

## **A Resource Guide for Involving High School Students in Invasive Species Management Activities in the SUASCO CISMA.**



Prepared for the Partners of the  
Sudbury-Assabet-Concord Cooperative Invasive Species Management Area

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## **Introduction**

The SuAsCo CISMA (Cooperative Invasive Species Management Area) is a partnership of organizations that intend to manage and control invasive species in the Sudbury, Assabet, and Concord (SuAsCo) watershed. The partners in this CISMA wish to share information, educate, and plan strategies for dealing with invasive species. This CISMA will protect the biological, aesthetic, cultural, historical, and recreational values of natural areas, farmland, water resources, and scenic vistas by cooperating, coordinating activities, and sharing resources necessary for the prevention and control of invasive species on public and private lands across ownership boundaries within the CISMA.

Partners in the SuAsCo CISMA are committed to controlling invasive species in the SuAsCo watershed area through identifying new invasions, mapping existing invasions, pursuing control and monitoring efforts, and educating our members and the public. Each of these necessary steps to controlling invasive species is time consuming and resource-intensive, and volunteers are a critical part of almost any successful project. In the ongoing efforts to recruit, train, and retain volunteers, CISMA members have expressed an interest in engaging high school students in invasive species management. Almost every high school in the watershed asks students to contribute community service hours as a requirement for graduation, yet the question remains as how to best harness their interest, enthusiasm and energy. Here we propose a variety of avenues to first connect with and then engage high school students.

## **Making the Connection**

The first step to engaging high school students is to conduct outreach and make a connection with this audience. We recommend a two-pronged approach of reaching out directly to youth groups and/or their leaders while also creating a new media campaign to generate interest in the project.

### ***Outreach***

#### **High Schools**

We have provided a list of high schools that lie wholly or partly within the SuAsCo watershed at the end of this report. Many of these schools sponsor an extracurricular environmental club. The list contains contact information, including the names of environmental science club leaders. In addition to environmental clubs, some schools also sponsor an Envirothon team. The Envirothon is a statewide environmental education program for high school age young people and their advisors. They prepare through the year for a statewide event in May that tests their knowledge of forest, wildlife, water, and soil resources, and current environmental issues. Students involved in either an environmental club or an envirothon team are likely to be knowledgeable and passionate about environmental issues.

In addition to environmental clubs, many high schools require students to engage in community service projects. This provides another opportunity for students to become involved in invasive species management, especially for those students who are self-motivated. Many area guidance offices in area high schools post volunteer opportunities, and we suggest contacting guidance staff as a means of connecting with interested students.

Furthermore, members of the National Honor Society are required to perform community service as required by the bylaws of their local chapter. Members of the National Honor Society must conduct community service in order to maintain their membership in the organization. The organization states that community service must be conducted not only by individual members on an annual basis, but also by the chapter as a whole.

#### **Scout Groups**

Boy Scout and Girl Scout troops are often looking for community based projects in which to become engaged. There are many badges within each organization that require scouts to learn about nature. As a result, many scouts are also quite passionate and knowledgeable about the environment. Scouts could engage in a project as they work towards a particular badge, either in community service or nature and the environment. In the upper levels of scouting, some individuals strive to achieve either Eagle Scout status in the Boy Scouts, or Gold Award status in the Girl Scouts. This requires an individual to conduct a leadership service project that they themselves must plan, direct, and follow through to completion. Aspects of managing invasive species within the SuAsCo watershed could provide a good platform for scouts to achieve this goal.

#### **Home Based Learning**

Many families today are choosing home based learning as an alternative to public or private schooling. Some of these students are also involved with Envirothon teams. Others may be looking for science learning

opportunities that are outside of traditional science curricula. Therefore, we have also included a list of home based learning support groups within the SuAsCo watershed.

### **Other Youth Groups**

In addition to the above mentioned groups, church groups and sports teams are also often looking for a community based project with which to become engaged. These groups could also be contacted, or “Friended” via a Face Book website, to build awareness and generate interest in the project.

### **Local Conservation Commissions**

Conservation Commissions are often aware of both the ecological management needs within their communities, and interested parties looking to engage in an ecological management project. Therefore, Conservation Agents and Administrators and may be able to act as a liaison. We recommend that the CISMA conduct outreach to Conservation Commissions within the watershed to notify them of the CISMA’s interest in connecting with students and youth groups. Conservation Commissions could then direct interested parties to the CISMA coordinator. The Conservation Commissions of several towns are members of the SuAsCo CISMA. Conservation Agents from member towns may have additional ideas and resources for engaging citizens in invasive species management.

