

**Chicago Land CWMA Early Detection Initiative; Enhancement of Web-based  
Resources and Implementation of the Lake Plain Invasive Plant Strike Team**

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Chicago Botanic Garden

Final Report to the

Illinois Department of Natural Resources  
Illinois Wildlife Preservation Fund

May 2012

Grant Agreement Number: 11-L01W

**PROJECT TITLE**

Chicago Land CWMA Early Detection Initiative; Enhancement of web-based resources and implementation of the *Lake Plain Invasive Plant Strike Team*

**GRANT AGREEMENT NUMBER 11-L01W****GRANTEE**

Kay Havens  
Director, Plant Science and Conservation  
Chicago Botanic Garden  
1000 Lake Cook Road, Glencoe, IL 60022  
(847) 835-8378

**TIME-FRAME OF THE REPORT**

November 30, 2011 – April 30, 2012

**GRANTEE REPRESENTATIVE COMPLETING THE REPORT**

Debbie Maurer  
Assistant Manager of Natural Resources & Ecologist  
Lake County Forest Preserve District  
1899 West Winchester Road, IL 60048  
(o): (847) 968-3285 (m): (847) 276-6943

**PROJECT OBJECTIVES**

- 1) Transfer New Invaders Watch Program (NIWP) online resources and database from the INHS to the CBG web-server.
- 2) Use PHP programming to redesign and enhance NIWP website and database to allow for more access by CWMA coordinator and LCFPD to make updates on species information, NIWP trainings, CWMA EDRR initiatives, and regional invasive species related events.
- 3) Launch mapping module to allow for CWMA partners and NIWP volunteer to see verified report locations on the NIWP website.
- 4) Add five new species to the target species list.
- 5) Update contact information in the Rapid Response Network and add ten new public landowners to the rapid response network, including park districts and Department of Transportation right-of ways.
- 6) Train new CWMA coordinator on NIWP goals and objectives, database and website content, program protocol.
- 7) Contain or eradicate isolated, known populations of NIWP target plant species within and on private lands adjacent to the Illinois Beach and Spring Bluff Nature Preserves, including, *Glyceria maxima*, *Polygonum cuspidatum*, *Centaurea maculosa*, *Euphorbia esula*, *Leymus arenarius*, *Ampelopsis brevipedunculata*.
- 8) Monitor for additional populations of NIWP target invasive plants listed above, including *Vincetoxicum nigrum*, Black Swallowwort, (known to occur just over the state line in Chiwaukee Prairie) along anticipated pathways of spread, such as Rail Road corridors and trails.

## **COMPLETED PROJECT DESCRIPTION**

Partners have successfully completed all stated objectives of this project:

- 1) The New Invaders Watch Program website and database have been transferred from the Illinois Natural History Survey to the University of Georgia, Center for Invasive Species and Ecosystem Health, Early Detection and Monitoring System (EDDMaps) (to view New Invaders Watch Program website go to ([www.NewInvaders.org](http://www.NewInvaders.org)) and redesigned and programmed to be integrated into the national EDDMaps system.
- 2) The website and database have been enhanced to improve user experience, allow for external maintenance and updating by NIWP partners, and includes an online interactive mapping module to allow easy location reporting and viewing of verified data. Further, over 1500 historic herbarium records on NIWP target species in the Midwest have been entered into the EDDMaps database. A Google calendar has been included on the site that can be updated by NIWP Administrators to inform NIWP of regional training events and workshops.
- 3) The mapping module has been launched and tested.
- 4) Fourteen new target species have been added to the website with new species descriptions and integrated into the NIWP training presentations.
- 5) Contact information for rapid responders has been updated as much as possible and will continue to be updated as responders login in and edit their contact information. All sites listed in the rapid response network have 1-3 associated rapid responders assigned to each site. Eleven new rapid responders were added to the network, including all IDOT roadways in Region 1 and several Forest Preserve and Park Districts in the western counties.
- 6) Cathy McGlynn, Northeast Invasive Plant Partnership (NIIPP) Coordinator, has been involved in the development of the website and database and has been trained in the new protocol.
- 7) 35 populations of EDRR species in Illinois Beach State Park and Spring Bluff were controlled in 2011 by the Lake Plain Strike Team (Figure 1, Table 1).
- 8) Monitoring resulted in the discovery of three new EDRR populations in the Lake Plain, including the second county record of Giant Hogweed in Lake county found on IDOT right-of-way just outside of Illinois Beach State Park, a population of Japanese Knotweed on Johns-Manville property, again found adjacent to the nature preserve in Illinois Beach State Park, a single stem of Black Swallow-wort in Spring Bluff Nature Preserve. All populations have been reported and mapped in the NIWP database.

## **SUMMARY OF PROJECT ACCOMPLISHMENTS**

### **Introduction**

Through the NIIPP, Chicago region partners have made significant headway in implementing a strategic regional invasive plant management plan. The New Invaders Watch Early Detection and Rapid Response Program (NIWP) is the regional mechanism to educate, collect, communicate and facilitate control of EDRR plant species. Further, unique approaches to implementing rapid response are underway, such as the efforts of the Lake Plain Strike Team that is beginning its second year in the Conservation Opportunity Area #7, the Illinois Beach-Chiwaukee Prairie Lake Plain.

The NIWP plays a leading role in NIIPP's efforts to improve and expand EDRR in the region. Since NIWP's development, new technology has been developed for data sharing and communication, web resources have improved, and more partners have become interested in participating in EDRR, especially transportation partners and partners in the more western, rural counties of the region. To take advantage of new and better resources to maximize NIWP tools and communication, Chicago Botanic Garden, NIIPP, and Lake County Forest Preserve District

(LCFPD) partnered with a nationally recognized program EDDMaps, developed at the University of Georgia, to enhance and transfer the website and database from its previous server (the Illinois Natural History Survey). Simultaneously, partners within the Illinois Beach-Chiwaukee Prairie Conservation Opportunity Area implemented an Invasive Plant Strike Team to work across property boundaries for two years to control populations of NIWP target species and monitor for new, unknown populations. The Strike Team approach allows for coordinated invasive plant control throughout the Lake Plain and can be a model for responding to early detection species in other large natural area complexes in the state.

## **Methods**

### Website and Database Enhancement and Migration

When this project was first proposed, the Chicago Botanic Garden was identified as the new host site of NIWP. However, by the time the proposal was funded, staff changes at CBG prevented the organization from taking the lead on development. Further, it was recognized by partners that EDDMaps provided the ideal long-term platform for hosting NIWP. EDDMaps works with small regional groups, such as NIWP, on a regular basis and provides enormous expertise in ED RR and web-based programming to facilitate ED RR. They also offer a platform that allows the NIWP data to be combined with other state and national data sets—increasing the value of NIWP to users beyond the region. Likewise, NIWP users will be able to see data on target species well beyond the Chicago region through EDDMaps.

The entire programming for the NIWP website and database was re-written to incorporate NIWP into the EDDMaps existing structure and to create those unique features necessary for external maintenance of the NIWP database and communication of alerts to responders and users. The core programming work and website design was completed by Chuck Barger on and his staff at the University of Georgia. The content, data quality checking, images, and feature requirements were provided by LCFPD and NIIPP. Testing of the website features was completed by LCFPD. The migration of the domain name simply required a redirecting from the Illinois Natural History internet provider address to that of EDDMaps.

Fifteen hundred herbarium specimens were geo-referenced by the Illinois Natural History Survey and LCFPD in 2009. The data had never been used. With the help of Chuck Barger on, this data has been included into EDDMaps and can be viewed on the NIWP mapping webpage to show historic population locations.

The NIWP website now includes an interactive online mapping module to view target species distribution, historic records, and any records of target species reported to EDDMaps by other users. The online reporting form also uses a mapping feature that helps users locate the latitude and longitude of their populations when GPS are not available. Counties are linked to landowners participating in the Rapid Response Network, and site names are selected in a drop down menu that allow for automatic notification to any responder associated with that site name.

### Additional Target Species

To solicit feedback in the region about possible species to add to the NIWP target list, the NIIPP coordinator developed and sent out a survey. Simultaneously, the Midwest Invasive Plant Network (MIPN) working with LCFPD, began a process of revising their terrestrial plant ED RR flyer. The feedback from MIPN partners throughout the Midwest and work already completed on the MIPN

EDRR aquatics flyer also contributed to the evaluation of species selection. Ultimately, fourteen species were added to the target list, however, partners also requested the flexibility to report any new species encountered that may be new to the region. With this feedback, EDDMaps created a NIWP reporting page that includes all exotic species known to North America, but the NIWP mapping module will only show the NIWP target species. If a user reports one of the species identified as a NIWP target species, it will show up on the NIWP mapping page. If a species is reported that is not included in the NIWP target list, that record will be housed in the national EDDMaps database and still accessible through the EDDMaps mapping page. This allows for flexibility, as partners requested.

