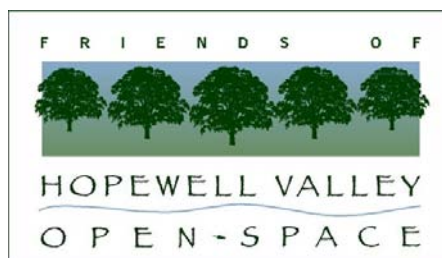


# Central Jersey Invasive Species Strike Team 2009 Annual Project Report

March 2010

Prepared by  
Friends of Hopewell Valley Open Space  
Upper Raritan Watershed Association



**We wish to thank the following organizations for their support!**

Funders

National Fish & Wildlife Foundation - Pulling Together Initiative, The Bunbury Company, Merck & Co., Conservation Resources, Inc., Conserve Wildlife Foundation & NJDEP Division of Fish & Wildlife, The 1772 Foundation, Defenders of Wildlife - Living Lands Program, and Washington Crossing Audubon Society

In-Kind Contributors

Duke Farms Foundation and Hunterdon County Parks

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## **Introduction**

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The primary purpose of this report is to provide 2009 and cumulative project results along with 2010 planned activities and priorities for the Central Jersey Invasive Species Strike Team (CJISST). CJISST represents New Jersey's first Cooperative Invasive Species Management Area (CISMA) and its mission is to perform regional early detection & rapid response aimed at preventing future infestations of newly emerging invasive species.

Detailed search and eradication results are presented as Appendices A through C. A current list of CJISST partners is included as Appendix D.

## **Results**

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### Search Results

*Overall Summary:* In 2009, CJISST performed initial searches on 124 sites (23,024 acres) and performed enhanced surveys on 34 sites (4,819 acres) that had been previously surveyed in 2008. Enhanced surveys include searching additional areas of a particular site and/or visiting the site at different times of year to more easily detect particular species.

A cumulative total of 196 sites (30,923 acres) have been surveyed for populations of emerging invasive species. Searches included walking along trails and/or directed walks through various habitats. We have recorded 317 miles traversed by staff, volunteers and partners (Note: This is not a complete total because GPS tracks were not recorded at 32 sites. Mileage figure includes initial and enhanced surveys). We approximate the total directly searched area as 984 acres by assuming accurate observations occur within 15 feet of either side of the searched path (Note: This figure is similarly an underestimate). Sites included a wide variety of private and public lands with 40 distinct ownerships across the project area (See Appendix B for site listing and [www.cjisst.org](http://www.cjisst.org) for a map of searched site locations).

A total of 1,699 populations of 48 emerging species have been recorded - an additional 23 target species were not detected at any site (See Appendix A). For all mapped populations, the majority (1,129 or 67%) consisted of 10 or fewer individual plants. Approximately 22% (377 populations) consisted of 11-100 individuals and 11% (193 populations) consisted of greater than 100 individuals (some of these populations were very large, consisting of thousands of individuals).

*Site Summary (Cumulative Data):* Searched sites had a range of 0 to 191 detected populations of target species (average was 14). Fifty-seven of 196 searched sites contained zero emerging populations. An additional 107 sites had less than ten detected populations. There were 28 sites containing 2 to 100 populations and four sites had greater than 100 populations. The ten sites with the greatest number of detected populations included: Baldpate Mountain (191), Washington Crossing State Park (148), Duke Farms (108), Schiff Nature Preserve (79), Fairview Farm (78), Mercer County Park NW (65), Old Short Hills Park (61), Jockey Hollow (54), Woodfield Reservation (42), and Curlis Lake Woods (40).

Calculations were performed to estimate the relative density of emerging invasive species populations across surveyed sites. The relative density of emerging populations was calculated by dividing the total number of emerging populations by the number of acres searched for sites greater than 10 acres (smaller

sites were excluded from the analysis because few detected populations would artificially provide large values per acre).

Detected populations per searched acre ranged from 0.0 to 11.4 across 100 sites (96 sites were either less than 10 acres or did not have recorded GPS tracks). The ten most relatively infested sites included Woodfield Reservation (11.4), Fairview Farm (10.0), Buck Gardens (9.5), Rappaport Preserve (7.2), Jockey Hollow (6.5), Herronton Woods (4.6), Carter Preserve (3.1), Old Short Hills Park (4.3), Drake’s Corner Preserve (4.3), and a private easement in Hopewell Township (4.2).

