

SUDBURY, ASSABET, AND CONCORD COOPERATIVE INVASIVE SPECIES MANAGEMENT AREA

(SUASCO CISMA)

SPRING MEETING MINUTES

MARCH 12, 2013

The Spring 2013 membership meeting was held at the Visitor Center at Assabet River National Wildlife Refuge from 7 to 9 pm on Tuesday, March 12, 2013. 30 people were in attendance.

A mingling session was held from 7 to 7:30 pm. Members and guests snacked on refreshments provided by members of the SUASCO CISMA steering committee. Of particular note were the delicious Stinging Nettle Balls made by Russ Cohen of the Massachusetts Division of Ecological Restoration, Department of Fish and Game. A link to the recipe* for this scrumptious appetizer is available on the SUASCO CISMA website (http://www.cisma-suasco.org/sites/default/files/uploads/Cohen_StingingNettle_Balls.pdf).

Lynn Knight convened the meeting at 7:30 pm. She identified herself as the new SUASCO CISMA chairperson, and introduced the other officers: Laura Mattei, Sudbury Valley Trustees, vice-chair; Jeff Collins, MassAudubon, treasurer; and Lee Steppacher, National Park Service and Libby Herland, U.S. Fish and Wildlife Service, co-secretaries. Libby Herland was recognized for her service as chairperson for the last three years.

Lynn indicated that the three subcommittees – Administration, Outreach/Education, and Control/EDRR (Early Detection Early Response) were active and looking for new members. She reminded attendees that any member can sit on any subcommittee and that more information about the committees could be found on the CISMA website.

Lynn also reminded attendees to consider checking off a donation to the MassWildlife when they filed their state income taxes, as the Natural Heritage and Endangered Species Program receives the bulk of its funding from tax donations.

Amber Carr made a number of announcements, and all events are listed on the CISMA website in further detail:

- The CISMA 2012 newsletter has been compiled and printed. It describes projects funded by the Sudbury, Assabet and Concord Wild and Scenic River Stewardship Council (RSC) and individual partner projects.
- Green Fire, a movie about Aldo Leopold, will be shown March 19th at the Lincoln Land Trust
- UMASS Extension Invasive Plant Management Course (4 classes), will be held in Milford, MA. You can get core credits if you have a Massachusetts Pesticide Applicators License.

- As part of the Nyanza Restoration Plan, the U.S. Fish and Wildlife Service will be setting up a *Galerucella* beetle rearing facility again at the Assabet River NWR. Weekly trainings will be held for those who want to learn all the stages of rearing these beetles, which are the key biological control of purple loosestrife. Any organization who wants to tap into the Nyanza funding to rear beetles in 2014 and 2015 needs to participate in these training session in order to increase the likelihood of success with your individual project. Each session will range from 1 to 4 hours. Contact Amber Carr at amber_carr@fws.gov for more information.
- Russ Cohen will be giving a talk on Edible Wild Plants and Mushroom around Boxborough on April 6.
- IPANE EDDMapS training webinar will be held on April 8
- Walden Woods will host a talk by Jess Toro of Native Habitat Restoration in Housatonic, Mass. The date is not firmed up yet but the announcement will be on the CISMA website.
- There will be two aquatic weedwatchers trainings at the Visitor Center at Assabet River NWR. July 16, 2013 from 6 – 8 pm and August 7, 2013 from 6 – 8 pm.
- The New England Wildflower Society will host early detection training this year – date and place to be determined.
- The next Control/EDRR roundtable will be in September at the River Rock Grill. All are welcome to attend. Watch for a notice from Amber.
- The RSC has made an award of \$5,000 to support the CISMA's small grants program. The Administration Subcommittee will be sending out a Request for Proposals and hopes to be able to present projects for funding to the Steering Committee in May. Projects throughout the watershed are welcome but need to tie to the Sudbury, Assabet and Concord Rivers.
- We are in the second year of the National Fish and Wildlife Foundation grant and need to identify match dollars. Equipment that has been donated, work such as mowing that has taken place, and volunteer time may all be suitable matches. Please contact Amber Carr if you have a match that could possibly be applied to the grant.
- The CISMA has received \$1,047,500 from the Nyanza Natural Resources Damage Assessment (NRDA) process to implement the aquatic invasive project in the Restoration Plan. This will focus on water chestnut mapping and control, purple loosestrife mapping and control, and wild rice restoration on the Sudbury River. The implementation plan submitted by the CISMA has been approved by the Federal and State trustees. Highlights include the purchase of a new aquatic weed harvester, canoes for hand harvest of water chestnuts, and a 10-person crew to hand pull water chestnuts in areas that are not accessible to the harvester.

