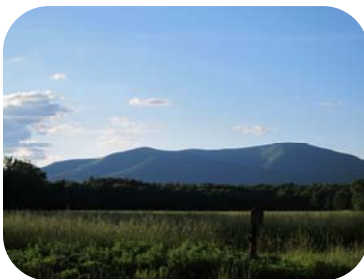




Catskill Regional Invasive Species Partnership

Strategic Plan

2011 – 2016



Introduction

Partnerships for Regional Invasive Species Management

Invasive species are defined by Environmental Conservation Law (9-1703 (1)) as non-native species that can cause harm to the environment or to human health. They are a form of biological pollution that comes from all around the world and the rate of invasion is increasing due to increasing international trade. A wide variety of species negatively impact many sectors of our world: our ecosystems, including all natural systems and managed forests; our food supply, including agricultural products and harvested wildlife, fish and shellfish; our built environments, including landscaping, infrastructure, industry, gardens and pets; our economy, recreation and human health.

Responding to this growing problem, New York State passed legislation in 2003 that created the New York Invasive Species Task Force (ISTF). The ISTF 2005 final report (<http://www.dec.ny.gov/animals/6989.html>) led to a 2008 statute, known as Title 17 of Environmental Conservation Law Article 9, which established the New York Invasive Species Council and Invasive Species Advisory Committee. The Council is co-led by the New York State Departments of Environmental Conservation (DEC) and Agriculture and Markets (DAM). Among the Council's numerous statutory responsibilities is the requirement, at 9-1705.5(g), to:

“support(ing) within available funds and encourage(ing) Partnerships for Regional Invasive Species Management [PRISMs] in their efforts to address invasive species through coordination, recruitment, and training of volunteers, education, early detection, rapid response, eradication, research, and planning”



PRISMs are a key component of the comprehensive and integrated approach taken by New York. This approach was recommended by the NYS Invasive Species Task Force and is being implemented by the Invasive Species Council. The Office of Invasive Species Coordination, established within the Department of Environmental Conservation in 2007,

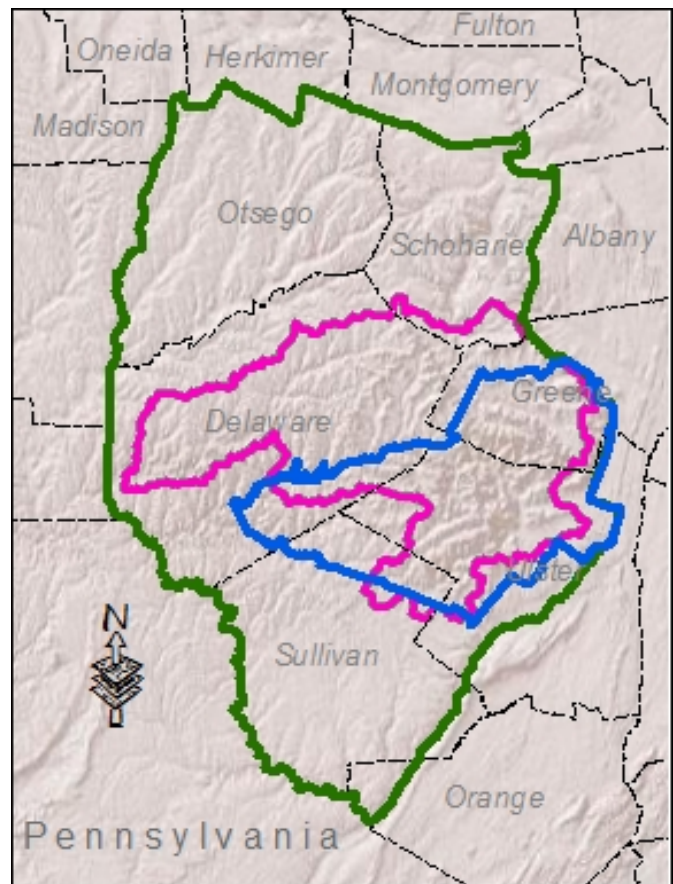
coordinates and administers new programs initiated over the last five years. These other programs include: the iMap Invasives database, which interactively tracks the distribution of invasive species; the Invasive Species Clearinghouse, which collects and disseminates

information on invasive species; the Invasive Species Research Institute, which coordinates research activities and shares results throughout the state; and the Invasive Species Education Program, which provides resources and directs the education and outreach messages on invasive species through the PRISMs and Cornell Cooperative Extension network. These programs all work collaboratively on different aspects of invasive species management to ultimately achieve a more effective prevention, detection, response and control strategy and to help protect native species, habitats, ecosystems, and economic resources.

The purpose of this document is to lay out the strategy by which the Catskill Regional Invasive Species Partnership (CRISP) will prevent the introduction of invasive species, identify and respond to early detections, and control existing populations. The priorities by which we will accomplish these objectives are outlined below.

CRISP Description

The geographic region of CRISP covers the Catskill Mountain Region of southeastern New York State, including the Catskill Park (outlined in blue) and part of the West of Hudson (WOH) New York City Water Supply Watershed (outlined in pink). The northern end of the region corresponds to the county boundaries of Otsego and Schoharie Counties and the western boundary corresponds to the county boundaries for Otsego, Delaware and Sullivan Counties. The southeastern boundary bisects Orange County at its westernmost corner and the northwestern half of Ulster County following Route 209. The northeastern boundary bisects Greene County at the Catskill Park boundary and continues along the Schoharie County boundary.