## ***New Media***

### **Web Site**

Developing a new media presence includes using the SuAsCo CISMA web site as an educational tool, as well as a mechanism to recruit groups or individuals in invasive species management. The site currently has links to the SuAsCo CISMA member organizations and has general information about volunteer opportunities. The CISMA Coordinator should ensure that all volunteer opportunities are listed on the website, especially activities, such as manual control work parties, that require very little training.

### **Facebook & Twitter**

We highly recommend that the SuAsCo CISMA develop and use a Facebook page to engage youth in invasive species management issues. Here students could share information – such as field notes from newly identified invasions. Furthermore, many cell phones these days are equipped with cameras. The Facebook page could also provide a platform on which students can share images - in real time. This allows students to be continually engaged in the projects they are working on, and for projects to have a dynamic presence on the web. Twitter also presents an opportunity for students to report their findings and progress. Additionally, students can receive feedback instantly - generating further interest in the project.

### **Google Earth**

Google Earth has the capacity to display photographs that are “geo-tagged”. The program also allows images and invasive species location data to be mapped. This provides another powerful tool for students to share their information – both with the CISMA as well as friends, teachers, and other interested parties.

## Hands-On Opportunities

Once groups or individuals interested in invasive species are identified, students should be given various opportunities to become engaged in a management project. While the average student is unlikely to reach proficiency in all aspects of invasive species management –plant identification, mapping, and treatment methods -- individuals may have particular interests in one or the other of these necessary tasks. Alternatively, groups of students could be utilized to participate in invasive plant “work party”, providing the man-power for hands-on eradication efforts.

It is important to provide different opportunities to encourage students with varied interests - from botany to technology to hands-on manual labor – to apply their talents and develop new skills and abilities. It is also important for students to deepen their connections with their schools, neighborhoods or towns, or with other interested environmental groups, such as the Conservation Commissions or Partners in the SuAsCo CISMA.

### *Invasive Species Management Tool Kit*

One avenue we propose is the development of an “Off-the-Shelf” kit with instructions for all aspects of invasive species management. The kit would consist of a curriculum that teaches the “How To’s” of basic plant identification, instructions for the application of state-of-the-art technology in mapping the location of invasives, and training in the manual control of invasive plants. We provide a more detailed description of these aspects below.

#### **Plant Id**

Plant identification requires the development of several observational skills that can be readily taught with instructive materials and specimens. Students should be taught the various leaf shapes, venation patterns, and plant morphology. Acquiring these skills will enable students to properly identify invasive species, and to rule out similar native species.

Students should spend time in the lab studying samples of invasive plants as well as other native species that are found in similar habitats. These skills should then be sharpened during field trips. Plant identification skills can be taught in-doors or out, day or night with several in-door training sessions and a field trip.

#### **Mapping**

Once invasive plant species have been identified, it is important to map the location and quantify the infestation. This allows managers to strategically implement control efforts. The Mass Audubon Ecological Extension Service has developed a method that uses state-of-the-art Geographic Information Systems technology. With this method, students use a hand-held Global Positioning System unit, equipped with maps and aerial photographs, to navigate in the field. The device is outfitted with data entry windows into which students record the species identified and the degree of infestation. The data is then easily transferred to computer programs that generate maps. The maps give managers critical information, and offers students with powerful feedback about their work.

#### **Invasive Species Control**

The final step in an invasive species management program is the physical treatment of plants. This type of work can be organized as a work party, with a group of students brought to a targeted locale and the directed to remove invasives from the site. The locale could be a site that was identified by the students themselves, or

it could be a site that was identified by others. For this age group, hands-on control efforts are best: hand pulling, cutting or digging. Students can also be trained to use specialized tools, such as the weed wrench.

### ***Additional Thoughts***

#### **Time**

Although students can be an engaged and enthusiastic work-force, many are extremely busy. Homework, extra-curricular activities, after school jobs, family time and free time all ply for their time. Therefore, we recommend exploring several time frames in which students could conduct this type of project.

Consideration should be given to afterschool, evenings, weekends, or during school vacations and in the summer. The SuAsCo CISMA could then formulate a number of different types of projects that are conducted between the short and long term.

#### **Cost**

GPS units and GIS software is expensive. It may be possible to use open source software to map infestations. Open Source programs, such as Google Maps api, present tech-savvy students with a programming interface that they might be able to master. Data could then be displayed and shared with many more users, and in a dynamic interface on the web, than if a highly developed software program (such as the industry standard ESRI) were used. On the other hand, companies like ESRI may be likely to make available monetary grants to organizations and schools for their products.