### Training and Outreach

Training of the NIIPP coordinator occurred throughout the project. Both Cathy McGlynn and Debbie Maurer are prepared to present the new system and resources to partners. Next steps that will be taken to inform partners and potential new volunteers about the enhancements and available resources include: offering at least one training per county to existing users; present the program updates during Illinois Invasive Species Awareness Month at NIIPP's Invasive Plant Workshop at the Chicago Botanic Garden; offer new trainings regionally; send out email blasts to users and partners about the new system; utilize the new NIWP blog to post announcements; and post an article in the Chicago Wilderness Newsletter and on NIIPP's website.

### Rapid Response Network Expansion and Updating

The new database structure allows NIWP administrators (NIIPP coordinator and Debbie Maurer) to add new sites (preserves, parks, roadways, railroads, etc.) directly to the database. All sites are linked to a county, and all sites have a NIWP partner assigned to them to receive automatic email alerts when a target species is first identified on their site. Work completed as part of this project included adding new rapid response users and sites; deleting responders who were no longer responsible for particular sites; and adding the NIIPP coordinator as a responder for all sites included in the database.

### Lake Plain Strike Team

In the winter of 2011, LCFPD hired Hey and Associates Inc. through a competitive public bid process to provide a one to two person crew to conduct control of NIWP target species within the Lake Plain. Management and intergovernmental agreements between Lake Plain partners allowed work to occur across property boundaries, including on private lands of Johns-Manville. Partners created a GIS project to show known locations of EDRR species and approximate population sizes. A timeline and schedule of control based on species-specific best management control strategies were created, and field visits by Hey partners were conducted prior to the start of work. Communication between LCFPD, IDNR and other partners was critical to this project running smoothly. Hey notified partners each day they conducted control work and kept a detailed herbicide application record of all herbicide applications by day and species, which was regularly shared with partners. Every time the contractor visited a population, a GPS was used to record the location, which was compared to mapping data provided by partners at the start of the project. Each population was assigned a unique ID and new populations were added to the master list. Chemical control was the primary management technique used to control populations. Herbicide was applied with wick and spray applications under appropriate weather conditions. All populations were visited two to three times to achieve a 95%-100% control, based on top kill. All populations will be treated again in 2012, beyond the scope of this project.

## **Project Outcomes**

### Website and Database Enhancement and Migration

- Programming and web design were completed in January 2012
- All NIWP records were quality checked in the database for location accuracy.
- 1500 geo-referenced herbarium records were added.
- The online reporting page now includes a Google map to allow users to pin point their population location on a map rather than requiring manually entry of the latitude and longitude.
- Users can download their data by linking to the My EDDMaps page from the NIWP webpage.
- A mapping module was created that allows users to view all NIWP data points by species with a link to individual reports.
- Data points will not be mapped until verified. Verification will be completed by partners assigned to sites where the population is found and by NIIPP coordinator and Debbie Maurer with assistance from other NIWP verifiers as needed.
- Images can still be downloaded with report entry.
- Users can access the NIWP ID card set and updated training presentation online.
- Site Administrators can remotely access the database and add sites, assign users to sites, assign roles to users (reporter, verifier, site manager, etc.), and add upcoming trainings through a Google calendar.
- Control information and be added to population reports as completed.

### Additional Target Species

The following species were added to the NIWP target list:

- *Japanese Chaff Flower – Achyranthes japonica*
- *Porcelianberry – Ampelopsis brevipedunculata*
- *Narrow-leaf Bittercress – Cardamine impatiens*
- *Great (Blue) Globe Thistle – Echinops shaerocephals*
- *Water Hyacinth - Eichornia crassipes*
- *European Frog Bit – Hydrocharis morus-ranae*
- *Princess Tree – Paulownia tomentosa*
- *Water Lettuce – Pistia stratoides*
- *Lesser Celandine – Ranunculus ficaria*
- *Hymalayan Blackberry – Rubus discolor*
- *Wineberry – Rubus phoenicolasin*
- *Chinese Longhorn Beetle - Trichoferus campestris*
- *Brown Marmorated Stink Bug - Halyomorpha halys*
- *Wild Chervil – Anthriscus sylvestris*

New species pages were developed for each target species an uploaded to the website. All new species were also added to the training presentations that began in April 2012. Training presentations are available for download on the website.

### Training and Outreach

- Training of the NIIPP coordinator is complete. She will being providing training in April 2012.
- Additional trainings are scheduled for May 2012 at the Morton Arboretum and for the Illinois Forestry Association.
- Trainings are also being planned for the Forest Preserve District of Cook County in 2012.

### Rapid Response Network Expansion and Updating

The following Responders and sites were added to the program:

- Illinois Department of Transportation Region 1 roadways in six counties
- Boone County Forest Preserve District
- Winnebago County Forest Preserve District
- Campton Township
- Fermi Lab
- Frankfort Square Forest Preserve District
- Joliet Park District
- Openlands
- Village of Lincolnshire
- Village of Algonquin
- Illinois State Toll Highway Authority

The following Responder information was updated:

- Lake County Forest Preserve District
- Will County Forest Preserve District
- Liberty Prairie Conservancy
- Kendall County Forest Preserve District
- Forest Preserve District of Cook County
- Lake Forest Openlands

### Lake Plain Strike Team

The Lake Plain Strike Team worked over 450 hours and treated 35 populations of NIWP EDRR target species which included at least two site visits. NIWP target species populations contained or eradicated include:

- Spotted knapweed
- Giant manna grass
- Black swallow-wort
- Leafy spurge
- Giant hogweed
- Japanese knotweed
- Oriental bittersweet

The Strike Team also treated Lyme grass in critical habitat for the Piping Plover and Cypress spurge which is considered by partners in the Lake Plain as an EDRR species, although not on the NIWP target list. Lyme grass is also not listed as an NIWP target species, but this is a species considered EDRR in the Great Lakes Region.

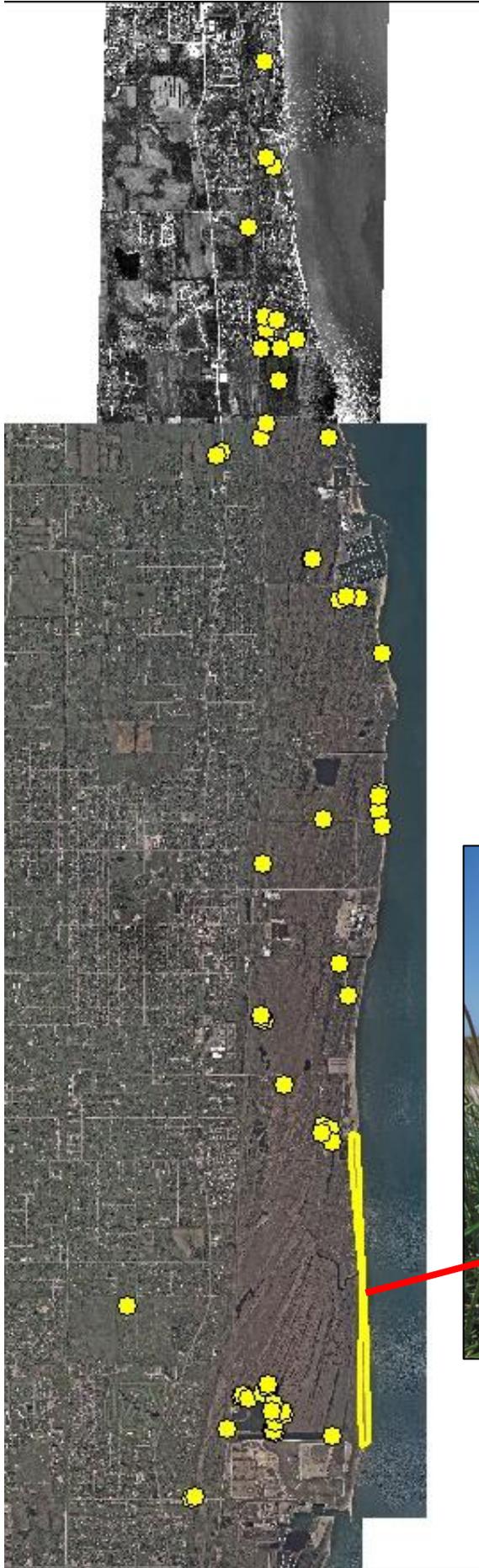


Figure 1. Locations of control work completed on EDRR target species in the Lake Plain, including a broader area than was a component of this project (but was part of a larger Lake Plain Habitat Restoration project). Species controlled in Illinois Beach State Park and Spring Bluff included: Lyme grass, Black swallow-wort, Japanese knotweed, Giant manna grass, Spotted knapweed, and Leafy spurge.



