecticut College.

**Charlotte Pyle**, Landscape Ecologist, USDA-Natural Resources Conservation Service, Connecticut

## **WHAT ARE LOCALLY NATIVE PLANTS AND WHY MIGHT YOU WANT TO USE THEM?**

**Moderator: 'Growers of Locally Native Plants Tell All'**

### **Abstract:**

Many Connecticut native plants also are native in other states as far away as Florida or Wisconsin.

Botanically speaking, the individuals from Florida, Wisconsin or Connecticut are all one species. This has the potential to cause problems because the range of site conditions where individual plants grow varies greatly when the geographic range of a plant is large. And, on any given site, the individuals that are best adapted to the local conditions will best survive. Over many generations, this leads to genetic differences of sub-populations within a species across its range.

Genetically-based color differences are easy to see. Other genetically-based differences are less easy to recognize from a plant's appearance. For example, plants genetically adapted to Florida's climate may leaf out when it is still winter in Connecticut. The spectacular failures of some non-local tree seedlings planted long ago by the U.S. Forest Service after western fires is well documented. The Forest Service now keeps careful records about provenance. The word *provenance* refers to where the original seed or cutting was *collected*, not to where the seed was packaged or grown into a plant. Seeds from a plant grown in Connecticut from seeds or cuttings originally brought in from somewhere else are "Connecticut-grown" but, ecologically, they do not have a Connecticut *provenance*.

**(Charlotte Pyle, Abstract, continued)**

Midwestern native plant nurseries have been in business for a long time. Thus, when people try to find a source of seeds for New England native plants, the obvious seed sources often are of midwestern *provenance* (even if they are being marketed locally).

In our title, we used the phrase *locally-native*. Ecologists use the phrase *local ecotypes* to mean individuals that are genetically adapted to local soils or climate or other site conditions.

When a species has ecotypes with strong site adaptations, then you get failures when you grow individuals under conditions to which they are not genetically adapted. Perhaps of greater concern are the situations where you do not get a failure. But, rather, you get less than optimal growth; or, maybe something about the fruits and flowers is less than optimal for the local, associated wildlife. Or, maybe it is a matter of tolerance of extremes – the non-local ecotype survives several generations, but then succumbs in a particularly harsh winter. And, then a concern is *genetic swamping* – the situation where the genetics of locally-adapted plant populations have been changed because the majority of the pollen in the air was from non-local plants. Although all these scenarios are ecologically probable, it is not possible to know which Connecticut species actually will be affected by a similar problem. Thus, some people prefer to avoid potential problems by promoting locally native plants.

Planting native plants is part of the solution to the invasive plant problem. How our panel members get seeds, grow plants, and market plants is relevant to people generally interested in buying or growing natives. In addition, the motivations of our panel members, the extra steps they have taken, and their successes and failures will be of particular interest to people who want to “get real” about what it takes to have a source of locally native plants.

**Biography:**

Charlotte Pyle is a Landscape Ecologist at the statewide office of the USDA-Natural Resources Conservation Service (a federal agency) and a co-chair of the CIPWG Native Alternatives Subcommittee. She has a long-running interest in native plants beginning with organizing a native plant propagation class and doing an internship locating rare native plants while a natural resources student at the University of California, Berkeley. For NRCS-CT, she works on both invasive and native plants and, when speaking for herself, she thinks that it is important to approach the widespread introduction of “native” plant material with care.

**Will Rowlands**, Editor, "Connecticut Gardener" magazine.

#### **INTRODUCTION TO LARRY WEANER**

##### **Biography:**

Will Rowlands is the editor and co-publisher of Connecticut Gardener magazine, and a volunteer member of CIPWG. He's on the board of The Experiment Station Associates, the friends group of The Connecticut Agricultural Experiment Station. Will has a degree in geology and has completed the requirements for Advanced Master Gardener. In a previous career, he was an award-winning editor and editorial writer who served on the executive committee of the New England Press Association and was chairman of its Legislative/Legal Committee.