The site information and analyses reported in this section can be used by CJISST partners to determine needs for enhanced surveys and/or eradication priorities by indicating sites with the greatest susceptibility to emerging invasive species. In some cases, these highly susceptible sites are likely to act as sources of emerging invasive species to surrounding areas and may be considered high priority sites for eradication efforts. A complete listing of searched sites and their associated data are provided in Appendix B.

*Species Summary (Cumulative Data):* Detections of target species ranged from 0 to 426 detected populations (average was 5.9). Target species distribution across all searched sites ranged from 0 to 22% (average was 3.1% of sites having at least one detected population of a particular target species). The number of target species falling within particular ranges of detected populations and frequency at which they occur at searched sites where they occur are summarized in Table 1. This information provides a snapshot of the distribution and abundance of the target species.

A large number of target species have not yet been detected (ca. 32%) and nearly 40% of species have less than 10 detected populations. There are 24% of target species with 10 to 100 total detected populations. There are a total of seven target species with greater than 100 detected populations and/or were found on greater than 10% of searched sites. These species include Japanese Wisteria, Japanese Aralia, Narrowleaf Bittercress, English Ivy, Oriental Photinia, Linden Viburnum and Siebold’s Viburnum. Some of these species are categorized as “Stage 3” and complete eradication is no longer considered possible (i.e., Linden Viburnum, Japanese Aralia), but containment of existing populations is still an important goal. [Note: Many English Ivy populations were detected as plantings or were creeping from plantings into natural areas. However, there were also numerous detections of small populations that have apparently established from seeds dispersed from nearby ornamental plantings.] Details for each target species are provided in Appendix A.

**Table 1. Target Species Detection Summary**

<b>Detected Populations</b>	<b># of Target Species</b>		<b>Detection Frequency</b>	<b># of Target Species</b>
No Detections	23		No Detections	23
< 10 Populations	26		< 5% of Sites	28
10 - 100 Populations	17		5-10 % of Sites	14
> 100 Populations	5		> 10% of Sites	6
<b>Total</b>	<b>71</b>		<b>Total</b>	<b>71</b>

The spatial distribution of each species can be found in a Google Maps format at [www.cjisst.org](http://www.cjisst.org). These maps depict the population size and location for each detected population. The visual distribution

analysis for each species is not easily quantifiable, but this information was important in determining 2010 eradication priorities.

### Eradication Results

CJISST significantly increased its eradication effort in 2009. A total of 300 populations have been eradicated since project inception - 289 of these were completed in 2009 (see Appendix C for details). In addition, eradication efforts have been initiated on an additional 115 populations. These efforts included 24 different target species.

*Target Species:* The ten target species receiving the greatest eradication effort included (counting both initiated and completed eradications): Linden Viburnum (117), Siebold's Viburnum (77), Oriental Photinia (75), Narrowleaf Bittercress (28), Japanese Aralia (23), Callery Pear (19), Japanese Crabapple (17), Japanese Wisteria (14), Common Buckthorn (8), and Chinese Silvergrass / Five-leaf Akebia (6 each).

The percentage of detected populations subject to eradication efforts ranged from 0 - 100% among all target species (average was 17%). The ten target species with the highest percentage of populations treated include: Common Hop / Cutleaf Blackberry (100% each), Five-leaf Akebia / Water Chestnut (67% each), Siebold's Viburnum (64%), English Elm (50%), and Japanese Crabapple / Jetbead / Japanese Corktree (33% each).

*Site-level Efforts:* Eradication efforts have occurred at 22 sites. The greatest level of effort has been exerted at Baldpate Mountain, Washington Crossing State Park, Fairview Farm, and Duke Farms. These sites have numerous occurrences of high priority target species along with staff, partner, and volunteer resources to combat invasive species.

### Outreach and Partnership Activities

FoHVOS and URWA provided 22 outreach and training events in 2009 (see list below). In total, there were over 560 attendees of CJISST events in 2009. Since inception, CJISST has provided 27 events with 610 attendees. In 2009, CJISST added 28 partners and the cumulative total is 47 partners including federal, state, county & municipal government, private conservation groups and a variety of private organizations (see Appendix D for a complete list).