Figure 2. Strike Team spraying lyme grass at Illinois Beach State Park



Figure 3. Japanese knotweed population found just outside Illinois Beach, controlled by Strike Team



Figure 4. Giant hogweed specimen, identified outside of Illinois Beach State Park in 2011 and controlled by the Strike Team

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- Partners
- Report an Invader
- Target Species
- Maps
- Trainings & Activities
- Training Materials
- Ad

## Report an Invasive Species Occurrence

Please provide as much information about the sighting as possible.

### Species:

Begin typing scientific or common name and then select species from dropdown.  
 If the pest is not listed or is unknown, type and choose "unlisted plant" or "unknown plant" from the list and describe the plant in the Comments section below.

**Pest:**

### Infestation:

**Observation Date:**  (?)

**Infested Area:**  Select One (?)

**Gross Area:**  Select One (?)

**Habitat:** Select One (?)

**Canopy Closure:** Select One (?)

**Abundance/Density:** Select One

**Plant Description:**  Mature  Sapling/Immature  Seedling/Rosette  In Flower  In Fruit  Seeds  Dormant/Dead  Unknown

### Location:

Specify the location where you observed the pest, by first selecting the county from the dropdown. Then move the marker on the map to the correct location. If you move across county lines the new county will be displayed. You can also enter the lat/long in the fields below and then click the "Jump to Point" button.

**County:** Select One

**Latitude:**   
Must be expressed in Decimal Degrees (XX.XXXX) and DATUM NAD83/WGS84.

**Longitude:**   
Must be expressed in Decimal Degrees (XX.XXXX) and DATUM NAD83/WGS84.

**Location Description:**



Figure 5. Online reporting form and mapping tool to find latitude and longitude

# New Invaders Watch Program

## Early Detection and Rapid Response Network

Welcome:  
Debbie Maurer, Lake County Forest Preserve District  
Logout

- Home
- About
- Partners
- Report an Invader
- Target Species
- Maps
- Trainings & Activities
- Training Materials

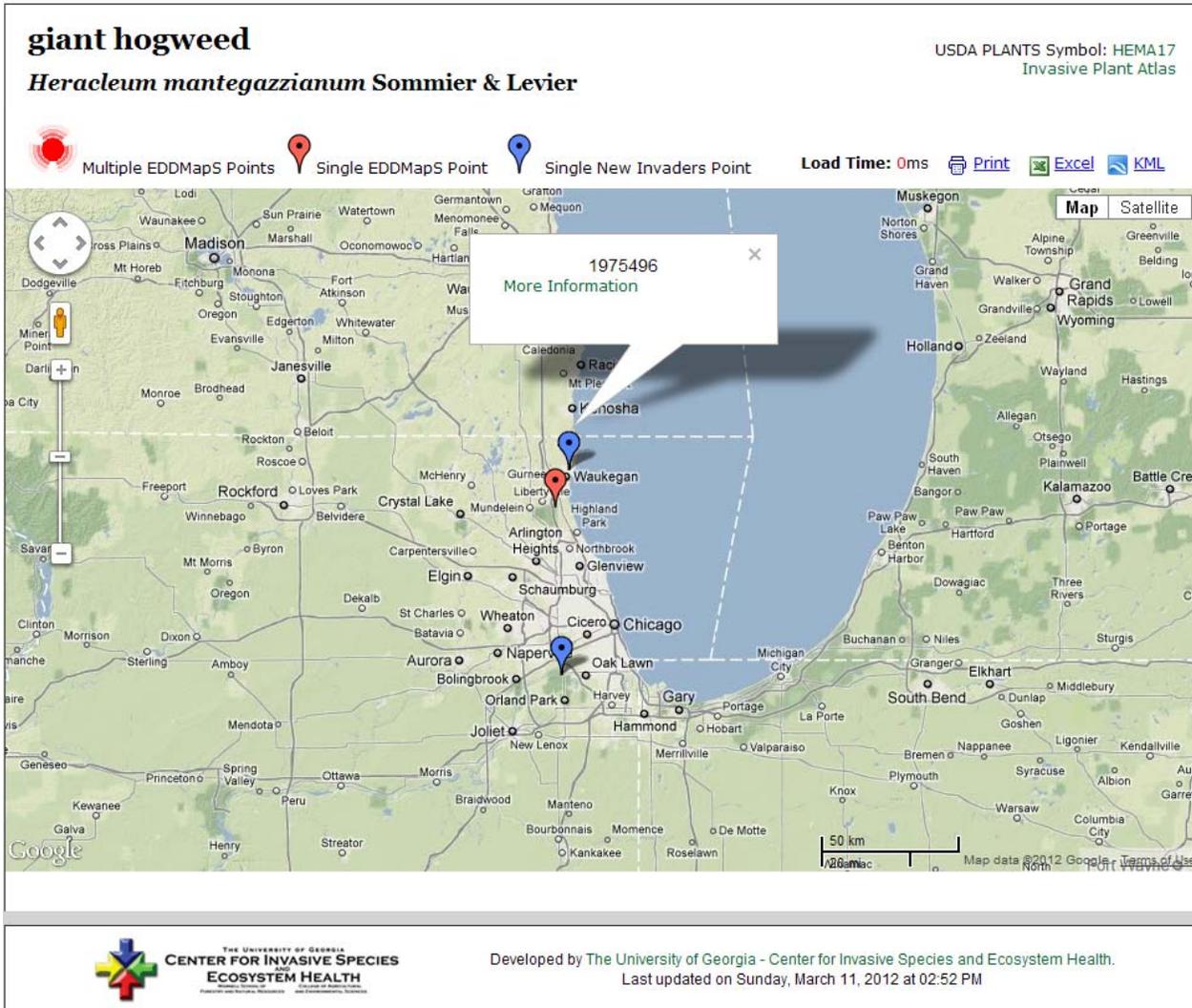


Figure 6. Online mapping of NIWP data, Giant hogweed is shown here and the Waukegan report. By clicking on more information, a pdf of the population report is opened with greater detail about the population.

