

**SUASCO CISMA**  
**Invasive Species Management Plan (ISMP)**  
A Five-year Management Plan for the SUASCO  
Cooperative Invasive Species Management Area

**Introduction**

The Sudbury, Assabet and Concord Rivers (SuAsCo) watershed Cooperative Invasive Species Management Area (CISMA) is a group of federal, state and local land owners and land managers committed to controlling invasive species within the watershed (Exhibit A). The structure of the CISMA is detailed in the SUASCO CISMA Memorandum of Understanding. The CISMA group engages participants in a collaborative effort to share knowledge, expertise and resources as well as to coordinate invasive species management activities within the watershed.

Invasive species pose one of the greatest threats to the biodiversity, natural landscapes, agricultural interests, recreational activities, quality of life and scenic beauty of the watershed. There are many ways to deal with this threat including initial prevention, early detection, and control through manual removal, mechanical treatment, pesticide application, biological control, grazing and fire. Invasive species do not stop at ownership boundaries, and without a coordinated effort among a broad range of private and public land owners and land managers, these species will continue to invade our watershed, altering the habitat and reducing the recreational and aesthetic value of the watershed.

The intention of this plan is to guide management efforts within the watershed and determine priorities for management that will be detailed as Annual Priority Actions. The plan will be updated regularly to reflect new priorities within the watershed.

**Background**

The SuAsCo watershed is made up of 36 towns in the metro-west area of Massachusetts (Exhibit B). The watershed covers approximately 377 square miles and includes a variety of upland habitats, wetland habitats, historic sites, scenic sites and recreational areas. A portion of the Sudbury, Assabet and Concord Rivers has been designated as “Wild and Scenic” under the Wild and Scenic Rivers Act for its literary, recreational, scenic, historical, and ecological values. Approximately 60,000 acres or 23% of the land is considered to be permanently protected open space. Ownership of the open space within the watershed is broken down as follows: municipalities 39%, Commonwealth of Massachusetts 33%, Federal 10%, non-profit organizations 10%, and private land 7%.

**Purpose of the CISMA**

The purpose of the CISMA is to 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.

## Goals and Objectives

### Goal 1: Prevent introduction of new invasive species within the watershed.

We will adopt or create educational materials and programs to increase awareness of potential new invaders among CISMA members and *target communities* to reduce and prevent introduction of new species. Target communities may include aquarium hobbyists, boaters, anglers, bait shops, gardeners, landscapers, etc.

Objective 1: Gather information on potential new invasive species and pathways of their introduction and spread.

Objective 2: Identify and work with target communities and user groups to reduce likelihood of new invasions.

Objective 3: Design a “Keep Clean Areas Clean” program through the promotion of educational resources regarding prevention of new invasive species within the watershed such as those listed in Exhibit C.

### Goal 2: Implement an Early Detection--Rapid Response program within the watershed to prevent establishment of new invasive species and to eradicate infestations as they occur.

We will work with partners who have been involved in ED-RR programs to make best use of existing resources and use partner expertise to recruit and train a larger group of professionals and volunteers reporting new invasions and participating in eradication efforts. ED-RR efforts will be aimed at species not yet present in the watershed as well as species considered very recent new invaders such as Japanese stiltgrass.

Objective 1: Provide information to interested parties on identification of Early Detection species (see Exhibit D for a list of early detection/rapid response species).

Objective 2: Recruit a trained cadre of professional and volunteer naturalists able to identify potential new invaders.

Objective 3: Create a network and a mechanism for contacting and mobilizing professional and volunteer efforts to eradicate new infestations as they occur.

Objective 4: Map and monitor new infestations using CISMA standards to ensure invasive species has been eradicated.

Objective 5: Establish relationships with and learn from other organizations involved in Early Detection/Rapid Response efforts outside of watershed.

### Goal 3: Promote, facilitate, and coordinate invasive species management through appropriate treatment methods based on preferences and capacities of landowners/land managers.

Annual Priority Actions will include management activities focusing on high priority sites and species as further detailed in Exhibits E and F. Adoption of priority areas and species by the CISMA is intended to focus collaborative effort on the most problematic species and the areas of the watershed with the highest resource values and opportunities for collaborative management. The designated priority species and areas are subject to change overtime to reflect the current goals of the CISMA. CISMA priorities in no way preclude land owners and managers treating

other species, managing invasive species in other areas not listed in Exhibits E and F, or to receive funds to treat or manage invasive species or areas not listed in Exhibits E and F.