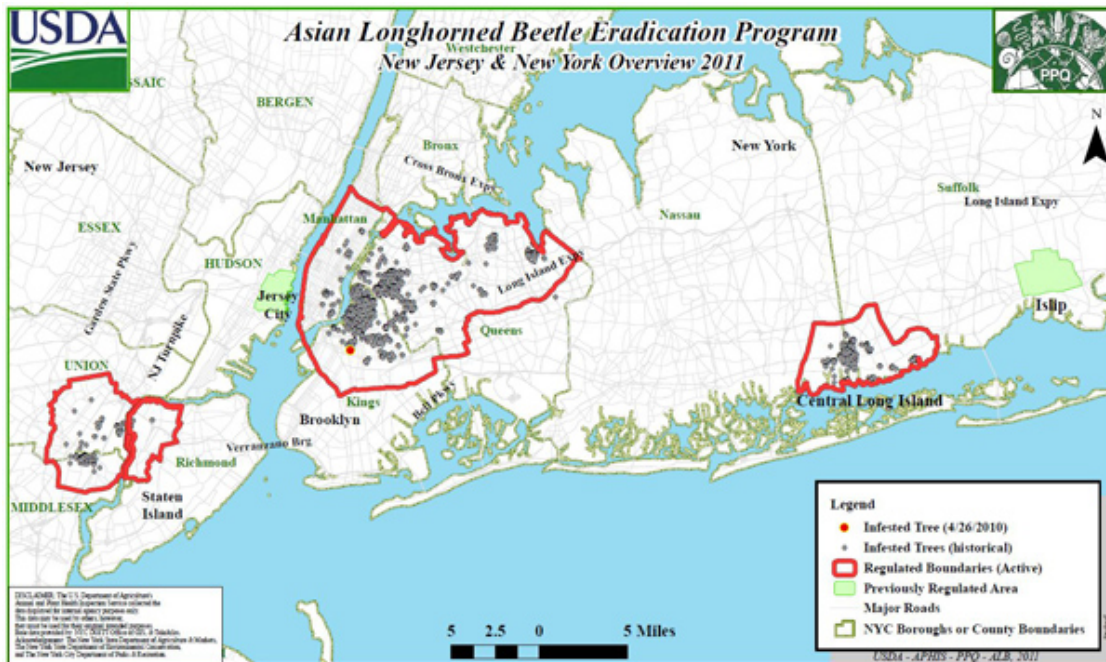
The Catskills are an important area for recreation and tourism. Hiking, fishing, skiing and other outdoor pastimes attract over half a million visitors each year from urban areas throughout the Northeast. Seasonal residents make up a large segment of the homeowners in many of the communities in the Catskills.

Estimated Population by County for CRISP Counties in 2009
(US Census)

County	Population
Otsego	61,602
Schoharie	31,529
Delaware	45,514
Greene	48,947
Ulster	181,440
Sullivan	75,828
Orange	383,532

Within the CRISP region, population density is much higher along the eastern boundary with a major increase in the Kingston-Woodstock area and along the Route 209 corridor. Although the population of Orange County is much greater than the other counties in the region, the portion contained within the CRISP boundary is relatively rural outside of Port Jervis; a city of under 9,000 at CRISP's southernmost tip.

From Port Jervis, it is only about 80 miles to New York City, a major port and the nearest Asian longhorned beetle (ALB) quarantine zone. Maple trees are the preferred host tree species for ALB and make up a large percentage of the Northern hardwood dominated Catskill forests. With ideal conditions for establishment, ALB is a real threat to this region, which is something that sets CRISP apart from other PRISMS throughout New York State.



Large tracts of contiguous forest put the Catskills at risk for rapid spread of a number of other forest pests such as hemlock woolly adelgid, emerald ash borer and those that may arrive in solid wooden packing material into the large ports of New York City. High levels of visitation for outdoor recreation and camping also increase the risk of firewood introductions for all of these species.

The forested landscape of the Catskill region includes a large percentage of land in private ownership and is an important part of the region's economy. Periodic harvests provide forest landowners with a source of income and contribute to the local tax base and employment. According to the Empire State Forest Products Association, in 2005 the forest products industry contributed \$3.7 billion to the State gross product.

There is also much land in the region that is held by public entities. The New York State Department of Environmental Conservation holds 287,500 acres of forest preserve land, which has been designated “forever wild” and cannot be logged. The New York City Department of Environmental Protection is another sizeable landholder with 136,495 acres and they continue to acquire more land in order to protect the water quality of the six WOH reservoirs that it maintains as part of the New York City drinking water supply.

Creeks and streams are another important habitat type for the region, supporting a number of diverse game and non-game fish communities and a diversity of macroinvertebrates. The northwestern and southern parts of the region are also dotted with lakes, while the six New York City Reservoirs are important landscape features in the central portion of the Catskills.

1) *Resources*

Scenic Resources

Tourism Resources

Agricultural Resources

Timber Resources

Partnership Resources

The execution of the contract between New York State Dept. of Environmental Conservation and The Catskill Center for Conservation and Development as the host organization for CRISP in October, 2010 provided resources to coordinate the efforts of the partners and to implement projects as identified to further the CRISP mission. These resources include a full-time coordinator, hosted at The Catskill Center for Conservation and Development and funds for contractual work.