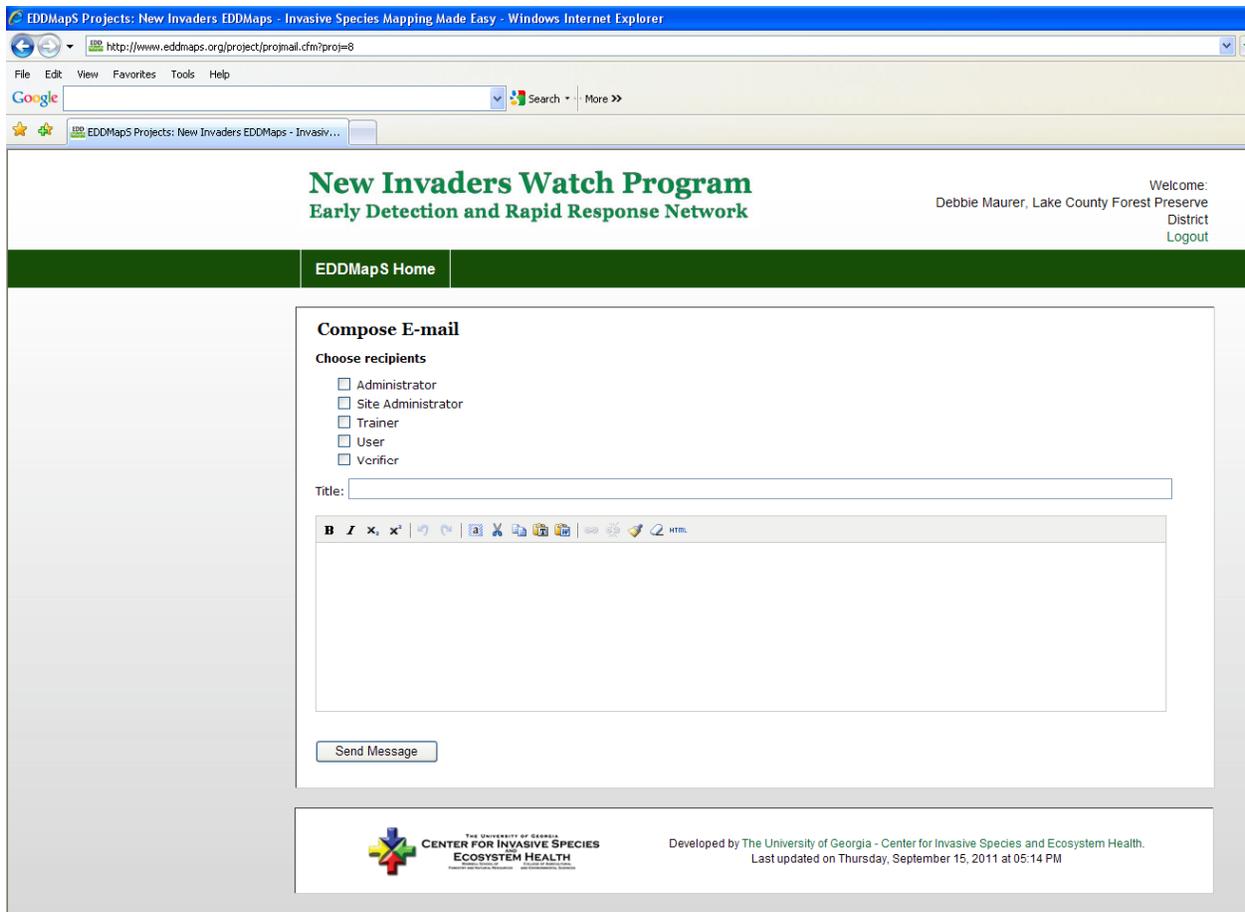


Figure 7. New programming feature in the NIWP Administrator site that allows administrators the ability to email different groups of partners involved in the program.

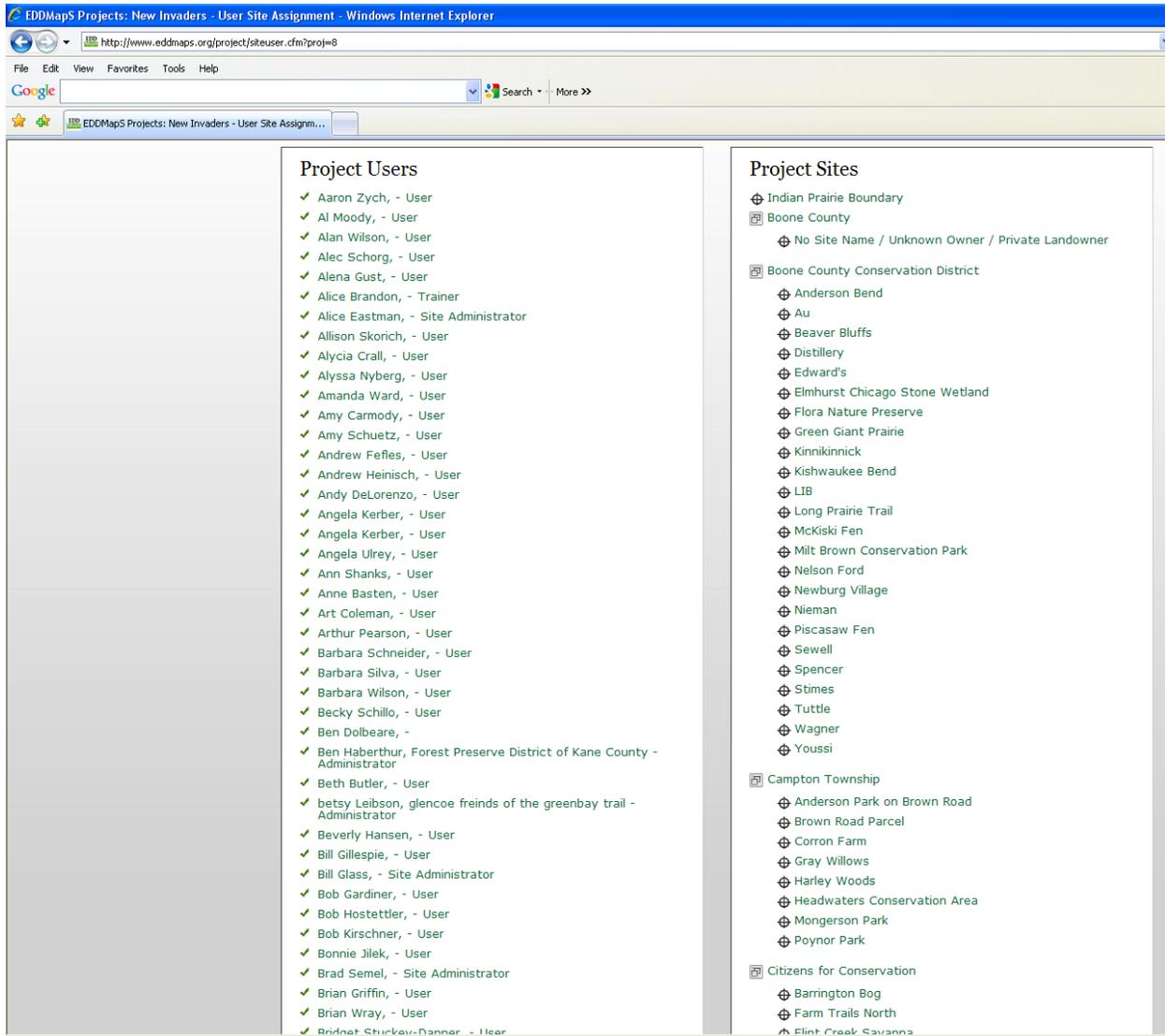


Figure 8. Image of administrator access to the sites and contacts included in the Rapid Response Network.

## New Invaders Watch Program

### Early Detection and Rapid Response Network

**COMMON NAME:** LESSER CELANDINE

**SCIENTIFIC NAME:** *Ranunculus ficaria*

**FAMILY:** *Ranunculaceae*

**ORIGIN:** Eurasia including Europe, Northern Africa, Western Asia, Caucasus, and Siberia

**US INTRODUCTION:** Introduced as an ornamental garden plant

**MAJOR PATHWAYS OF SPREAD:**

- Distribution and use for ornamental gardens
- Contaminated soil
- Animals
- Water

**IDENTIFICATION CHARACTERISTICS:**

- Perennial herbaceous flowering plant can create large dense mats and blooms in March and April, spreads by seed and vegetatively
- Leaves kidney- to heart-shaped, succulent, dark green and shiny in a basal rosette
- Flowers bright rich yellow with a slightly darker yellow center, have 8 (typical) to 12 petals, and are borne singly on delicate stalks above the leaves.
- Tiny cream colored bulblets are produced in stem axils and many fingerlike tubers are produced by the roots
- Fruits (many) in round heads are hairy
- Threatens wet woodlands and forests, ravines, and floodplains

**NATIVE LOOK-ALIKES:**

Fig buttercup may be confused with marsh marigold (*Caltha palustris*). Marsh marigold is more robust and less delicate than lesser celandine and has flowers on stalks that are 8 inches or more in height and consist of five to nine deep yellow "petals" (actually sepals). Marsh marigold does not produce tubers or bulblets. It also resembles celandine (*Chelidonium majus*) and celandine poppy (*Stylaphorum diphyllum*), which can be distinguished from lesser celandine by having flowers with four petals.

There are many varieties of lesser celandine including a double-flowered form with many petals and dark green leaves mottled with silvery markings.