**Logan Senack**, CT Invasive Plant Coordinator, University of Connecticut

#### **INTRODUCTION TO INVASIVE PLANTS IN CONNECTICUT: INVASIVES 101**

##### **Abstract:**

An introduction to invasive plants, concerns about them, Connecticut regulations, identifying invasives, and control options. A question and answer period will follow the presentations.

##### **Biography:**

Logan Senack is the Invasive Plant Coordinator for Connecticut. He holds a B.S. in Environmental Science and is employed by UConn. He collaborates with others in many state agencies, including the Department of Energy and Environmental Protection. His work covers a variety of different activities concerning invasive plants, including public outreach, early detection and monitoring programs, site visits, and removal of high-priority invasive plants at locations throughout the state.

**Bruce Villwock**, Landscape Designer III, CT Department of Transportation

#### **ECONOMIC EFFECTS OF INVASIVE PLANTS ON CT DOT ROADS AND HIGHWAYS**

##### **Panelist: 'Economics of Invasive Plants'**

##### **Abstract:**

The Connecticut Department of Transportation maintains 11,400 shoulder miles of roads and highways. The State Right of Way varies greatly in width from inches to hundreds of feet from the edge of pavement. This ROW provides an extensive corridor for invasive plants to become established and transported to new locations. Maintenance of vegetation and the establishment of invasive plants within the ROW create a challenge. A number of invasive plants like Black Locust, Tree of Heaven, Japanese Knotweed, Oriental Bittersweet and Autumn Olive are well established along the roadsides. New invaders such as Kudzu, Mile-a-Minute and Japanese Stilt Grass, to name a few, have been added to our attack list.

Methods of control by DOT include biological, manual, mechanical, and chemical.

The economic effects vary greatly from educational programs to the destruction of highway infrastructures.

DOT has formed partnerships with CT Dept. of Energy and Environmental Protection, U.S. Fish and Wildlife, Connecticut Agricultural Experiment Station, UCONN Invasive Plant Working Group and other groups. This partnership provides technical support and additional resources reducing expenses for our agency in combating invasive plants.

DOT has been and will continue to be committed to combating invasive plants.

**Biography (Bruce Villwock):**

Bruce Villwock is the Transportation Landscape Designer III for the Connecticut Department of Transportation where he has been employed for more than 16 years providing the Bureau of Highway Operations technical support for vegetation control operations along State roads and highways. Bruce is a Connecticut licensed arborist, CT certified tree warden, CT DEEP certified “Right of Way” supervisory pesticide applicator, and has an Associate’s Degree in Forestry from Paul Smith’s College. Bruce serves on the states Scenic Road Advisory Committee, CT Urban Forest Council, a Board Member of the Tree Wardens Association of Connecticut, a member and former board member of the CT Tree Protective Association and tree warden for the town of Middlefield.

**Larry Weaner**, Principal, Larry Weaner Landscape Associates

**BREAKING THE RULES: ESTABLISHING NATIVE SPECIES FOLLOWING INVASIVE PLANT CONTROL****Abstract:**

Establishing healthy, diverse, native plant communities can be difficult to achieve, and well-meaning projects often fail. Long-term success involves effectively integrating invasive plant control with various combinations of planting, seeding, natural recruitment strategies, and adaptive management protocols. Understanding how native plants as well as invasive species develop in nature is also critical, often leading to techniques that run counter to traditional horticultural practices. This presentation will move beyond buzzwords and oversimplifications about native plants to examine practical, concrete processes for establishing and managing native plant communities. Ecological principles essential to carrying out restoration activities will be overviewed, and a case study will demonstrate the applicability of each ecological principal presented. Successful meadow, old-field, and woodland projects will be used to illustrate implementation and management techniques, with attention paid to how these techniques can maximize habitat, visual character, and the long-term competitiveness of desired native species.

**Biography:**

Larry Weaner has been creating native landscapes since 1977. His firm has a national reputation for combining ecological restoration with the traditions of fine garden design. His restoration and design work at public facilities and private residences has received numerous awards for establishment of native plant communities and management of invasive species. Larry is an active guest lecturer and instructor for horticulture, design, and environmental organizations. In 1990, he founded New Directions in the American Landscape, an educational program series with a national following amongst landscape professionals.