New York State also provides support through The New York State Office of Invasive Species, The New York State Invasive Species Council, The New York Invasive Species Clearinghouse, The New York State Invasive Species Research Institute, and iMap Invasives.

The Catskill Center for Conservation and Development as a not-for-profit organization has the capacity to accept other contracts and grants to support invasive species work on behalf of CRISP.

The New York City Water Supply Watersheds also provide a unique and unifying feature for CRISP. With support from the New York City Department of Environmental Protection (DEP), programs such as the Watershed Agricultural Council’s (WAC) Forestry and Agricultural Programs

and the Stream Management Program provide many services to support landowners in managing invasive species. The WAC Forestry Program also assists landowners with forest management plans, supporting a high percentage of forest land that has a plan which includes an invasive species component. In addition to supporting programs throughout the watershed, DEP also coordinates and supports an internal Invasive Species Working Group that focuses on all aspects of invasive species planning and management on City-owned watershed lands and thus represents a potential nexus with CRISP in terms of public-private land and natural resource management issues that relate to invasive species.

There are many academic institutions with ties to this region, both State Universities of New York and private colleges. The Cary Institute, in Millbrook, NY conducts extensive research on invasive species in the Catskills despite not being located within the CRISP boundary. The Catskill Institute for the Environment has also accomplished a great deal in bringing the academic community closer together in the region.

A 2007 Cornell University Natural Resources Human Dimensions Research Unit study entitled *Public Awareness of Invasive Plants and Insects in the Catskills and Lower Hudson Region* established baseline documentation regarding invasive species awareness/knowledge for three target audiences (landowners, local officials, and forestry professionals).
<http://www2.dnr.cornell.edu/hdru/pubs/HDRUReport07-7.pdf>

The US Geological Survey (USGS) has collected massive datasets of stream monitoring readings from a network of stream gauges that can be used as baseline for other investigations.

Extensive work has also been done to survey and conduct outreach regarding campground firewood by the NYS Department of Environmental Conservation and The Nature Conservancy.

Many partnerships are already in place between agencies and organizations throughout the CRISP region. For example, The Nature Conservancy has an existing relationship with the NYS Department of Environmental Conservation and the DEP along with WAC. DEP also works with Cornell Cooperative Extension and the County Soil and Water Conservation Districts in the Watershed Stream Management Programs.

As a partnership, CRISP has access to the immense resources of all of the partnering organizations and agencies. These resources include information, personnel, and supplies.

2) *Partners*

In 2005 The NYS Invasive Species Task Force formed eight Partnerships for Regional Invasive Species Management (PRISMs) covering the entire state to prevent or minimize the harm caused by invasive species on New York's environment, economy and the health and well-being of the State's citizens. PRISMs were intended to coordinate invasive species management functions including coordinating partner efforts, recruiting and training citizen volunteers, identifying and delivering education and outreach, establishing early detection monitoring networks and implementing direct eradication and control efforts. In the Catskills, a group of organizations and agencies came together to discuss their common interest in invasive species in the region and formed CRISP.

<i>Organizations and Agencies of the Executive Committee, (ie. Principal partners)</i>	<i>Other Partner Organizations and Agencies in CRISP</i>
<p>NYS Dept. Environmental Conservation NYS Dept. of Transportation NYS Dept. of Ag & Markets The Catskill Center for Conservation and Development The Nature Conservancy Cornell Cooperative Extension NYC Dept. of Environmental Protection Catskill Forest Association Watershed Ag Council County Soil and Water Conservation Districts The National Park Service</p>	<p>SUNY Oneonta SUNY ESF New York Forest Owner Association Trout Unlimited NYS Department of Parks and Recreation Catskills Native Plant Nursery Mountain Top Arboretum Upper Delaware Council Society of American Foresters Hartwick College Frost Valley YMCA New York New Jersey Trail Conference Catskill Mountain Club Farm Bureau Institute of Ecosystem Studies Olive Natural Heritage Society NRCS County Staff Delaware River Basin Commission Friends of the Beaverkill Sullivan County Master Gardeners Delaware Highlands Conservancy Callicoon Creek Park Committee Upper Susquehanna Coalition Otsego Lake Association Catskill Watershed Corporation USGS US Forest Service USDA APHIS Catskill Landowners Association Ulster County Department of the Environment</p>

3) *Mission*

CRISP promotes prevention, early detection and rapid response, and in limited areas/cases, broader control of invasive species to protect natural resources. In addition to conducting public outreach and management activities, CRISP will support research regarding ecological impact and effective controls of invasive species.

B. Overview of IS problem in PRISM including any major PRISM-specific pathways (*describe “current state”*)

1) *Overview of Invasive Species Issues in CRISP*

Forest Pests and Pathogens

The forest cover in the Catskill Park is 72% based on the forest canopy cover in 2001 National Land Cover Dataset, which is one of the most heavily forested area in New York State, second only to the Adirondacks. These forests have tremendous ecological and economic importance. Forests are relied upon for industry, recreation, clean drinking water, and biodiversity for this region. The trees in this region are currently experiencing the negative impacts of the hemlock wooly adelgid and the emerald ash borer (EAB) and face the threat of several other dangerous forest pests such as the Asian longhorned beetle (ALB) and the sirenix wood wasp. ALB is of particular concern to this region due to the abundance of sugar maple, their preferred host tree, and the proximity to the New York City and Massachusetts quarantine areas. Residents from both quarantine areas are frequent visitors to the Catskills for recreation and camping, potentially bringing along a damaging forest pest in their firewood.