Objective 1: Plan, support, and commit available resources to treatment of invasive species in high priority sites and treatment of high priority species as adopted by CISMA. (See Exhibits E and F.)

Objective 2: Encourage and support mapping of existing infestations within the watershed using CISMA standards where feasible.

Objective 3: Encourage and support monitoring of treated areas over time using standards developed by CISMA.

Goal 4: Provide network for information and resource sharing among interested parties.

Perhaps the greatest strengths of the CISMA partnership are the wealth of information available among participant organizations and the spirit of collaboration expressed in the CISMA MOU. Meetings of the Steering Committee and sub-committees, site visits, joint trainings, and online tools will all be used to share information on best practices for invasive species prevention and management. Following the terms of the MOU, participants will share resources, as available, to enhance management efforts.

Objective 1: Develop and maintain a system for information sharing (possible tools include a website, list-serve, web-mapping and on-line database).

Objective 2: Solicit and share available information on areas inventoried and mapped for invasive species within the watershed.

Objective 3: Solicit and share methodology for invasive control, management projects, mapping and monitoring standards.

Objective 4: Solicit and share results of management practices, current research and control projects.

Objective 5: As feasible and mutually desirable, share available resources such as equipment, volunteer resources and information on licensed pesticide applicators.

Goal 5: Provide education and outreach to the local community to support overall efforts in invasive species control and management within the watershed.

Targets for education and outreach include conservation commissions, schoolchildren, private landowners, land managers, gardeners, landscaping professionals, and nurseries. Efforts could range from an invasive species focus in on-going member programs to a watershed-wide, multi-partner invasive species day including walks, demonstrations, control activities, and education.

Objective 1: Raise awareness of the impacts of invasive species in the local community by providing general information about invasive species and how they affect the watershed.

Objective 2: Build knowledge of invasive species identification and control through presentations aimed at adults and schoolchildren and innovative educational materials.

Objective 3: Provide printed publications and a focused list of online resources on invasive species identification and control promoting best practices for homeowners.

Objective 4: Raise awareness of invasive species treatment techniques and effectiveness through hands on invasive species education programs at demonstration sites within the watershed.

Objective 5: Promote invasive species control to private landowners and land managers by offering backyard identification and management advice.

Goal 6: Sustain and develop CISMA organization to continue invasive management efforts within the watershed.

The CISMA will be a self-sustaining entity, whether supported by outside funding or solely by the joint voluntary efforts of the participant organizations. Activities will be directed by the Steering Committee as defined and detailed in the CISMA MOU.

Objective 1: Create and maintain Steering Committee to develop, prioritize, and endorse cooperative invasive species projects; and develop community support, education, and training initiatives (MOU).

Objective 2: Create and maintain subcommittees to facilitate invasive species management, education, and outreach initiatives.

Objective 3: Develop Annual Priority Actions which, as defined in the MOU, direct the efforts of the CISMA partnership for the year.

Objective 4: Apply to appropriate grants or other funding sources to sustain CISMA organization.

Objective 5: Employ CISMA coordinator to collaborate watershed-wide efforts.

Objective 6: Engage in community outreach to build support for CISMA.

## **Exhibits**

### Exhibit A – Signatories & Supporting Partners

Principle Partners – The following organizations are signatories to the Memorandum of Understanding establishing the SUASCO CISMA.