**ADDITIONAL RESOURCES:**

Plant Conservation Alliance Factsheet.  
<http://www.nps.gov/plants/alien/fact/rafi1.htm>

USDA Plants Database.  
<http://plants.usda.gov/java/profile?symbol=RAFI>



Population with flowers



Flower close-up



Young plant



Marsh marigold flower



Lesser celandine flower

Figure 9. Example of new species identification pages

Table 1. Strike Team Herbicide Application Record by Population Treated

Below: Breakdown of Strike Team work by Target Species and Day with cost per hour and total value

Date	Preserve	Polygon Number	Species	Start	Crew size	Hours	Total Hour	Method of Application
9/14/2011	IBSP - N. Unit	35	Lyme Grass	1:15	3	1.00	3.0	BPS
9/15/2011	IBSP - N. Unit	32	Cypress Spurge	12:30	3	0.50	1.5	BPS
9/16/2011	IBSP - N. Unit	33	Cypress Spurge	8:45	2	3.50	7.0	BPS
10/24/2011	IBSP - N. Unit	34	Oriental Bittersweet	1:30	2	1.50	3.0	BPS
10/28/2011	IBSP - N. Unit	34	Oriental Bittersweet	9:00	2	1.00	2.0	BPS
10/28/2011	IBSP - N. Unit	New	Japanese Barberry	10:15	2	0.25	0.5	BPS
7/29/2011	BSP - North Unit	39	Spotted Knapweed	8:45	2	2.00	4.0	BPS
7/29/2011	BSP - North Unit	36	Lyme Grass	10:45	2	1.50	3.0	BPS
7/29/2011	BSP - North Unit	35	Lyme Grass	12:45	2	1.00	2.0	BPS
7/7/2011	IBSP - S. Unit	64	spotted knapweed	1:00	1	1.00	1.0	BPS
9/14/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	2.50	7.5	BPS
9/14/2011	IBSP - S. Unit	no point	Lyme Grass	11:15	3	1.50	4.5	BPS
9/14/2011	IBSP - S. Unit	10	Giant Manna Grass	2:15	3	0.50	1.5	BPS
9/15/2011	IBSP - S. Unit	41	Cypress Spurge	8:45	3	0.25	0.8	BPS
9/15/2011	IBSP - S. Unit	42	Cypress Spurge	9:00	3	1.00	3.0	BPS
9/15/2011	IBSP - S. Unit	43	Cypress Spurge	10:00	3	1.00	3.0	BPS
9/15/2011	IBSP - S. Unit	30	Cypress Spurge	11:00	3	0.50	1.5	BPS
9/15/2011	IBSP - S. Unit	40	Cypress Spurge	11:30	3	0.50	1.5	BPS
9/16/2011	IBSP - S. Unit	29	Cypress Spurge	8:15	2	0.50	1.0	BPS
9/16/2011	IBSP - S. Unit	65	Cypress Spurge	12:45	2	1.25	2.5	BPS
10/3/2011	IBSP - S. Unit	48	Cypress Spurge	10:15	1	1.00	1.0	BPS
10/3/2011	IBSP - S. Unit	47	Cypress Spurge	11:15	1	1.00	1.0	BPS
10/3/2011	IBSP - S. Unit	64	Spotted Knapweed	12:45	1	2.00	2.0	BPS
7/29/2011	BSP - South Unit	44	Lyme Grass	1:45	2	1.25	2.5	BPS
5/27/2011	IBSP - N. Unit	33	Cypress Spurge	8:30 AM	1	7.50	7.5	BPS
6/7/2011	IBSP - N. Unit	32	Cypress Spurge	2:00 PM	1	0.50	0.5	BPS
6/7/2011	IBSP - N. Unit	33	Cypress Spurge	2:30 AM	1	0.50	0.5	BPS
6/30/2011	IBSP - N. Unit	37	Cypress Spurge		1	1.50	1.5	BPS
6/30/2011	IBSP - N. Unit	38	Cypress Spurge				0.0	
6/30/2011	IBSP - N. Unit	62	Cypress Spurge				0.0	
7/5/2011	IBSP - N. Unit	39	Spotted Knapweed	1:30	1	1.50	1.5	BPS
7/8/2011	IBSP - N. Unit	39	Spotted Knapweed	10:00	1	2.00	2.0	BPS
9/16/2011	IBSP - N. Unit	37	Cypress Spurge	7:30	2	0.50	1.0	BPS
9/16/2011	IBSP - N. Unit	62	Cypress Spurge	8:00	2	0.25	0.5	BPS
5/19/2011	N. Unit (N. Pt. M	32	Leafy Spurge	1:00 PM	1	2.50	2.5	BPS
5/20/2011	N. Unit (N. Pt. M	32&33	Cypress Spurge	1:00 PM	2	1.00	2.0	BPS
5/19/2011	IBSP - S. Unit	41&42&43	Cypress Spurge	9:00 AM	1	3.50	3.5	BPS
5/20/2011	IBSP - S. Unit	30	Cypress Spurge	8:30 AM	2	2.50	5.0	BPS
5/20/2011	IBSP - S. Unit	40	Cypress Spurge	10:30 AM	2	2.50	5.0	BPS
6/14/2011	IBSP - S. Unit	47	Cypress Spurge	9:00 AM	2	0.50	1.0	BPS
6/14/2011	IBSP - S. Unit	48	Cypress Spurge	9:30 AM	2	0.50	1.0	BPS
6/17/2011	IBSP - S. Unit	10	Giant Manna Grass	1:00 PM	1	2.00	2.0	BPS
6/30/2011	IBSP - S. Unit	41	Cypress Spurge	10:00	1	3.00	3.0	BPS
6/30/2011	IBSP - S. Unit	42	Cypress Spurge				0.0	
6/30/2011	IBSP - S. Unit	43	Cypress Spurge				0.0	
7/7/2011	IBSP - S. Unit	30	Cypress Spurge	2:00	1	1.00	1.0	BPS
7/8/2011	IBSP - S. Unit	40	Cypress Spurge	8:30	1	1.50	1.5	BPS
7/13/2011	IBSP - S. Unit	10	Giant Manna Grass	2:00	2	1.00	1.5	BPS
7/25/2011	IBSP - S. Unit	10	Giant Manna Grass	8:30	3	5.50	16.5	BPS
7/26/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.50	22.0	BPS
8/1/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.75	23.0	BPS
8/4/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.75	23.0	BPS
8/5/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.75	23.0	BPS
8/10/2011	IBSP - S. Unit	44	Lyme Grass	8:45	4	2.50	10.0	BPS
8/10/2011	IBSP - S. Unit	10	Giant Manna Grass	11:15	4	2.00	8.0	BPS
8/18/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	5.75	17.3	BPS
8/19/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	5.75	17.3	BPS
8/30/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	4.75	14.3	BPS
8/30/2011	OT ROW- Manville	78	Giant Hogweed	2:30	1	0.50	0.5	BPS
10/7/2011	John Mansville	74	Common reed	12:00	2	0.00	0.0	BPS
7/6/2011	Manville	46	Knapweed/Cr. Vetch	9:00	2	0.00	0.0	ATV/BPS
7/7/2011	Manville	66	common reed	8:30	1	0.00	0.0	BPS
7/7/2011	Manville	76	common reed	10:00	1	0.00	0.0	BPS
6/9/2011	Sheridan Road	4	Japanese Knotweed	9:00 AM	2	2.00	4.0	Injection
6/9/2011	Sheridan Road	5	Japanese Knotweed	11:00 AM	2	2.50	5.0	Injection
6/28/2011	Sheridan Road	4	Japanese Knotweed	1:45	1	1.00	1.0	BPS
6/28/2011	Sheridan Road	5	Japanese Knotweed				0.0	
8/3/2011	Sheridan Road	4	Japanese Knotweed	12:45	2	1.00	2.0	Injection
8/3/2011	Sheridan Road	5	Japanese Knotweed	1:45	2	1.00	2.0	Injection
7/8/2011	Spring Bluff	6	Japanese Knotweed	12:30	1	1.00	1.0	BPS
8/3/2011	Spring Bluff	6	Japanese Knotweed	10:45	2	0.50	1.0	BPS
						Total Hours	295.0	
						Per hour rate	41.75	
						Total Value	\$ 12,316.25	

### Total Project Expenditures

Project expenditures paid for by funds other than Special Wildlife Grant Funds were funded by federal funds from the US Fish and Wildlife Service through a Sustain Our Great Lakes Grant from the National Fish and Wildlife Foundation. Our match requirement was \$7500. The cost to complete control of EDRR target species in Illinois Beach State Park and Spring Bluff exceeded our matching requirements. An executed payment application and invoice shows payment to Hey and Associates for \$10,493.05 (hourly rate was \$41.75/hour).

A breakdown of the Strike Team's work used to match the Special Wildlife Grant Fund is listed in the following table (taken from the contractor's herbicide application record and field checked by project partners). Since not all the contractor's work was completed on NIWP target species, only those hours used to control NIWP target species are being used as match (not the entire contract amount listed above).

Item	Contractor	Item Details	Contract Amount	Date Purchase
Enhancement and Transfer of NIWP Website and Database	The University of Georgia Chuck Bargeron, Technology Director P.O. Box 748 4601 Research Way CPES 113 Administration Building Tifton, Georgia 31793 Phone: 229-402-0412	Lump Sum Contract Price to Complete Database and Website Enhancements and Transfer	\$7,500	1/31/2012
Lake Plain Strike Team	Hey and Associates, Inc. 26575 West Commerce Drive, Suite 601, Volo, IL 60073 Phone: 847-740-0888	Hourly Contrat to Control target EDRR plant populations. Hourly Rate \$41.75 / hour	\$49,807.75 (includes work beyond the scope of this project)	8/29/2011

The Chicago Botanic Garden is deeply grateful to the Illinois Department of Natural Resources for support of this project.