Asian longhorned beetle
Photo Credit: Pennsylvania Department
of Conservation and Natural Resources
- Forestry Archive, Bugwood.org

Terrestrial Invasive Plants

The threat of invasive plant species introduced to forest ecosystems of the Catskill Mountains via transportation corridors in eastern New York has not been well documented. A study done in 2006 by the Eastern Chapter of The Nature Conservancy assessed the distribution and threat of 12 invasive plant species to forest and aquatic ecosystems in the Catskill Mountains and identified factors that best predicted their distribution. Species considered during the study were chosen because they are known to be invasive in New York State and have the potential to occur in the Catskill Mountains. They included: Norway maple (*Acer platanoides*), garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), Asiatic bittersweet (*Celastrus orbiculatus*), autumn olive (*Elaeagnus umbellata*), Japanese knotweed (*Polygonum cuspidatum*), bush honeysuckle (*Lonicera* spp.), purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), buckthorn (*Rhamnus* spp.), multiflora rose (*Rosa multiflora*), and black swallow-wort (*Vincetoxicum nigrum*).

An invasive species inventory is an important first step in developing a comprehensive invasive plant species management program. By determining the frequency, distribution, and threat of invasive plant species, prevention, early detection and rapid response, and control strategies can be developed to target high threat species and maintain “weed free” and other priority management areas. A comprehensive invasive species management program will abate the negative impact of invasive plant species on the forest and aquatic ecosystems in the Catskill Region.

Aquatic Invasive Species

Little is known about the current distribution of aquatic invasive plants throughout the Catskills. Didymo, *Didymosphenia geminata*, also known as rock snot, has been found in the Esopus Creek, Rondout Creek and the Delaware River. This invasive diatom has limited management potential. The main action that CRISP is able to take is to educate the public about the risk of boots and gear as a means of transmitting Didymo to other streams in the region. Inventory has been done on a limited scale in the NYC watershed, but a broader look is needed for the entire region.

In December, 2010, the SUNY Oneonta Research Foundation was contracted by CRISP to do an aquatic invasive species inventory for lakes in streams in 5 different watersheds within the Catskills. The results of this inventory guide further decision making on strategies for prevention and management of invasive aquatic species.

2) *Pathways*

Firewood and Untreated Wood Movement

Forest pests and pathogens pose a chief threat to the health of the forest ecosystems and economy in the region. Movement of firewood and other wood products is considered the primary vector. With the detection of the emerald ash borer in the summer of 2010 on the eastern side of the Catskills, the importance of regulating the movement of wood products was made clear. The large amount of public land and lands open for camping that are likely to bring in firewood from outside the region put the CRISP region at risk.

Boats and boots

Recreational fishing is an important pathway for the movement of aquatic invasive species in the Catskills with the abundance trout fishing, lakes, streams and reservoirs. Boats are known vectors of aquatic plant materials and standards for boat cleaning are only in place on a limited number of water bodies. The aquatic invasive diatom, Didymo or rock snot has become established in some streams in the region and can easily be spread by droplets of water on fishing gear and can persist in the moisture of felt-soled boots over long periods.

Soil

The movement of fill or soil from one site to another can spread invasive plant propagules both within the region and from other regions into this area as well as non-native earthworms. Japanese knotweed is commonly brought to new areas in this way because of the ability of the plant to reproduce from tiny fragments of virtually every part of the plant. These fragments can take root in areas and establish new populations in areas previously free of this invasive plant. Seeds are also contained in untreated soil, allowing for long-distance transportation of any invasive plant.

Nurseries and Landscaping

Historically, the nursery industry has brought invasive ornamental plants to new areas. Known invasive species such as barberry and burning bush are still commonly planted in the region. Inadvertent introduction of invasive pests may also occur in the movement of plants and plant materials. The emerald ash borer was introduced to Maryland in infested seedlings that were used in landscaping.

Roads and Corridors

Roads and other types of corridors that bisect the landscape are a great way to move things from one place to another, including invasive species. In mowing and maintaining roadsides and right-of-ways invasive plant seeds can be spread over great distances by equipment.

Natural Spread

Streams carry plant materials and aquatic organisms throughout a watershed and the wind can carry seeds great distances. Insects will naturally disperse by flight and can also be carried by birds, as is the case with hemlock wooly adelgid.

- a. **Causes** (*describe known stressors, problems, threats; focus on underlying problems, not the superficial expressions of problems*)

Declining forest health is an underlying problem across most of the Catskill region. This can be attributed to a suite of threats including invasive plants, forest pests and pathogens.

- i. High deer populations throughout the state and region limit the capacity for forests to regenerate. Many areas are so heavily browsed that there is little vegetation in the understory. Invasive species that are less favored by deer, such as barberry and multiflora rose, thrive in forests where little else will grow.
- ii. Human disturbance and forest fragmentation are an underlying problem that increases edge effects in forests. Many successful invasive plants are adapted for edge environments, such as vines like Asiatic bittersweet and porcelain berry.
- iii. Climate change is altering Catskill ecosystems, too. By changing the amount and seasonal distribution of precipitation and temperature patterns, climate change allows for the proliferation of invasive species

that are intolerant of cold. Stressed communities are more open and their resources are ripe for the invasion and establishment of invasive plant species. The invaders may also be better adapted than native species to the new environmental conditions resulting from climate change.