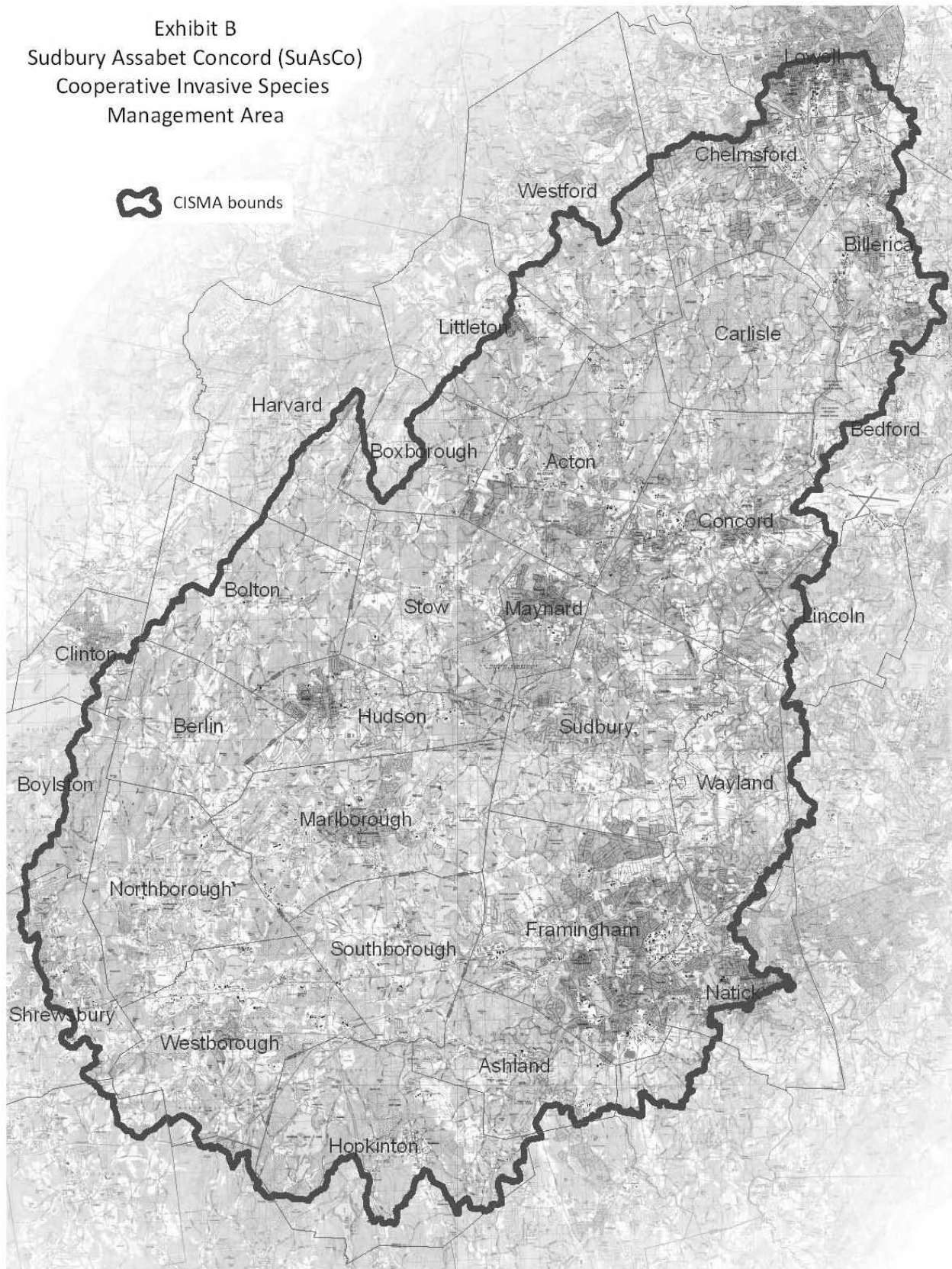
Carlisle Conservation Commission	New England Forestry Foundation
Concord Land Conservation Trust	New England Wild Flower Society
Concord Natural Resources Commission	Organization for the Assabet River
Friends of the Assabet River NWR	Southborough Open Land Foundation
Harvard Conservation Commission	Stow Conservation Commission
Hop Brook Protection Association	SUASCO Watershed Community Council
Lincoln Conservation Commission	SUASCO Wild & Scenic River Stewardship Council
Lincoln Land Conservation Trust	Sudbury River Watershed Organization
Littleton Conservation Commission	Sudbury Valley Trustees
Littleton Conservation Trust	The Trustees of Reservations
Marlborough Conservation Commission	Town of Sudbury
Mass Audubon	U.S. Fish & Wildlife Service
Maynard Conservation Commission	The Walden Woods Project
National Park Service	

Supporting Partners – The following organizations are not signatories to the MOU but are supportive of and interested in participating in some capacity in the SUASCO CISMA.

Massachusetts Fish and Game- Division of Ecological Restoration

Exhibit B  
Sudbury Assabet Concord (SuAsCo)  
Cooperative Invasive Species  
Management Area

 Cisma bounds



### Exhibit C – Educational Resources

- Defending Favorite Places: How Hunters and Anglers Can Stop the Spread of Invasive Species (<http://www.fs.fed.us/invasivespecies/prevention/defending.shtml>)
- Dangerous Travelers: Controlling Invasive Plants along America’s Roadways (<http://www.fs.fed.us/invasivespecies/prevention/dangeroustravelers.shtml>)
- Stop Aquatic Hitchhikers (<http://www.protectyourwaters.net/>)
- Defending Massachusetts against Biological Invaders (<http://www.mass.gov/czm/coastlines/2002/c33.htm>)
- New England Wildflower Society: Native Plants and Sustainability (<http://www.newfs.org/grow/why-grow-native-plants.html>)

### Exhibit D – Early Detection Species

The below list of potential invaders was devised by the Massachusetts Invasive Plant Advisory Group. These early detection species may already exist in the watershed but are not well established. These species are considered early detection when identified in a new location and have the potential to be eradicated. All species listed below are considered to be priority species for CISMA wide management efforts.