- January 14, 2009: Partner and Volunteer Training Session, Fairview Farm, Bedminster Township, 26 attendees.
- February 16, 2009: Washington Crossing Audubon Society Grant Recipient Meeting, Pennington, 40 attendees
- March 4, 2009: URWA's Wake Up Call Breakfast, Limestone Café, Peapack, 20 attendees
- March 7, 2009: New Jersey Land Conservation Rally, New Brunswick, 20 attendees
- March 12, 2009: Hunterdon Hiking Club Presentation, Flemington, 24 attendees
- March 21, 2009: Native Plant Society Meeting, Mountainside, 75 attendees
- April 1, 2009: Meadows + More Presentation, Chester, 70 attendees
- April 29, 2009: Washington Crossing Audubon Society GPS Training, Hopewell, 2 attendees
- May 20, 2009: Plant Identification Workshop, Hillsborough, 86 attendees
- May 31, 2009: Invasive Plant Workshop, Princeton, 8 attendees
- June 6, 2009: National Trails Day Outreach Workshop, Hopewell, 50 attendees
- June 9, 2009: Strike Team Training Workshop, Chester, 22 attendees
- June 22, 2009: Washington Crossing Audubon Society Workshop, Hopewell, 8 attendees
- June 25, 2009: Strike Team Joint Partner Work Day, Hopewell, 9 attendees

- July 12, 2009: Native Plant Society Guided Tour, Bedminster, 7 attendees
- August 4, 2009: Plant Identification Hike, Hopewell, 10 attendees
- August 12, 2009: Mid-Atlantic Exotic Plant Pest Council Presentation, Johnstown, PA, 45 attendees
- September 17, 2009: Garden Club of America Presentation, Princeton, 8 attendees
- October 24, 2009: Invasive Plants in the Landscape, Califon, 2 attendees
- November 1, 2009: Girl Scout Program, Bedminster, 12 attendees
- November 17, 2009: Native Plant Society Plant Identification Training Workshop, Morristown, 20 attendees

### Level of Effort

FoHVOS and URWA provided substantial effort toward CJISST. In 2009, FoHVOS and URWA staff and interns contributed 2,402 total project hours. Project hours contributed by various FoHVOS and URWA staff include: URWA Invasive Species Coordinator - Melissa Almendinger (739), FoHVOS Land Steward - Rachel Mackow (601), URWA Grant Specialist - Joy Seal-Ettel (259), FoHVOS Stewardship Director - Michael Van Clef (239), FoHVOS Intern (235), URWA GIS Director - Melissa Mitchell (151), URWA Intern (80), URWA Stewardship Program Manager - Lauren Theis (65 hours), URWA Finance Director - Sharon McCann (25), and FoHVOS Executive Director - Patricia Sziber (8).

An additional 3,601 hours have been contributed by FoHVOS volunteers (296), URWA volunteers (488), partner staff (2,127 hours) and partner volunteers (690 hours). The 2009 grand total of hours contributed to the project was 6,003. Since inception, the cumulative project grand total of hours for all CJISST participants is 7,586.

### **Planned Activities for 2010**

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#### Annual Review of CJISST Target List

An annual review of all spatial distribution and abundance information is utilized to determine an annually updated target species list (See [www.cjisst.org](http://www.cjisst.org)). For example, species suspected of showing invasive potential but have few or no wild populations may be downgraded to the CJISST “Watch List” or considered “non-invasive”. The Watch List is a new addition to CJISST and currently consists of three species (Kousa Dogwood, Golden Raintree, and Weeping Cherry) that will be informally tracked to determine whether they should be added to the target list in coming years. Currently, there are no species from the 2009 target list that have been downgraded to “Watch”.

The “non-invasive” designation is provided to species regardless of current abundance and is based upon the species perceived lack of significant risk to natural systems. For example, Moneywort was de-listed for 2010 because it does not appear to show invasive potential - the species is widely distributed, but does not seem to have the ability to form dense monocultures that dramatically suppress native species.

The 2010 target list also includes new species detected within the state or region that may not have been detected by CJISST, but are considered to pose a significant potential threat to natural systems. For example, Parrot Feather was detected in a southern county of New Jersey - it is reasonable to assume that this species may become established in the CJISST project area although it has not yet been detected.

The 2010 target list also reflects practical difficulties with proper identification of particular species due to closely related native sub-species and/or uncertain taxonomy. A total of six species were added to this

category and will not appear on the 2010 target list. They include two Privet species, one Bush Honeysuckle species, Japanese Crabapple, Common Hop, and Stinging Nettle.

Species that have become too abundant may be removed from the CJISST target list because they are considered “Widespread” invasives. These species are likely to be subjects of site-level control efforts by individual land stewards, but they are not considered viable targets for regional eradication or containment by CJISST. It is possible that particular species currently categorized as “Stage 3” will ultimately be categorized as “Widespread” and therefore be removed from the CJISST target list.