**Gregory J. Weidemann**, Dean and Director, College of Agriculture and Natural Resources, University of Connecticut

## **WELCOME FROM THE UCONN COLLEGE OF AGRICULTURE AND NATURAL RESOURCES**

### **Biography:**

Greg Weidemann serves as Dean and Director of the College of Agriculture and Natural Resources the University of Connecticut. As Dean and Director, he has responsibility for all aspects of the academic, research and outreach missions for the college. Prior to serving in his current role, he served as Dean and Associate Vice President for Academic Programs in the College of Agricultural, Food and Life Sciences at the University of Arkansas and as Dean and Associate Vice President for Research and Agricultural Experiment Station Director from 2002 until 2008 after serving as interim Dean in 2001. As Dean and Associate Vice President for Research, he was responsible for all aspects of both research and academic programs in the college and Division of Agriculture. He served as Associate Director of the Agricultural Experiment Station and Associate Dean for Research from 1996 until 2001.

He joined the Department of Plant Pathology at the University of Arkansas in 1983 where he served as an Assistant, Associate and Full Professor until being appointed as interim Associate Director and Associate Dean in 1995. As a faculty member, his research focused on the taxonomy and biology of plant-pathogenic fungi and biological control. As a teacher, he received several teaching awards, including the National Association of Colleges and Teachers of Agriculture 1990 Award of Merit, the John W. White Teaching Award and the Gamma Sigma Delta Teaching Award of Merit. In 1993, he was elected to the University of Arkansas Teaching Academy.

Dr. Weidemann has served in a number of leadership roles within the land grant university system including serving as chair of the Southern Association of Agricultural Experiment Station Directors and as Chair of the Administrative Heads section for the Northeast region. Greg is a native of Wisconsin and holds a bachelor's degree in Zoology and a Ph.D. in Plant Pathology from the University of Wisconsin.

**Polly Weigand**, Executive Director, Long Island Native Plant Initiative; Soil District Technician, Suffolk County Soil and Water Conservation District

## **LONG ISLAND NATIVE PLANT INITIATIVE - BRIDGING THE GAP, GOING TO SEED**

### **Panelist: 'Growers of Locally Native Plants Tell All'**

#### **Abstract:**

Restorations, plant propagation and seed production, historically and currently, remain reliant on cultivars and varieties of native plants that are not genetically native. The ecological and genetic implications of using such non-native genotypes include out-breeding depression and genetic swamping caused by intra-specific hybridization between local and introduced populations. In an effort to mitigate these deleterious effects, the Long Island Native Plant Initiative Inc. (LINPI, formally LINGI) was founded with the progressive vision to preserve the genetic integrity and heritage of Long Island's native plant populations by ensuring commercial production of ecotypic plants for restorations and landscaping.

Ecotypic plant materials are the most ecologically appropriate plant materials for restoration and production activities having evolved and persisted under local climatic, edaphic and biological conditions. This conscientious management practice, provided the respective ecotype is introduced back into its sourced region, ensures preservation of fit individuals and populations, the evolutionary potential of subsequent generations and valued ecosystem function of natural and managed landscapes. This is particularly important in the face of habitat loss, invasive species encroachment, development, and climate change.

LINPI is governed by a Board of Directors and supported by over 30 agencies, non-profits, nursery professionals, and citizen volunteers who donate their expertise, resources and time to drafting protocol and supporting seed collections, commercial seed and plant production and educational activities.



**(Polly Weigland, Abstract continued)**

The application of ecotypes in the landscape is gaining momentum but remains limited by the constraints imposed by the law of supply and demand. Through surveying and cataloging native plant populations, collecting and archiving seeds, and creating a source of ecotypic seed and plants for distribution to commercial growers, LINPI provides the necessary supply of ecotypic plant materials to facilitate broader commercial production and use. The required demand to foster and sustain ecotypic plant production is driven by LINPI sponsored educational and outreach programs that inform constituencies of the importance and benefits of utilizing ecotypic plants. These complementary activities provide the framework required to catalyze, support and sustain commercial ecotypic seed and plant production by “bridging the gap” between the supply and demand.