Chicago Botanic Garden  
Grant 11-L01W

**FINANCIAL ATTACHMENTS**

- Payment Request Certification
- Invoice: Hey and Associates, Inc.
- Invoice ~~UBXWYW~~. I bj YfghrcZ; Ycf[]U

ILLINOIS DEPARTMENT OF NATURAL RESOURCES  
FY04 WILDLIFE PRESERVATION FUND GRANT PROGRAM

PAYMENT REQUEST CERTIFICATION

**Grantee Information**

Grantee Name: Chicago Botanic Garden  
1000 Lake Cook Road  
Glencoe, IL 60022

Grant Agreement #: 11-L01W

Amount of Reimbursement Requested: \$7,500

I certify that the goods or services specified on this request for payment were for the use of this agency and that the expenditure for such goods or services was authorized and lawfully incurred, that such goods or services meet all the required standards set forth in the grant agreement to which this request for payment relates, and that the amount shown below on this request is correct and approved for payment.

By: Thomas J. Nissly Date: 5/10/2012  
(Signature)

Name: Thomas J. Nissly Title: Executive Vice President and CFO

Grantee F.E.I.N. / TIN: 36-2225482

Attach copies of vendor billings, proof of payment, and other necessary documentation and send the Request for Payment Certification to:

Maggie Cole  
Illinois Department of Natural Resources  
2317 E. Lincolnway, Suite A  
Sterling, IL 61081  
Telephone #: (847) 608-3100 x2049

Email: Maggie.Cole@Illinois.gov

**For DNR Use Only**

Approved for Payment: \_\_\_\_\_  
Signature

Name: \_\_\_\_\_

Date: \_\_\_\_\_



# APPLICATION AND CERTIFICATE FOR PAYMENT CONTRACTOR

APPLICATION NO. 1  
DATE: August 29, 2011

VIA: (ARCHITECT/ENGINEER)

TO: (OWNER)  
LAKE COUNTY FOREST PRESERVE DISTRICT  
2000 NORTH MILWAUKEE AVENUE  
LIBERTYVILLE, ILLINOIS 60048-1199  
ATTENTION: Debbie Maurer  
PROJECT: Lake Plain Strike Team  
PROJECT #: 56034-127510-601  
P.O. #: 20872

FROM: (CONTRACTOR)  
Hey and Associates, Inc.  
26575 W. Commerce Drive  
Suite 601  
Volo, IL 60073

CONTRACT DATE: April 1, 2011

### CHANGE ORDER SUMMARY

NO.	DATE:	\$ ADDITIONS	\$ DEDUCTIONS
<b>TOTALS:</b>		0.00	0.00
<b>NET CHANGE BY CHANGE ORDER:</b>		0.00	0.00

The undersigned Contractor certifies that, to the best of the Contractor's knowledge, information and belief, the Work covered by this Application for Payment has been completed in accordance with the Contract Documents; that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner; and that current payment shown herein is due.

### APPLICATION IS MADE FOR PAYMENT AS SHOWN BELOW THE PRESENT STATUS OF THE ACCOUNT FOR THE CONTRACT IS AS FOLLOWS:

1	ORIGINAL CONTRACT SUM	\$	49,807.75
2	NET CHANGE BY CHANGE ORDER(S)	\$	0.00
3	CONTRACT SUM TO DATE (Line 1 + 2)	\$	49,807.75
4	TOTAL COMPLETED AND STORED TO DATE	\$	11,658.95
5	RETAINAGE:		
	a. 10% COMPLETED WORK	\$	1,165.90
		(Columns D & E on Attached Sheet)	
	b. 10% STORED MATERIAL	\$	0.00
		(Column F on Attached Sheet)	
	TOTAL RETAINAGE (Line 5a + 5b)	\$	1,165.90
6	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$	10,493.05
7	TOTAL PREVIOUS AMOUNTS CERTIFIED (Sum of Line 8, From all Previous Applications)		0.00
8	CURRENT PAYMENT DUE (Line 6 less Line 7)	\$	<u>Bm</u> 10,493.05
9	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)	\$	39,314.70

### CONTRACTOR

COMPANY: Hey and Associates, Inc.  
SIGNED: 1 David Cassin  
PRINT/TYPE: David Cassin, Eco Restoration Mgr.  
DATE: 29 August 2011  
Signed or attested before me on (date) 8-29-11

by (name) Amber Deere  
(SEAL) **AMBER DEERE**  
NOTARY PUBLIC - STATE OF ILLINOIS  
MY COMMISSION EXPIRES JUN. 18, 2012  
SIGNATURE OF NOTARY PUBLIC Amber Deere

### CONSULTANT

COMPANY: \_\_\_\_\_  
SIGNED: \_\_\_\_\_  
PRINT/TYPE: \_\_\_\_\_  
DATE: \_\_\_\_\_

AMOUNT CERTIFIED THIS APPLICATION:

\$ 10,493.05

### OWNER

#### LAKE COUNTY FOREST PRESERVE DISTRICT

Project Manager Debbie Maurer Date: 9/22/11  
Division Manager [Signature] Date: 9/22/11  
Department Director [Signature] Date: 9/26/11  
Executive Director [Signature] Date: 10/3/11

ORG#	OBJECT#	PROJECT #
69644100	803200	56034



# APPLICATION AND CERTIFICATE FOR PAYMENT CONTRACTOR

APPLICATION NO. 1  
DATE: August 29, 2012

**OWNER:**  
LAKE COUNTY FOREST PRESERVE DISTRICT  
2000 NORTH MILWAUKEE AVENUE  
LIBERTYVILLE, ILLINOIS 60048-1199  
**PROJECT:** Lake Plain Strike Team  
**PROJECT #:** 56034-127510-601

**CONTRACTOR:**  
Hey and Associates, Inc.  
26575 W. Commerce Drive  
Volo, IL 60073  
CONTRACT PERIOD PAY PERIOD  
**FROM:** 4/1/2011  
**TO:** 11/1/2012

ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS STORED (NOT IN D OR E)	TOTAL COMPLETE + STORED TO DATE	% COMPLETE (G/C)	BALANCE TO FINISH (C-G)	AMT RETAINED 10%
			PREVIOUS APPLICATION(S)	THIS APPLICATION					
1	Invasive Plant Management	49,807.75	0.00	11,658.95	0.00	11,658.95	23%	38,148.80	1,165.95
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
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						0.00		0.00	0.00
						0.00		0.00	0.00
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						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
						0.00		0.00	0.00
<b>TOTALS</b> =THIS PAGE + ALL PREVIOUS PAGES		49,807.75	0.00	11,658.95	0.00	11,658.95	23%	38,148.80	1,165.95

HEY AND ASSOCIATES INC  
 26575 W. Commerce Drive  
 Suite 601  
 Volo, IL 60073

Christine Miller  
 LAKE COUNTY FOREST PRESERVE DISTRICT  
 2000 Milwaukee Avenue  
 Libertyville IL 60048

Date: **August 29, 2011**  
 Invoice: **38534**  
 Project: **11-0071**

Consulting Services for Period Ended July 31, 2011

**A** MANAGEMENT - STRIKE TEAM - P.O. # 00020872-00 FY 2011

Services this period include: Spreadsheet attached.

CAD Technician 1	1.50 hrs.	\$62.63
Environmental Scientist 1	172.75 hrs.	\$7,212.56
Environmental Intern	23.00 hrs.	\$960.25
Environmental Scientist 2	39.50 hrs.	\$1,649.13
Environmental Scientist 3	23.00 hrs.	\$960.25
Ecological Restoration Manager	19.50 hrs.	\$814.13
TOTAL LABOR		\$11,658.95

INVOICE SUBTOTAL \$11,658.95

INVOICE TOTAL \$10,493.05

Retainage: -\$1,165.90

Aged Receivables:				
Current	31-60 Days	61-90 Days	91-120 Days	> 120 Days
\$ 10,493.05	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00

Payment Due Upon Receipt

For Billing Inquiries, Please Call (847) 740-0888

**WAIVER OF LIEN TO DATE**

STATE OF ILLINOIS  
COUNTY OF LAKE ) SS

Gty # \_\_\_\_\_

Escrow # \_\_\_\_\_

TO WHOM IT MAY CONCERN:

WHEREAS the undersigned has been employed by Lake County Forest Preserve District  
to furnish Management – Strike  
for the premises known as Chiwaukee Illinois Beach Lake Plain  
of which Lake County Forest Preserve District is the owner.