#### **Data Management**

However data are collected, the CISMA should also consider how data should be organized and transferred to best serve their needs and meet their objectives.

## High Schools Wholly or Partly within the SuAsCo Watershed

High School	Advisor's Name		Envirothon Team	Name of Student Group
Acton-Boxborough	<a href="#">Mr. Clinton</a>	978-264-4700	Yes	Outdoor Club
Ashland		(508) 881-0177	Yes	
Bedford	Mr. Griffin, Advisor	781-275-1700	Yes	ENVIRONMENTAL CLUB
Tahanto Regional (Berlin & Boylston)	Mrs. Doucette, Mrs. Mason	508-869-2333		Environmental
Billerica	<a href="#">Mr. Molloy</a>	978.528.8700		Environmental Club
Nahoba Regional (Bolton, Lancaster & Stow)	Mrs. Doucette, Mrs. Mason	(978) 779-2257		Environmental
Chelmsford	Mr. G Scott	(978) 251-5111	Yes	Chelmsford Science Org
Clinton		978.365.4208		
Concord-Carlisle	Ms. Guiney Ms. Murphy	(978) 318-1400		Environmental Field Studies Club
Framingham	Hennelly, Ellsworth	508-620-4963		Environmental Club
Grafton	<a href="#">Ms. K. Welch</a>	508-839-5425		<a href="#">Environmental Club</a>
Harvard		(978) 456-4152		
Holliston	<a href="#">Shawna Frost</a>	508-429-0677		<a href="#">HHS Environmental Club</a>
Hopkinton	Mr. Marzec	508.497.9820	Yes	Environmental Club
Hudson		(978) 567-6250		
Lincoln-Sudbury		978.443.9961	Yes	Environmental Club
Littleton	<a href="#">Cheryl Harrington</a>	978-952-2555		Science Club
Lowell		978-937-8900		Environmental Club
Marlborough		(508) 460-3509		
Maynard		(978) 897-8891	Yes	
Natick	Mr. Douglas Mulch	508-647-6600		Earth Club
Algonquin Regional (Northborough/Southborough)	Mrs. Halpin	(508) 351-7010		Environmental/Garden Club
Dover-Sherborn		(508) 785-1730		
Shrewsbury	Brooke Butler, Kris Cobb	508-841-8800	Yes	OUTDOORS CLUB
Tewksbury		(978) 640-7825	Yes	
Nipmuc Regional (Upton & Mendon)		508.634.1585	Yes	
Wayland		508-358-7746	Yes	
Westborough	Ms. Lotti	(508) 836-7720		Environmental Club
Westford		(978) 692-5570		ENVIROTHON
Weston	Mrs. Janet Kresl-Moffa	781-786-5800	Yes	SEA-Students for Environmental Action

## Scout Groups

### Boy Scouts of American, Knox Trail Council

LIBERTY DISTRICT: Ashland, Framingham, Holliston, Maynard, Natick, Sherborn, Stow, Sudbury, Wayland  
TRI RIVER DISTRICT: Hudson, Marlborough, Southborough, Westborough, Hopkinton, Milford, Hopedale,  
Mendon, Northborough

Knox Trail Council • Boy Scouts of America  
490 Union Avenue  
Framingham, MA 01702

Fax - 508.872.9092 Tel. - 508.872.6551

### Girl Scouts of America

Eastern Mass  
Boston Service Center HQ  
95 Berkeley Street, Boston, MA 02116  
T 800 882 1662 • F 617 482 9045

Central Mass  
Telephone: 800-462-9100  
[Email: info@gscwm.org](mailto:info@gscwm.org)



## Home Based Learning Support Groups

The [Homeschool Social Register](#) is a new service, developed by a Massachusetts homeschooler. Organized by towns, cities, and counties within each state and province, it provides a mechanism for you to get in touch with other homeschoolers in your area.

<http://www.homeschoolmedia.com/register> Acton Area

Voyagers, a homeschool resource center and cooperative, is based in Acton, MA and serves over 80 families from Massachusetts & New Hampshire. Voyagers offers study groups, workshops, and support by and for homeschooling families. Educational programs include nature activities, science, art, music, theatre (including a yearly Shakespeare production), a high school-level Mock Trial team, and much more. Programs are based upon ability and interest, rather than age. Voyagers currently runs on Mondays, Tuesdays, Wednesdays, and Thursdays. For more information please visit <http://www.voyagersinc.org> or e-mail [info@voyagersinc.org](mailto:info@voyagersinc.org).