Lynn Knight then introduced Elizabeth Farnsworth, Ph.D., senior research ecologist at the New England Wild Flower Society. Elizabeth presented a fascinating talk entitled *21st Century Tools for Tackling*

Invasive Plants; Identify, Prioritize, Mobilize! She indicated that we work hard to control invasives, spend a lot of money on this control plus lots of sweat, blood and tears, and the good news is that we are making progress in 1) identifying the most invasive species; 2) targeting new potential invasives; 3) improving the science; 4) educating the public; and 5) restoring sites with volunteers. She encouraged us to focus on the success stories and to also learn from our work, referencing a study she conducted with her students on *Phragmites*. They studied the physiology and ecology of *Phragmites* to best determine a way to remove it, noticed that in *Phrag*-free zones that plant species richness increased through the first and second years, but that by the third year cattails had moved in there was less diversity. This raises the question that perhaps invasives are responding to conditions that contribute to or encourage monocultures. Eventually the *Phragmites* did start to repopulate their study area. What can we learn from events like this and how can we implement that for our own invasives management?

There has been considerable academic interest in recent years focused on invasive species and there is now peer-reviewed scientific literature on the subject of invasive species. Most of the data is of a short-term nature though and the need for longer term research remains.

Dr. Farnsworth's PowerPoint presentation has been saved as a PDF file on the CISMA website. Because of this, just a few highlights are provided below.

Identifying which species are most invasive: Elizabeth highlighted the Invasive Plant Atlas of New England (IPANE) data on the IPANE website (www.eddmaps.org/ipane/). Based on field data and herbarium data, the IPANE website shows the location of invasive plants in New England by quad. Invasiveness-impact scores have been developed (Magee *et al*) which identify the most aggressive invasive species. These help us get a better handle on which species might pose most problems for native plants. Map data has been published (Farnsworth) which shows the location of clusters of invasives at rare plant locations and shows that invasive hot spots are often prevalent along river systems. Data has also shown that diverse plant communities with rare plant species may be more prone to invasion by non-native species – they have good growing conditions that are attractive to invasive as well as native plants.

Targeting new potential invasives: Elizabeth described characteristics of invasive species and how these characteristics enhance the spread of these plants, like small seeds, plastic life history, able to grow in multiple habitat types, non-biotic pollination, and small genomes. For example, reed canary grass (*Phalaris arundinacea*), a very persistent grass found in wet areas and on riverine floodplains, exhibits polyploidy where it can produce multiple sets of chromosomes. With these multiple sets of genomes, an invasive species can more easily hybridize with another species. *Phragmites* has now been shown to also disperse by seed production in areas where there is considerable disturbance, and not just spread by rhizomes.

Improving the science: There is a significant increase in the number of scientific studies looking at many different aspects of invasive species, such as rapid evolution, allelopathy, demographic models, community assembly and invasibility, ecosystem ecology, plant-soil interactions, biotic homogenization, and response to climate change. Based on models, it can be predicted, for example, where in New

England Japanese barberry (*Berberis thunbergii*) will be distributed in the future. While the debate is not as dramatic as media might make it appear to be, there is discussion within the scientific community about how detrimental invasive species truly are—are they the “end of the world”, or is the case more that they are not as serious of a threat as we think. Given that ecology is all about change, there may still be positive impacts of invasives.