THE undersigned, for and in consideration of Ten Thousand Four Hundred Ninety Three and 05/100... (\$10,493.05)  
Dollars, and other good and valuable consideration, the receipt whereof is hereby acknowledged, do(es) hereby waive  
and release any and all lien or claim of, or right to, lien, under the statutes of the State of Illinois, relating to  
mechanics' liens, with respect in and on said above-described premises, and the improvements thereon, and on the  
material, fixtures, apparatus or machinery furnished, and on the moneys, funds or other considerations due or to  
become due from the owner, on account of all labor services, material, fixtures, apparatus or machinery, furnished to  
this date by the undersigned for the above-described premises, INCLUDING EXTRAS\*.

DATE 09-19-2011

COMPANY NAME: Hey and Associates, Inc.

ADDRESS: 26575 W. Commerce Drive, Suite 601, Volo, IL 60073

SIGNATURE AND TITLE

President

\*EXTRAS INCLUDE, BUT ARE NOT LIMITED TO, CHANGE ORDERS, BOTH ORAL AND WRITTEN, TO THE CONTRACT

**CONTRACTOR'S AFFIDAVIT**

STATE OF ILLINOIS  
COUNTY OF LAKE ) SS

TO WHOM IT MAY CONCERN:

THE UNDERSIGNED, (NAME) Gary C. Schaefer BEING DULY SWORN, DEPOSES AND SAYS THAT  
HE OR SHE IS (POSITION) President, WHO IS THE CONTRACTOR FURNISHING Management – Strike Team  
WORK ON THE BUILDING LOCATED AT Chiwaukee Illinois Beach Lake Plain  
OWNED BY Lake County Forest Preserve

That the total amount of the contract including extras\* is \$49,807.75 on which he or she has receive payment  
of \$0.00 prior to this payment. That all waivers are true, correct and genuine, and delivered unconditionally, and that  
there is no claim either legal or equitable to defect the validity of said waivers. That the following are the names and  
addresses of all parties who have furnished material or labor, or both, for said work and all parties having contract or  
subcontracts for specific portions of said work or for material entering into the construction thereof and the amount  
due or to become due to each, and that the items mentioned include all labor and material required to complete said  
work according to plans and specifications:

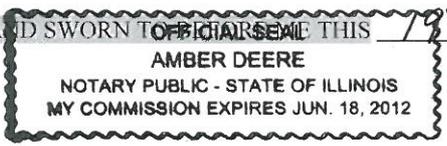
NAMES AND ADDRESSES	WHAT FOR	CONTRACT PRICE INCLUDING EXTRAS*	AMOUNT PAID	THIS PAYMENT	BALANCE DUE
Hey and Associates, Inc.	Management - Strike Team	\$49,807.75	\$0.00	\$10,493.05	\$39,314.70
26575 W. Commerce Dr					
Suite 601					
Volo, IL 60073					
TOTAL LABOR AND MATERIAL INCLUDING EXTRAS* TO COMPLETE					

That there are no other contracts for said work outstanding and that there is nothing due or to become due in any  
person for material, labor or other work of any kind done or to be done upon or in connection with said work other  
than above stated.

DATE 9-19-11

SIGNATURE

SUBSCRIBED AND SWORN TO OFFICIAR SEAL THIS 19<sup>th</sup> DAY OF September, 2011



NOTARY PUBLIC

\*EXTRAS INCLUDE, BUT ARE NOT LIMITED TO, CHANGE ORDERS, BOTH ORAL AND WRITTEN, TO THE CONTRACT

# UNIVERSITY OF GEORGIA

Warnell School of Forestry & Natural Resources  
180 E. Green Street  
Athens, Georgia 30602- 2152 Phone Number  
(706)542-2686

# INVOICE

Account 2131DE273005

Federal Tax ID# 58-6033837

Attention:
Kay Havens
Chicago Botanic Garden
1000 Lake Cook Road
Glencoe, IL 60022

INVOICE NUMBER BW304  
INVOICE DATE 1/31/2012

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1	Migration of New Invaders Watch Program into EDDMapS	1	\$7,500.00
SUBTOTAL			\$7,500.00
TAX			
FREIGHT			
			<b>\$7,500.00</b> PAY THIS AMOUNT

Please make payment to: University of Georgia

Remit to:  
ATTN: Anuj Sinha  
Warnell School of Forestry & Natural Resources  
University of Georgia  
180 E. Green Street  
Athens, Georgia 30602- 2152

Questions concerning this invoice?  
Dave Moorhead  
Warnell School of Forestry and Natural Resources  
229-386-3298  
[moorhead@uga.edu](mailto:moorhead@uga.edu)



**Chicago Botanic Garden**  
 1000 Lake Cook Road  
 Glencoe, IL 60022

The Northern Trust Company  
 Chicago, IL 60675  
 2-15/710

CHECK DATE	CHECK NO.
3/9/2012	222982
CHECK AMOUNT	

Please contact Accounts Payable at (847) 835-8219 with any questions

PAY \*\*Seven thousand five hundred and 00/100 Dollars\*\*

\$\*\* 7,500.00

Checks over \$10,000 require two signatures

TO  
 THE  
 ORDER  
 OF

University of Georgia  
 Anuj Sinha  
 Warnell School of Forest & Nat Res  
 Athens, GA 30602-2152

*Thomas G. Nisely*

AUTHORIZED SIGNATURE

⑈ 222982⑈ ⑆ 071000152⑆ 462403⑈

ENDORSE CHECK HERE  
 X  
 FOR DEPOSIT ONLY  
 UNIVERSITY OF GEORGIA  
 WARNELL SCHOOL OF FORESTRY AND NATURAL RESOURCES

DO NOT WRITE, SIGN OR STAMP BELOW THIS LINE



**Ducard 0418 - 11 Security Features**

- Ducard checks are (Check 21 compliant)
  - Front: "VOID" on front when duplicated
  - Perforated base and top edges
  - Security watermark is printed on front on left
  - Watermark on back that is visible when check is held on an angle
  - Cash reflective ink on watermark changes color when scratched with a coin
  - Check verification number is part of the watermark
  - Anti-spike hot foil deterring splicing of information
  - Embossed area prints "VOID" when duplicated
  - Security Features Box lists unique features attributes
- Absence of any of these features may indicate alteration.**
- © 2007 Northern Trust Company. All rights reserved. System Administrator

Scratch box for verification number









## Report an Invasive Species Occurrence

Please provide as much information about the sighting as possible.

### Species:

Begin typing scientific or common name and then select species from dropdown. If the pest is not listed or is unknown, type and choose "unlisted plant" or "unknown plant" from the list and describe the plant in the Comments section below.

**Pest:**

### Infestation:

**Observation Date:**  (?)

**Infested Area:**  Select One (?)

**Gross Area:**  Select One (?)

**Habitat:** Select One (?)

**Canopy Closure:** Select One (?)

**Abundance/Density:** Select One

**Plant Description:**  Mature  Sapling/Immature  Seedling/Rosette  In Flower  In Fruit  Seeds  Dormant/Dead  Unknown

### Location:

Specify the location where you observed the pest, by first selecting the county from the dropdown. Then move the marker on the map to the correct location. If you move across county lines the new county will be displayed. You can also enter the lat/long in the fields below and then click the "Jump to Point" button.

**State:**

**County:**

**Latitude:**

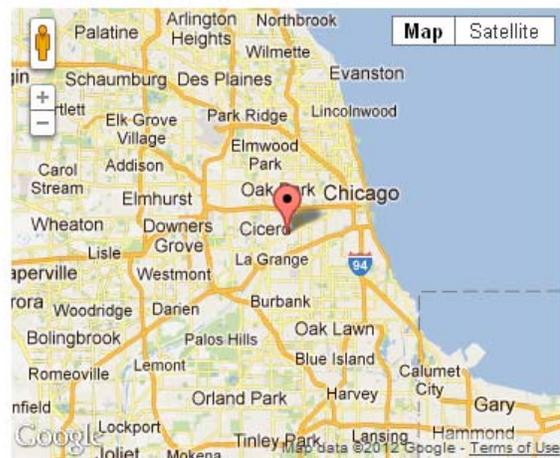
**Longitude:**

**Location Description:**

**Ownership:** Select One (?)

\* If reporting infestation on private land, be sure to have landowner's permission.

**Site Name:** Select Site



**Marker status:** Click and drag the marker.

### Lat/Long Conversion Tools:

### Upload Images with Your Report:

For verification purposes, take at least two digital images, a close up of the species and one of the site.