- iv. Atmospheric deposition is another important factor influencing the level of stress on some ecosystems. Studies done by the United States Geological Society and Cornell University show that decreased levels of sulfuric acid and nitric acid are changing the acidity of precipitation in New York. After several decades of high acidity impacts on higher elevation forests, including the loss of calcium in soils, these changes will continue to provide an opportunity for invaders to capitalize on an unbalanced system.

b. Identify PRISM's priority issues

CRISP's priority issues are preventing the introduction of invasive forest pests and pathogens, and terrestrial and aquatic plants and animals. Species that are in close proximity to the CRISP region and that have the potential to have the greatest negative impact are the highest priority. Asian longhorned beetle is the highest priority forest pest since it has been found in the southern part of the state and could potentially destroy most of the hardwood trees in Catskill forests. Mile-a-minute vine and giant hogweed are two priority terrestrial plants. There are no known established populations of mile a minute but it is established just outside the CRISP boundary. Giant hogweed represents a real threat to human health due to the phytotoxic properties of its sap and is already present in small populations within the region. Zebra mussels are an aquatic invasive that have been found in a small number of water bodies in the region and are a priority species for spread prevention.

If prevention efforts are not enough, and a species of concern is found, early detection and rapid response will be employed when possible to eradicate new populations before establishment occurs. In certain cases and areas where appropriate, containment and suppression control methods will be used to manage certain species.

2. Vision, Goals (*describe "desired state"; long term, broad statements of intent describing what we want, not how to get there*)

CRISP's vision is to protect the ecological integrity, water resources, recreational values and the economy from the devastating impacts of invasive species, working across a diverse landscape with both public and private landowners.

In five years, at the closing of CRISP's first contract, the region is envisioned to be as ecologically diverse as it is today, with minimal impacts from invasive species and

much greater public awareness of invasive species issues. There will be strong measures in place to prevent new introductions.

Prevention

Goal 1: Prevent the introduction of new invasive species into the Catskill region as defined by the CRISP boundary, particularly the Asian longhorned beetle.

Objectives

- A. By 2014, 75% of Catskill region residents can identify the Asian longhorned beetle.
- B. By 2014, 90% of visitors to the Catskill region know of and abide by firewood regulations.
- C. By 2014, 75% of boat owners will be aware of proper boat cleaning techniques.
- D. By 2014, 95% of boats entering into select lakes and reservoirs will have properly cleaned boats and trailers.
- E. By 2014, 75% of anglers will be aware of the potential to transport aquatic invasive species and the techniques to prevent doing so.
- F. By 2014, management plans will be developed for several important vectors of invasive species spread, beginning with a plan to help landowners, foresters and loggers prevent the spread of invasive plants through forestry practices and they will be adopted by 25% of professionals working in the region.

Strategies

- 1. Develop a CRISP Communications Plan to provide consistent messaging from Partners
- 2. Fund an ALB public outreach campaign by a professional marketing/PR firm (Objective A)
- 3. Conduct outreach at festivals (Partners)
- 4. Promote the Don't Move Firewood message in CRISP materials and on the web (Objective B)
- 5. Establish a boat steward program to conduct outreach and monitor weed movement at boat launch sites
- 6. Coordinate Don't Move Firewood outreach to campers at NYS and private campgrounds
- 7. Develop IS education materials

Outputs

- 30 festivals attended /year and 25 educational events held/year
- CRISP communications plan, education & outreach plan, and boat steward program
- 30 boat stewards trained
- 1,000 boaters reached
- 1,000 boats checked for IS
- 15,000 communications regarding Don't Move Firewood
- 20,000 people reached through education & outreach activities

Outcomes

- A decrease in the number of new established IS populations
- 50% fewer invasive plants are sold in nurseries
- 99% of nursery, forestry, and tree service industry professionals comply with IS regulations
- A two-fold increase in public awareness of IS as measured against 2007 baseline report by Cornell
- 90% of boats are cleaned before they enter a new water body
- No ALB detections
- No zebra mussel detections
- All public campgrounds and 75% of private campgrounds include firewood origin on their registration forms
- EAB movement is minimized to near natural spread

Early Detection

Goal 2: Stop and/or slow the spread of new invasive species infestations or invasions in previously pristine areas through early detection and rapid response programs.

Objectives

- A. By 2014, an early detection monitoring network will be established with Cornell Cooperative Extension associations to receive public observations and will respond to all reports.
- B. By 2014, a rapid response strategy will be established for CRISP and will allow any new detection to be verified, delimited and removed within 3 months, depending on season and other conditions (See early detection species list, Table X).
- C. By 2014, at least 300 people will have learned how to identify the top 10 invasive plants selected by CRISP and 50 people will be engaged in actively mapping them using iMap Invasives.

- D. By 2014, at least 3 invasive species prevention zones will have been established and any invasive species detected in them will be removed within 6 months of detection.

Strategies

1. Contract/partner with Cornell Cooperative Extension to provide an early detection monitoring network with trained Master Gardeners and other volunteers (Objective A).
2. Develop a rapid response strategy/plan for CRISP
3. Educate groups (particularly arborists, foresters, tree crews, and other professionals working in the field) on invasive plant ID with a presentation on the top ten priority invasive plants, which include several early detection species
4. Designated Invasive Species Prevention Zones (areas that are relatively pristine and should remain so)
5. Continue to conduct invasive forest pest outreach and promote citizen science opportunities, such as the Sentinel Tree Project and the isolated ash grove monitoring, and conduct campground surveys for Asian longhorned beetle.