With a more robust scientific base, we can better understand and address both bottom-up and top-down effects on invasive species. For example, a warming climate impacts the nitrogen cycle, so we see a rise in pH and an increase in soil nitrogen. These conditions are more favorable to invasive species, such as Japanese Barberry, stiltgrass, and glossy buckthorn. Deer are an example of a top-down effect, as they assist with seed dispersal and favor foraging on native vegetation, giving invasives more room to spread.

Research has shown that native plant species richness and biomass is indicative of the number of herbivore species and weight, respectively, and is greater than the support provided to herbivores from alien species. Research has also shown that invasive plant species in Concord, Massachusetts have shifted their flowering times so that it is 11 days earlier than native species and 9 days earlier than non-native but non-invasive species. We can take advantage of this earlier growth though in our management actions, if we time it correctly. Elizabeth also provided some hope by indicating that not all invasives species will prosper as a result of climate change – some terrestrial natives’ growth increases with increased temperature, while some invasives experience a greater negative impact in drought conditions. For those interested in learning more about what is in the scientific literature, there are free journal apps, RSS feeds, Nature Serve I-ranks, and other places to get this information for free online.

Educating the public: GO BOTANY! GO BOTANY! GO BOTANY! Elizabeth walked us through Go Botany, a very user friendly website with a simple ID key containing 1,200 native and naturalized species developed by the New England Wild Flower Society and found at www.newenglandwild.org/gobotany. This website can be used to key out plants, and soon they will launch Plant Share, a feature that will function as an early detection resource and network. Plant Share will allow users to share plant sightings, create their own checklists of plants spotted, and georeference plant sightings to build a map. They provide a great deal of information about each species as well as a helpful “often confused with” feature. The site is so user friendly that you do not need to be a botanist to use it successfully.

Restoration with volunteers: Elizabeth presented information about a number of invasive species control projects that have been successful with the assistance of volunteers. It’s very important to keep volunteers engaged, educated, and learning. The major point here was to not only remove invasive plants from an area but to assist the restoration by planting native vegetation in the areas where the invasives have been removed. Elizabeth encouraged us to think of invasive species management as a science experiment and indicated that we need to understand the unexpected impacts of management, technical options, feasibility of control, risks, likelihood of success, etc. We need to share our information with others and we need to know when to walk away from a plant or an area and adopt a long view. Even if we are unsuccessful in eradicating an invasive species in an area, do not consider it a

complete loss – the management project still provides valuable data, and novel ecosystems do still function.

Audience Questions

Is it true that invasive species will naturally decline in an area over time?

There is some evidence that there is a “Now you see them, now you don’t” phenomenon, wherein invasives will move in to an area, boom, and then fade out. We really need to understand how they function in their native range before we can understand and predict those patterns here. It could also be a much longer time frame than we desire, such as 20 or 30 years.

Is it true that pulling mature garlic mustard plants can actually stimulate germination?

There is some evidence to this end, yes. This is because the plants often already have mature seeds even while they are still in flower, and pulling can disperse those seeds. Pulling adult garlic mustard is not entirely counter-productive, but timing is extremely important.

What is the Japanese knotweed battle timeframe?

Nearly perpetual, unfortunately. So far it seems that a very concerted removal effort plus drip herbicide techniques keeps it in check.

Is there a mobile version of the Go Botany page?

Not yet, but one is currently in development.

This was an excellent, very engaging presentation. Dr. Farnsworth answered a number of questions and the meeting ended around 9 pm.

*Russ has a website that contain wild edible recipes (<http://users.rcn.com/eatwild/recipes.htm>) and he has written a foraging book which is available from the publisher, the Essex County Greenbelt Association, at <http://www.ecga.org/store> and at the nature store run by the Friends of Assabet River NWR, located at the Visitor Center.