### Species-based Eradication Priorities

The 2009 and cumulative survey data (spatial and tabular) were analyzed to prioritize 2010 eradication efforts. The overarching theme of eradication efforts is to have the greatest protective impact per unit effort, which requires careful prioritization. Unfortunately, it must be recognized that some species can no longer be practically eradicated from New Jersey (e.g., Stage 3 target species such as Linden Viburnum) and containment is the only feasible option. Although all data collected from searches cannot be acted upon through complete eradication, the entirety of the data collected informs all eradication priorities.

A total of 48 target species with 1,699 detected populations were recorded in 2008 and 2009. A total of 300 completed eradications have been recorded by CJISST and the goal for 2010 is an additional 500 completed eradications (See Appendix C for details). These eradications will focus on high priority species (e.g., large, shade tolerant shrubs, aquatic species that may spread rapidly, etc.).

There are 19 species where eradications will not be attempted in 2010. This group includes de-listed species or species likely to be de-listed in the near future (See discussion above). It also includes species that appear to be spreading minimally from ornamental plantings, but are of significant future concern (additional outreach to homeowners will be the primary strategy for these species in 2010).

There are 21 species with the goal of eradicating all detected populations in 2010. Two of these species - Callery Pear and Japanese Wisteria - are commonly planted ornamentals and outreach will be a continuing strategy. It is possible that this goal will not be achieved for all larger populations, but significant effort will be exerted on species in this group.

The remaining 8 species will have more modest goals of eliminating smaller populations. This primarily involves “Stage 3” species where CJISST’s broad goal is minimizing additional spread to uninfested areas (e.g., Linden Viburnum, Japanese Aralia). Many of these species are used as ornamentals (e.g., Butterfly Bush, Chinese Silvergrass) and outreach to private landowners will be a continuing strategy.

### Site-based Eradication Priorities

The primary initiative of CJISST is species-based eradications, regardless of the quality of the site. However, there are a number of sites that appear to have very high susceptibility to emerging invasive species. These sites act as “sources” of propagules that may spread to neighboring properties and the CJISST project area at large (i.e., “sinks”). The ten sites with the greatest number of detected populations were highlighted above (See Site Summary on page 1). For 2010, CJISST should support continuing eradication efforts at those “source” sites.

### Additional Searching, Training, Outreach and Partner Building

CJISST will continue to search for target species throughout the project area. The 2010 search goal is an additional 13,000 acres, which includes new sites and enhanced surveys at previously searched sites. Searching will continue to be conducted on any private or public land within the project area, but priority will be given to sites with high conservation value (e.g., known to contain rare species) and/or high levels of susceptibility (e.g., located adjacent to sites with previously detected populations of high priority target species).

FoHVOS and URWA plan continued training, outreach and partner building efforts in 2010. Goals for these activities include 32 events including field identification and species control training days, classroom training sessions, displays or presentations at trade shows or industry conferences, and presentations to the general public. Additional goals include recruitment of 50 additional project partners (includes public & private entities and participating private landowners), recruitment of 80 additional volunteers, shared data management / analyses, shared eradication efforts, production of the 2011 CJISST annual report, and supplementing website content ([www.cjisst.org](http://www.cjisst.org)). We hope that these combined efforts spur larger statewide efforts.

### NFWF Interns and Contracted Clearing

In January 2010, CJISST was notified of our successful grant award from the National Fish & Wildlife Foundation - Pulling Together Initiative. This funding will allow CJISST to hire four interns that can perform searching or eradication efforts throughout the project area. The use of the interns requires a 1:4 partner match per intern (i.e., each intern hour requires the partner to contribute 1/4 hour to the CJISST project). Partner match can be supplied through any CJISST activity (e.g., outreach, searching, and eradication). Alternatively, partners may provide cash match (using non-Federal sources only) at the rate of \$8.00 per intern hour. Interested current and potential project partners should contact CJISST with any questions regarding matching requirements. Our overall goal is to reach 450 partner hours (or \$13,500 equivalent).

In addition, the grant provides \$7,600 to hire contractors that will clear large infestations that cannot feasibly be cleared by hand. (Large infestations are considered to be greater than 0.25 acres.) With the success of additional grant applications, further funds will be applied to contracted clearings in 2010. CJISST does not require any match for contracted clearings on partner properties, but staff/partner/volunteer match is always appreciated to help us continue to match a variety of CJISST grants.

Any partner interested in utilizing CJISST interns or contracted control services should contact FoHVOS or URWA directly by sending a completed "Intern & Contractor Request Form", found at [www.cjisst.org](http://www.cjisst.org).