Flowering rush	<i>Butomus umbellatus</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Japanese stiltgrass	<i>Microstegium vimineum</i>
Kudzu	<i>Pueraria montana</i>
Mile-a-minute vine	<i>Polygonum perfoliatum</i>
Reed mannagrass	<i>Glyceria maxima</i>
Tansy ragwort/ stinking willie	<i>Senecio jacobaea</i>
Brazilian waterweed	<i>Egeria densa</i>
Great yellowcress	<i>Rorippa amphibia</i>
Hydrilla	<i>Hydrilla verticillata</i>
Parrot-feather	<i>Myriophyllum aquaticum</i>




## Exhibit E – Priority Areas

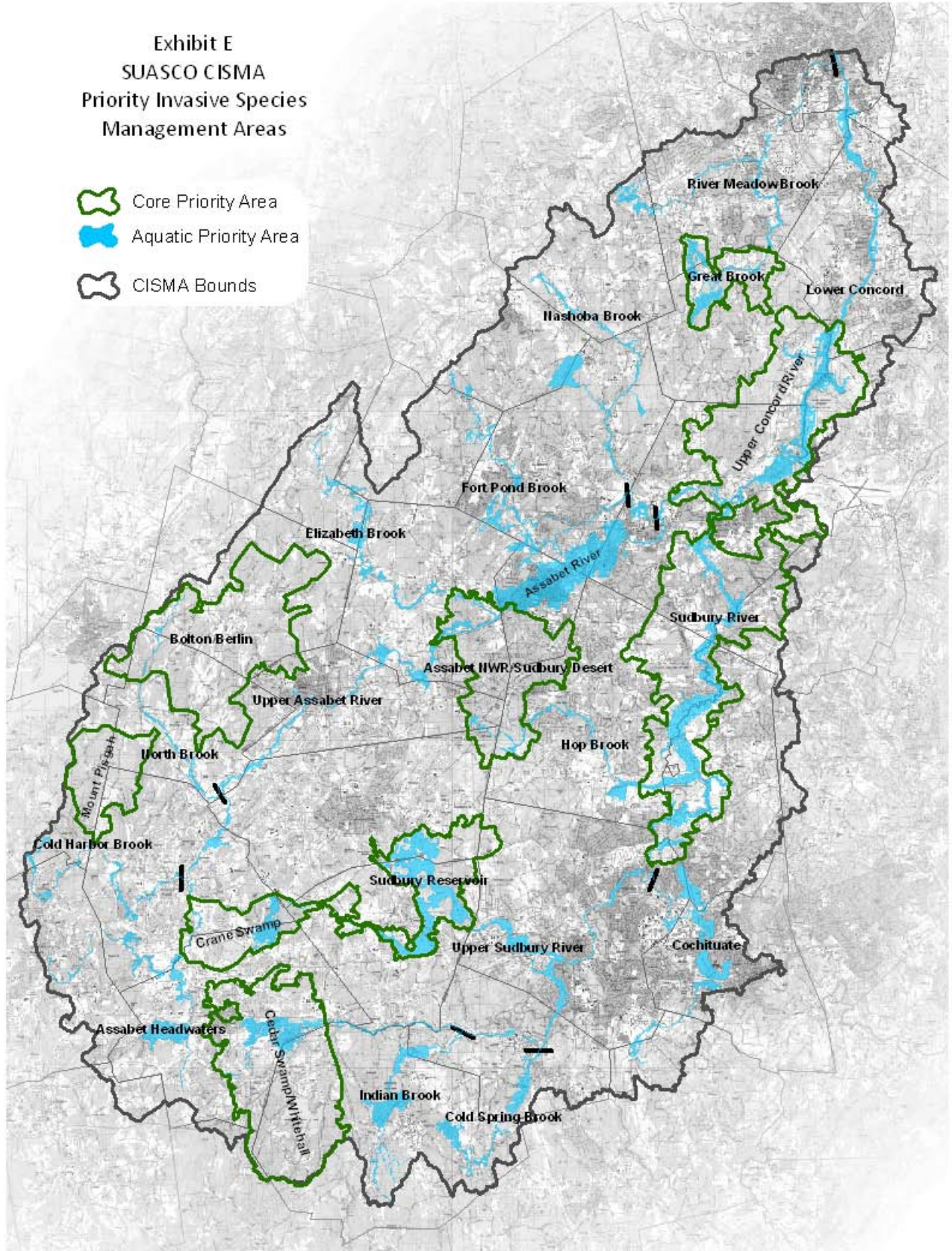
Identification of priority areas is intended to focus the allocation of resources through the CISMA on protecting the most important species and natural communities and maximizing the collaborative effort of contiguous conservation landowners. It is not intended to preclude invasive species management on properties outside of these areas, nor should it preclude funding for management on properties outside of these areas. Final priorities will be determined by the Steering Committee and any resources available through the CISMA will be allocated by the Steering Committee based on a number of factors.