### Billerica

Billerica Homeschooling Association is a resource and support group for homeschooling families in and around Billerica, MA. We are an open group that respects all homeschooling approaches and philosophies. The mission of our group is to increase homeschooling awareness and visibility, assist new homeschooling families, be a means for homeschooling families to connect, communicate and network, to create partnerships within the homeschooling community and those they live in, to develop homeschooling classes, events, activities and community service/outreach projects. For more information please visit our website, [www.billericahomeschooling.com](http://www.billericahomeschooling.com), or contact Jen Croce at [billericahomeschooling@live.com](mailto:billericahomeschooling@live.com).

### Boxborough

Nashoba Valley Homeschoolers: Kate Wheeler, [kate.wheeler@verizon.net](mailto:kate.wheeler@verizon.net), (978) 461-0151; primarily serves area surrounding Acton and Boxborough. We have monthly support group meetings and a strong interest in building community for teens.

### Central MA

ALOHA: A Loosely Organized Homeschooling Association . ALOHA is an independent homeschooling support group serving the Worcester County area. Families meet weekly for a variety of indoor and outdoor activities throughout the year. Additionally, we offer monthly parent meetings and a private online group. Please visit our web site at <http://www.alohahomeschool.org/> or email [alohahomeschool@yahoo.com](mailto:alohahomeschool@yahoo.com) or 978-827-5675 for more information.

Central Mass Homeschoolers: We are a Christ-centered, enrichment-based co-op that meets twelve times a year - two Fridays per month - at [Grace Baptist Church](#) in Hudson, MA. We are composed of approximately 40 families (100 kids) from all over the Metrowest area, including Marlborough, Hudson, Shrewsbury, Boylston, Worcester and beyond. The children range from

newborn through 12th grade. Please contact us through our website at <http://centralmasschristianhomeschool.schools.officelive.com/default.aspx>

Eastern MA

Catholic Homeschoolers in Massachusetts East (CHIME): Please visit our website <http://www.chimehomeschool.com/content/>.

Natick Area

Metrowest Homeschoolers: Inclusive group in the metrowest area for all ages. Field trips, monthly activities, and classes. To get on the e-mail loop visit <http://groups.yahoo.com/group/mwhsers/> for more information.

Westford Area

Christian Homeschool Club: Homeschoolers will engage in a multitude of activities, so that we can connect our families with our faithful values. Activities will include play groups, field trips and possibly classes. If anyone is interested, please visit our club website at <http://www.meetup.com/Christian-Homeschool-Club-of-MA> for more information.