Outputs

- Rapid response capacity is established and quantified
- Rapid response protocols are developed and utilized
- Trained responders for EDRR are identified in each CRISP County
- 100 volunteers trained
- 25 groups are educated on top 10 species
- At least 300 trees will be surveyed by CRISP partners and volunteers for forest pests
- 3 IS Prevention Zones Established

Outcomes

- 75% of arborists, foresters, tree crews, and other professionals working in the field can identify EAB/ALB and the priority early detection plant species.
- IS Prevention Zones remain invasive free
- Current or new infestations are contained and/or do not spread
- At least 10 volunteers in each county are actively mapping the top 10 species
- Telephone hotlines are established for reporting IS detections
- CRISP website is active and utilized for all purposes listed above
- New infestations are reported quickly and tracked/documented according to established protocols and procedures

Control

Goal 3: Control invasive species using best management practices based on priorities outlined in the CRISP Engagement Policy.

Objectives

- A. By 2012, all CRISP funded control projects meet the criteria outlined in the CRISP Engagement Policy.
- B. By 2014, CRISP controls early detections with a rapid response and all new invasions detected within any designated invasive species prevention zones are removed within 6 months.
- C. By 2013, CRISP will complete an invasive plant management guide for large and small landowners to mitigate impacts of invasive plants and provide workshops on how to implement these strategies.
- D. By 2014, 50% of landowners are aware of the best management practices for managing the most common invasive species in the Catskills on their property and 25% are implementing them.
- E. By 2014, 90% of Catskill municipalities will have embarked on a campaign to cease planting and begin removing existing invasive plants from their municipal street tree, park and other municipal plantings.
- F. By 2013 a CRISP biocontrol program will be established to assist state efforts in controlling target priority species such as the emerald ash borer and hemlock wooly adelgid.

Strategies

- 1. Test best management practices for the removal of invasive species in the Catskills
- 2. Support projects that are in line with the engagement policy using CRISP funds
- 3. Identify and pursue other funding opportunities for control projects, such as biocontrol
- 4. Use invasive species prevention zones as a way to prioritize control work
- 5. Use the early detection network to identify areas for rapid response control projects
- 6. Create a CRISP priority list for species to engage in control projects
- 7. Develop and disseminate guidelines for invasive plant management for landowners
- 8. Develop a fund in conjunction with municipalities to replace invasive ornamental plantings with native plants in public areas

Outputs

- CRISP Management Plans are developed
- 3 IS Prevention Zones are maintained

- Priority Species List is updated annually
- > 60 Citizen Scientists are trained in early detection
- > 1 grant/year is secured for CRISP projects after 2011
- RFP is developed and issued every year for CRISP contracts
- BMPs are established for control of species spread by 5 vectors
- 100 landowners are trained
- 1,000 acres managed
- 3 CRISP sponsored control projects completed
- Engagement policy is updated and followed by CRISP members

Outcomes

- 10% increase in native species following removal
- 97% fewer invasives will be present following removal and monitoring
- 75% adoption of control protocols
- IS Prevention Zones remain invasive free

Awareness

Goal 4: Raise public awareness of invasive species in the CRISP region.

Objectives

- A. By 2013, 85% of larger Catskills communities will be aware that they are losing ash trees from the emerald ash borer, know where their priority ash trees are, and be preparing for their management.
- B. By 2014, 50% of arborists, landscapers, foresters, and other outdoor professionals can identify the top ten priority plant species.
- C. By 2014, 70% of Catskills residents can identify the Asian longhorned beetle and the emerald ash borer.
- D. By 2014, 95% of Catskills residents and 75% of visitors know about firewood regulations.
- E. By 2014, all local governments will be familiar with CRISP and will have a general understanding of the implications of invasive species in the region.
- F. By 2014, at least 1,000 individuals will have attended a CRISP sponsored training on invasive species and will have a general understanding of the most important IS issues.

Strategies

1. Recruit and train volunteers
2. Develop and deliver education programs on the top 10 priority invasive plants and forest pests

3. Establish a communications plan to achieve consistent messaging – Don't Move Firewood, etc.
4. Promote native plantings vs. non-native for landscaping
5. Establish a boat stewards/stream stewards program
6. Involve and engage the public and local governments
7. Create reporting systems for partners to report education and outreach projects

Outputs

- 10 education programs offered with 300 people attending
- 25 of boat/stream stewards trained
- 100 volunteers trained
- 15 groups educated on top 10 IS species

Outcomes

- 25 of early detections from the public
- 0 new EAB occurrences outside of the natural spread area
- 50% of professionals working in the field can identify top 10 species
- 30% increase in awareness of IS issues since 2007 Cornell Human Dimensions Research Unit study
- 25+ local governments are aware of the most important issues and are acting on them
- 5 volunteers in each county are actively mapping top 10 species
- 90% of campers purchasing firewood
- >25 firewood confiscations / campground / summer

Science

Goal 5: Support the improvement of scientific understanding of the extent, ecological impact, and effective controls of invasive species in the Catskills and Delaware region.