**Biography:**

Polly holds a BS in Environmental Studies and Biology from St. Lawrence University and is currently pursuing a MS in Urban Ecology from Hofstra University. She is Soil District Technician for Suffolk County Soil and Water Conservation District performing farmland planning, habitat restoration and invasive species management. She serves on the Long Island Invasive Species Management Area’s Scientific Review Committee, Suffolk County Invasive Species Advisory Board, and New York State Invasive Species Advisory Committee. Polly is the founder and coordinator of Long Island Native Plant Initiative (LINPI), a volunteer grass-root effort to preserve the biodiversity of Long Island’s ecosystems, by providing the initial sources of genetically native (ecotypic) plant materials to nursery, landscapers, governmental agencies, non-profit organizations, and the general public.

**Susan Whalen**, Deputy Commissioner of Environmental Conservation, Connecticut Department of Energy and Environmental Protection

**SYMPOSIUM OPENING REMARKS**

**Biography:**

Susan K. Whalen serves as Deputy Commissioner for Environmental Conservation at the Connecticut Department of Energy and Environmental Protection (CT DEEP), a position she has held since April 2008.

As Deputy Commissioner, Susan is responsible for the work of CT DEEP’s Bureau of Outdoor Recreation and Bureau of Natural Resources. These bureaus are charged with promoting and protecting the natural resources that contribute greatly to quality of life for Connecticut residents. Specific responsibilities include leading the extensive system of 139 state parks and forests; wildlife management; inland and marine fisheries; boating; environmental education; and oversight of the Environmental Conservation Police force.

Susan also plays a key role in implementing CT DEEP’s No Child Left Inside<sup>®</sup> initiative, a nationally recognized program that fosters greater appreciation and understanding of nature by connecting families and children with the outdoors. Susan is a veteran environmental conservation official with more than two decades in senior level positions managing state parks and natural resources. Before joining CT DEEP, she had previously held a number of senior positions with the Massachusetts Department of Environmental Management.

During her career, Susan also has served as a senior policy analyst for the Product Stewardship Institute and a consultant to Durand and Anastas Environmental Strategies, both based in Boston. She also ran her own design business for a number of years, specializing in historic landscape restoration. Susan holds a bachelor’s degree from Colby College, Waterville, Maine. She also studied landscape design and landscape history at Radcliffe College, Cambridge, MA.

**Chris Zimmerman**, Conservation Ecologist, The Nature Conservancy, Eastern New York

## **AN INVASIVE PLANT MANAGEMENT DECISION ANALYSIS TOOL**

### **Abstract:**

The Invasive Plant Management Decision Analysis Tool (IPMDAT) assists project managers in deciding if an invasive plant control project is warranted, feasible and has a high return on investment. The IPMDAT is comprised of a strategy-selection decision tree and three decision trees for specific control strategies (e.g. eradication, containment/exclusion and suppression) to determine whether control is feasible given the socio-political environment, biological attributes of the plant, effectiveness of control methods, risk of non-target impacts, and available resources. If the project is determined to be feasible, then the user is asked to weigh the cost and benefits of control project.

Three take home messages: 1) The likelihood of maintaining resources and organization support over the course of the project needs to be carefully considered before a project is initiated; 2) Identify an appropriate control strategy (eradication, containment or suppression); 3) Probability of detection and management of the seed bank are critical factors determining the feasibility of an eradication or containment project.

### **Biography:**

Chris has worked with The Nature Conservancy for over nine years. He earned a Bachelor's Degree from Evergreen State College with a focus in forest ecology, and a Master of Science Degree from Wright State University. With TNC, he works on forest health issues, the recovery of endangered species in Eastern NY and the development and implementation of invasive species control strategies in forest and wetland ecosystems. In the Catskill Mountains, he designed and implemented a survey that assessed the distribution of invasive plants over 250,000 acres. He is also the lead author of the Invasive Plant Management Decision Analysis Tool to determine when and when not to implement invasive plant management actions and is the co-author of a recent report evaluating the status of forest regeneration across NYS. He is interested in the intersection of conservation planning, strategy implementation, and measuring of success.

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