There are two types of priority area: core and aquatic. The core priority areas were selected based on extent and variety of conservation ownership and presence of uncommon species and/or exemplary habitat as identified by the Massachusetts Natural Heritage & Endangered Species Program. Aquatic priority areas are intended to take in the main stems of the Assabet, Sudbury, and Concord Rivers and all major tributaries as well as important watersheds as identified in the NHESP Living Waters project. These river-based priorities are intended to recognize that management of aquatic invasives requires watershed-wide approaches.

Areas were identified with GIS software by combining data on open space and large unprotected natural areas; rivers, ponds, and wetlands; and important habitat as identified in the NHESP BioMap and Living Waters reports. In some places, priority area bounds were smoothed by including a developed area that lies in an otherwise intact block of protected land. The designated priority areas are subject to change over time to reflect the current goals of the CISMA. As new information becomes available the map will be updated accordingly.

Exhibit E  
SUASCO CISMA  
Priority Invasive Species  
Management Areas

-  Core Priority Area
-  Aquatic Priority Area
-  CISMA Bounds



## Exhibit F – Priority Species

This list is intended to identify invasive species which are high priorities for concerted management effort due to their ability to spread rapidly, their pervasive impact on habitat, and/or the existence of efficacious control methods. As with the Priority Areas identified in Exhibit E, this list is intended to focus CISMA-coordinated efforts on the species agreed by consensus to be priorities for collaborative effort, and is not intended to preclude control efforts focused on other species. The designated priority species are subject to change overtime to reflect the current goals of the CISMA.

- 1.) All Early Detection species listed in Exhibit D are considered priority species.
- 2.) These four species are watershed-wide, multi-partner collaboration target species. These species have potential for several partners to be involved in management, they invade waterways which cross through several landowners, impact recreational and habitat values, and have potential for control efforts to be successful in management not eradication.
  - Water chestnut (*Trapa natans*) – requires wide-area collaborative effort due to its aquatic dispersal; ongoing joint control efforts could be supported by CISMA
  - Purple loosestrife (*Lythrum salicaria*) – requires wide-area collaborative effort; candidate for biocontrol
  - Phragmites (*Phragmites australis*) – herbicide, mowing
  - Eurasian milfoil (*Myriophyllum spicatum*) – potential for biocontrol, herbicide and mechanical treatment
- 3.) These six species are watershed-wide, highly noxious species. These species spread quickly, form monocultures, alter soil chemistry, and are usually not extensive so eradication is possible.
  - Garlic mustard (*Alliaria petiolata*) – alters soil chemistry; good candidate for volunteer hand pulling
  - Japanese knotweed (*Polygonum cispdatum*) – potentially fast-spreading, dense-growing, easily dispersed
  - Spotted knapweed (*Centaurea biebersteinii*) – potential to severely impact grassland habitats; candidate for biocontrol
  - Tree of heaven (*Ailanthus altissima*) – wind-dispersed, aggressive growth; best dealt with preventatively
  - Black swallowwort/pale swallowwort (*Cynanchum louiseae/Cynanchum rossicum*) – aggressive, wind-dispersed species
  - Japanese stiltgrass (*Microstegium vimineum*) – also listed as an ED/RR species
- 4.) These seven species are well established species with known effective treatment methods. While watershed wide eradication is not likely, these species will be targeted for eradication in priority areas and in areas of new infestation.
  - Oriental bittersweet (*Celastrus orbiculatus*)
  - Glossy buckthorn (*Frangula alnus*)
  - Japanese barberry (*Berberis thunbergii*)

- Autumn olive (*Elaeagnus umbellata*)
- Bush honeysuckles (*Lonicera spp.*)
- Burning bush (*Euonymus alatus*)
- Multiflora rose (*Rosa multiflora*)