## Conservation Commissions in the SuAsCo Watershed

<b>Town</b>	<b>Contact</b>	<b>Title</b>	<b>Phone Number</b>	<b>E-mail</b>
Acton	Terry Maitland	Chairman	(978) 929-6634	<a href="mailto:concom@acton-ma.gov">concom@acton-ma.gov</a>
Ashland	Matthew "Selby" Selby		(P) 508-881-0100 x656	<a href="mailto:mselecty@ashlandmass.com">mselecty@ashlandmass.com</a>
Bedford	Lori Eggert, Chair	Chairman	781-275-6211	
Berlin	Steve Beard	Member		<a href="mailto:Conservation@TownOfBerlin.com">Conservation@TownOfBerlin.com</a>
Billerica	Adam Bossi	Environmental Affairs Director	(978) 671-0966	<a href="mailto:abossi@town.billerica.ma.us">abossi@town.billerica.ma.us</a>
Bolton	Carol Gumbart	Administrator	978-779-3304	<a href="mailto:concom@townofbolton.com">concom@townofbolton.com</a>
Boxborough	Mary Nadwairski		(978) 263-1116, ext. 111	<a href="mailto:mary.nadwairski@town.boxborough.ma.us">mary.nadwairski@town.boxborough.ma.us</a>
Boylston	Melanie Rich	Administrative Assistant	508-869-6127	<a href="mailto:conservation@boylston-ma.gov">conservation@boylston-ma.gov</a>
Carlisle	Sylvia R. Willard	Conservation Administrator	978.369.0336	
Chelmsford	Thaddeus J. Soulé	Conservation Agent	978-250-5248	<a href="mailto:tsoule@townofchelmsford.us">tsoule@townofchelmsford.us</a>
Clinton	John Woodsmall III	Chairman	(978) 365-4127	
Concord	Delia Kaye	Natural Resources Director	(978) 318-3285	<a href="mailto:dkaye@concordma.gov">dkaye@concordma.gov</a>
Dover	Lori Hagerty	Admin. Assistant Conservation	(508) 785-0032 x233	<a href="mailto:conservation@doverma.org">conservation@doverma.org</a>
Sherborn	Bridget R. Graziano	Administrator/Agent	508-651-7863	<a href="mailto:conservation@sherbornma.org">conservation@sherbornma.org</a>
Framingham	Darren Guertin	Conservation Administrator	(508) 532-5460	<a href="mailto:dag@framinghamma.gov">dag@framinghamma.gov</a>
Grafton	Linda Dettloff	Conservation Agent	(508) 839-5335 x138	<a href="mailto:dettloffl@graffton-ma.gov">dettloffl@graffton-ma.gov</a>
Harvard	Liz Allard	Conservation Agent	978-456-4100 x 321	<a href="mailto:lallard@harvard.ma.us">lallard@harvard.ma.us</a>
Holliston	Charles Katuska	Conservation Agent	508-429-0607	<a href="mailto:conservation@holliston.k12.ma.us">conservation@holliston.k12.ma.us</a>
Hopkinton	Don MacAdam	Conservation Administrator	508-497-9757	<a href="mailto:dmacadam@hopkinton.org">dmacadam@hopkinton.org</a>
Hudson	Debbie Craig	Conservation Commission Administrator	978-562-2020	<a href="mailto:dcraig@townofhudson.org">dcraig@townofhudson.org</a>
Lancaster	Noreen Piazza	Planning Director	978-368-4007	<a href="mailto:npiazza@lancasterma.net">npiazza@lancasterma.net</a>
Lincoln	Tom Gumbart	Conservation Director	781-259-2612	<a href="mailto:gumbartt@lincolntown.org">gumbartt@lincolntown.org</a>

Littleton	Heather Hampson		978-540-2428	<a href="mailto:hhampson@littletonma.org">hhampson@littletonma.org</a>
Lowell	Craig Thomas	Assistant Planner	978-446-7200	<a href="mailto:cthomas@lowellma.gov">cthomas@lowellma.gov</a>
Marlborough	Priscilla Ryder	Conservation Officer	508-460-3768	<a href="mailto:pryder@marlborough-ma.gov">pryder@marlborough-ma.gov</a>
Maynard	Linda Hansen	Conservation Agent	978-897-1360	<a href="mailto:conscom@townofmaynard.net">conscom@townofmaynard.net</a>
Mendon	Diane Willoughby	Administrative Clerk	508-634-6898	<a href="mailto:concom@mendonma.gov">concom@mendonma.gov</a>
Natick	Robert Bois		(508) 647-6452	<a href="mailto:bbois@natickma.org">bbois@natickma.org</a>
Northborough	Wayne Baldelli	Chair	508-393-5015	
Shrewsbury	Brad Stone	Engineer - Conservation & Stormwater Coordinator	508-841-8502	<a href="mailto:bstone@th.ci.shrewsbury.ma.us">bstone@th.ci.shrewsbury.ma.us</a>
Southborough	Beth Rosenblum	Conservation Administrator	508-485-0710, x.3024	<a href="mailto:brosenblum@southboroughma.com">brosenblum@southboroughma.com</a>
Stow	Patricia Perry	Administrator	(978) 897-8615	
Sudbury	Debbie Dineen	Conservation Coordinator	978-443-2209 x1371	<a href="mailto:concom@sudbury.ma.us">concom@sudbury.ma.us</a>
Tewksbury	Michele Grenier	Planner/Conservation Agent	978-640-4370	<a href="mailto:concom@mendonma.gov">concom@mendonma.gov</a>
Upton	Denise Smith	Administrative Assistant	508-529-6286	<a href="mailto:concomm@upton.ma.us">concomm@upton.ma.us</a>
Wayland	Brian J. Monahan	Conservation Administrator	508-358-3669	<a href="mailto:bmonahan@wayland.ma.us">bmonahan@wayland.ma.us</a>
Westborough	Derek Saari	Assistant Town Planner/Conservation Officer	508-366-3014	
Westford	William Turner	Conservation/Resource Planner	978-692-5524	<a href="mailto:bturner@westfordma.gov">bturner@westfordma.gov</a>
Weston	Michele Grzenda	Conservation Administrator	781-786-5068	<a href="mailto:grzenda.m@westonmass.org">grzenda.m@westonmass.org</a>