Objectives

- A. By 2012, CRISP will have a preliminary understanding of the number and extent of the aquatic invasive species found in our lakes and streams.
- B. By 2014, at least three different citizen science projects will be sponsored by CRISP.
- C. By 2014, there will be greater than 100 trained iMap Invasives users actively logging occurrence data for invasive species in the Catskills.
- D. By 2014, work will be done to research 3 topics that have been identified by CRISP and passed along to the New York Invasive Species Research Institute.

- E. By 2014, CRISP will develop at least 3 demonstration projects that illustrate the effectiveness of best management practices for controlling invasive species.
- F. By 2012, CRISP will have an understanding of the terrestrial invasive plants most likely to invade newly disturbed sites.
- G. By 2013, at least 25 Catskill communities will have ash tree street inventories completed and will be preparing for the EAB.

Strategies

1. Conduct an aquatic invasive species inventory
2. Support research through citizen science
3. Use trained volunteers and iMap Invasives to increase the occurrence dataset for the Catskills
4. Inventory terrestrial invasive plants that invade newly disturbed sites.
5. Identify local invasive species research needs and communicate them to the NY Invasive Species Research Institute
6. Test and disseminate BMPs through demonstration projects
7. Support research on other ecological issues that are connected to invasive species, such as deer management through citizen science
8. Recruit and train volunteers to assist with the Catskill Community Ash Tree Inventory Project, Ash Sentinel Tree Project, and Isolated Ash Grove Monitoring project

Outputs

- An aquatic inventory is completed for at least 10 lakes and 2 streams from 5 watersheds
- > 6 different Citizen Science, monitoring, inventory/mapping, and BMP testing projects are supported (funded or given staff/partner support)
- 100+ Citizen Scientists are trained
- CRISP representatives attend pertinent meetings, such as DEC public meetings on deer
- CRISP includes 3+ research recommendations in the annual report directed to NYISRI
- > 100 new occurrence points are added to iMap/year
- 25 ash tree inventories are completed
- Appropriate monitoring is done for 90% of partner control projects
- > 20 Sentinel Trees are monitored for EAB.

Outcomes

- 99% of early detections of priority aquatic species (IDed by inventory) are eradicated
- Ash trees are managed on public road right-of-ways in the Catskills with no hazard tree incidents involving ash trees.

- Statewide knowledge of the spread of the EAB through sentinel trees allows for increased landowner preparedness, with 80% of large-landowners (own 5 + acres) knowing when EAB is within 2 miles of their woodlots.
- The monitoring of the proximity of EAB to isolated ash groves allows for the protection of > 5 stands of > 20 trees.
- iMap users have supplied a sufficient baseline of data for the region to engage in more effective and targeted management of 5 low distribution species on > 200 acres.
- BMPs are successfully used by landowners to control > 5 different species on >200 acres after viewing demonstration projects.
- Partners and the public are more aware of extent/impact of invasive species leading to a 70% reduction in the intentional planting of invasive plants and a 90% increase in the number of reports of early detection species.
- Other resources, ie. deer, are managed to increase native plant communities by 10%

Partnership

Goal 6: Work cooperatively as a partnership across agencies and sub-regions.

Objectives

- H. By 2014, CRISP partners will be representative of every relevant organization in each county in the region, with 30% of partners present at quarterly meetings.
- I. By 2014, CRISP partners will have cooperatively engaged in at least 3 projects outside of those developed through funded contracts.
- J. By 2012, all important species detections will be shared among all partners in a rapid and efficient manner.
- K. By 2012, all CRISP partners will use consistent messaging from the Communications Plan when conducting outreach and the CRISP engagement policy to guide all management actions.
- L. By 2014, all CRISP partners will have signed onto the Cooperative Agreement.
- M. By 2012, the CRISP website will be an active hub for the latest information on partner efforts to conduct outreach, education, and control of invasive species.
- N. By 2012 and in each subsequent year, all CRISP partners will be aware of the invasive species activities of all other partners through widespread distribution of the CRISP annual report.

Strategies

1. Hold a full CRISP meeting quarterly
2. Develop regular reporting of all upcoming and completed events and workshops
3. Develop regular reporting of all upcoming and completed control projects
4. Establishing a communications plan to coordinate messaging
5. Develop a network for sharing important invasive species detections
6. Establish an early detection/rapid response protocol
7. Engage with and involve potential new partners, local governments, and the public

Outputs

- 30% of partners attending quarterly meetings
- 3 partners are established per county
- 100+ people download the CRISP Annual Report
- 5 new partners per year
- It takes no more than 2 weeks for all partners to hear about important detections
- 90% of partners reporting education and outreach activities
- 90% of partners reporting control projects
- 100% of partners actively using the CRISP Engagement Policy

Outcomes

- 100% of partners feel engaged and included in CRISP decisions/activities
- Other PRISMs are aware of the projects we are working on
- 100% of partner control activities are guided by the engagement policy and yield effective results
- Consistent messaging leads to a 25% increase in the level of public awareness of our priority messages
- Greater awareness of partner projects leads to 50% more collaboration and less duplication of efforts

Policy

Goal 7: Tackle policy issues in coordination with NYS OISC and other PRISMs

Objectives

- G. By 2014, CRISP will have helped develop at least two new invasive species policies at the state level.
- H. By 2014, CRISP will be assisting in decision making for invasive species policy at the local level.

Strategies

9. Provide input to the NYS OISC on policy issues
10. Share information on local policies that protect against invasive species with Catskill local governments and encourage their adoption
11. Identify invasive species issues that could be resolved through legislation

Outputs

- 2+ local invasive species policies adopted
- 2+ NY state invasive species bills enacted that CRISP assisted with
- 5+ issues identified by CRISP that policy was then developed for

Outcomes

- Legislation decreases the spread rate of invasive species in the state
- Legislation decreases the introduction rate of new invasive species to the region
- Local policies lead to increased awareness of invasive species issues, decreased spread of invasive species, and increased control efforts by concerned citizens

Resources Consulted

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Zimmerman, et. Al 2006. Invasive Plant Species Inventory and Assessment of the Beaverkill and Panther Mountain Forest Matrix Blocks in the Catskill Mountains in Southeast New York. The Nature Conservancy. (May 31, 2006)

| [Add the HDRU survey as a citation.](#)

Appendix

CRISP Engagement Policy Adopted 9/2010

Objective:

The top priorities for CRISP program efforts will be in the areas of education, prevention and early detection. The Catskill Regional Invasive Species Partnership will engage in active management of invasive species based on criteria that consider the potential negative impacts of the invasive species and a clear definition of a successful outcome. Before engaging in eradication or control efforts CRISP will:

- Conduct a comprehensive inventory to determine the size and scope of the invasive specie's population and distribution within CRISP.
- Determine if areas adjoining CRISP have committed to keeping the species under adequate control
- Consider the sustainability of funding sources to ensure that resources will be available for long term success
- Ensure the vectors for reintroduction and conditions for additional spread are adequately addressed
- Determine that the control techniques used can result in eradication within a reasonable timeframe
- Conduct an assessment of the negative impacts from control measures.
- Conduct an assessment of the consequences of a decision not to engage

**Working List of CRISP High Threat Invasive Plant Species
12/01/2007**

The following is a working list of the invasive plant species that are believed to have a negative ecosystem, economic or human health impact based on the best available scientific information. The species are in alphabetical order within geographic distribution and strategic action categories. The estimated species distribution is based on the best available data sources which include: New York Flora Atlas, New York Invasive Plant Council, and New York Agriculture and Markets.

Approaching Region – Prevention / Early Detection

<u>(Currently not detected in CRISP)</u>	<u>Form</u>	<u>Habitat</u>
1. Brazilian Water Weed (<i>Egeria densa</i>)	Aquatic	Lakes, rivers
2. European Frog-bit (<i>Hydrocharis morsus-ranae</i>)	Aquatic	Lakes, rivers
3. Kudzu (<i>Pueraria montana</i> var. <i>lobata</i>)	Vine	Uplands*

Limited Distribution in CRISP

<u>– Early Detection / Eradication</u>	<u>Form</u>	<u>Habitat</u>
1. Pale swallow-wort (<i>Cynanchum rossicum</i>)	Vine	Uplands*
2. Glossy buckthorn (<i>Frangula alnus</i>)	Shrub	Open uplands**, wetlands
3. Giant hogweed (<i>Heracleum mantegazzianum</i>)	Herb	Open uplands**, riparian areas
4. Eurasian water milfoil (<i>Myriophyllum spicatum</i>)	Aquatic	Lakes, rivers
5. Mile-a-minute (<i>Polygonum perfoliatum</i>)	Vine	Uplands*

Limited Distribution but Established in CRISP

<u>– Early Detection / Containment</u>	<u>Form</u>	<u>Habitat</u>
1. Tree of heaven (<i>Ailanthus altissima</i>)	Tree	Uplands*
2. Black swallow-wort (<i>Cynanchum louisiae</i>)	Vine	Uplands*
3. Burning bush (<i>Euonymus alatus</i>)	Shrub	Uplands*
4. Japanese stilt grass (<i>Microstegium vimineum</i>)	Grass	Forested uplands***
5. Water chestnut (<i>Trapa natans</i>)	Aquatic	Lakes, rivers

Widespread – Control in Invasive Species Management Zones

	<u>Form</u>	<u>Habitat</u>
1. Norway maple (<i>Acer platanoides</i>)	Tree	Forested uplands***
2. Garlic mustard (<i>Alliaria petiolata</i>)	Herb	Forested uplands***
3. Japanese barberry (<i>Berberis thunbergii</i>)	Shrub	Forested uplands***
4. Asiatic bittersweet (<i>Celastrus orbiculatus</i>)	Vine	Uplands*
5. Spotted knapweed (<i>Centaurea stoebe</i> ssp. <i>micranthos</i>)	Herb	Open uplands**
6. Autumn/Russian olive (<i>Elaeagnus umbellata</i> , <i>E. angustifolia</i>)	Shrub	Open uplands**
7. Japanese/Giant knotweed (<i>Fallopia japonica</i> , <i>F. sachalinensis</i>)	Herb	Riparian areas, uplands*
8. Bush honeysuckle (<i>Lonicera</i> spp.)	Shrub	Uplands*
9. Purple loosestrife (<i>Lythrum salicaria</i>)	Herb	Wetlands
10. Common reed (<i>Phragmites australis</i> ssp. <i>australis</i>)	Grass	Wetlands
11. Buckthorn (<i>Rhamnus cathartica</i>)	Shrub	Open uplands**
12. Multiflora rose (<i>Rosa multiflora</i>)	Shrub	Open uplands**

* Uplands – Species found in open (old fields/road sides) and forested habitats (primarily forested edges)

** Open Uplands – Species primarily found open habitats such as old fields and road sides
*** Forested Uplands – Species primary found in forested habitats