# New Invaders Watch Program

## Early Detection and Rapid Response Network

Welcome:  
Debbie Maurer, Lake County Forest Preserve  
District  
Logout

- Home
- About
- Partners
- Report an Invader
- Target Species
- Maps
- Trainings & Activities
- Training Materials

### giant hogweed

*Heracleum mantegazzianum* Sommier & Levier

USDA PLANTS Symbol: HEMA17  
Invasive Plant Atlas



Multiple EDDMapS Points

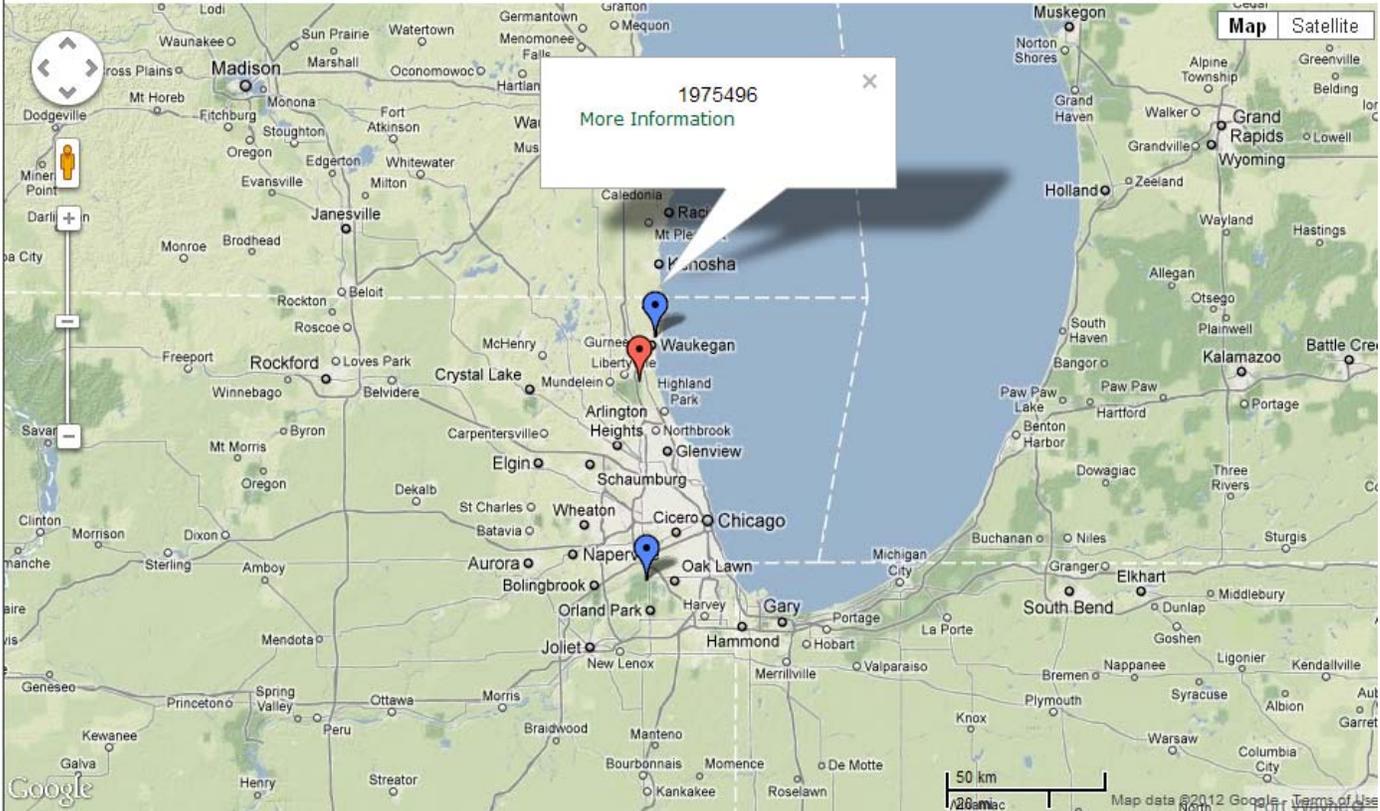


Single EDDMapS Point



Single New Invaders Point

Load Time: 0ms



THE UNIVERSITY OF GEORGIA  
**CENTER FOR INVASIVE SPECIES  
AND  
ECOSYSTEM HEALTH**

Developed by The University of Georgia - Center for Invasive Species and Ecosystem Health.  
Last updated on Sunday, March 11, 2012 at 02:52 PM

### Compose E-mail

#### Choose recipients

- Administrator
- Site Administrator
- Trainer
- User
- Verifier

Title:

**B** *I*  $x_2$   $x^2$  | ↶ ↷ |          HTML

Send Message



## Project Users

- ✓ Aaron Zych, - User
- ✓ Al Moody, - User
- ✓ Alan Wilson, - User
- ✓ Alec Schorg, - User
- ✓ Alena Gust, - User
- ✓ Alice Brandon, - Trainer
- ✓ Alice Eastman, - Site Administrator
- ✓ Allison Skorich, - User
- ✓ Alycia Crall, - User
- ✓ Alyssa Nyberg, - User
- ✓ Amanda Ward, - User
- ✓ Amy Carmody, - User
- ✓ Amy Schuetz, - User
- ✓ Andrew Fefles, - User
- ✓ Andrew Heinisch, - User
- ✓ Andy DeLorenzo, - User
- ✓ Angela Kerber, - User
- ✓ Angela Kerber, - User
- ✓ Angela Ulrey, - User
- ✓ Ann Shanks, - User
- ✓ Anne Basten, - User
- ✓ Art Coleman, - User
- ✓ Arthur Pearson, - User
- ✓ Barbara Schneider, - User
- ✓ Barbara Silva, - User
- ✓ Barbara Wilson, - User
- ✓ Becky Schillo, - User
- ✓ Ben Dolbeare, -
- ✓ Ben Haberthur, Forest Preserve District of Kane County - Administrator
- ✓ Beth Butler, - User
- ✓ betsy Leibson, glencoe freinds of the greenbay trail - Administrator
- ✓ Beverly Hansen, - User
- ✓ Bill Gillespie, - User
- ✓ Bill Glass, - Site Administrator
- ✓ Bob Gardiner, - User
- ✓ Bob Hostettler, - User
- ✓ Bob Kirschner, - User
- ✓ Bonnie Jilek, - User
- ✓ Brad Semel, - Site Administrator
- ✓ Brian Griffin, - User
- ✓ Brian Wray, - User
- ✓ Bridget Stuckey-Danner, - User

## Project Sites

- ⊕ Indian Prairie Boundary
- ☑ Boone County
  - ⊕ No Site Name / Unknown Owner / Private Landowner
- ☑ Boone County Conservation District
  - ⊕ Anderson Bend
  - ⊕ Au
  - ⊕ Beaver Bluffs
  - ⊕ Distillery
  - ⊕ Edward's
  - ⊕ Elmhurst Chicago Stone Wetland
  - ⊕ Flora Nature Preserve
  - ⊕ Green Giant Prairie
  - ⊕ Kinnikinnick
  - ⊕ Kishwaukee Bend
  - ⊕ LIB
  - ⊕ Long Prairie Trail
  - ⊕ McKiski Fen
  - ⊕ Milt Brown Conservation Park
  - ⊕ Nelson Ford
  - ⊕ Newburg Village
  - ⊕ Nieman
  - ⊕ Piskasaw Fen
  - ⊕ Sewell
  - ⊕ Spencer
  - ⊕ Stimes
  - ⊕ Tuttle
  - ⊕ Wagner
  - ⊕ Youssi
- ☑ Campton Township
  - ⊕ Anderson Park on Brown Road
  - ⊕ Brown Road Parcel
  - ⊕ Corron Farm
  - ⊕ Gray Willows
  - ⊕ Harley Woods
  - ⊕ Headwaters Conservation Area
  - ⊕ Mongerson Park
  - ⊕ Poynor Park
- ☑ Citizens for Conservation
  - ⊕ Barrington Bog
  - ⊕ Farm Trails North
  - ⊕ Flint Creek Savanna

# New Invaders Watch Program

## Early Detection and Rapid Response Network

**COMMON NAME:** LESSER CELANDINE

**SCIENTIFIC NAME:** *Ranunculus ficaria*

**FAMILY:** *Ranunculaceae*

**ORIGIN:** Eurasia including Europe, Northern Africa, Western Asia, Caucasus, and Siberia

**US INTRODUCTION:** Introduced as an ornamental garden plant

**MAJOR PATHWAYS OF SPREAD:**

- Distribution and use for ornamental gardens
- Contaminated soil
- Animals
- Water

**IDENTIFICATION CHARACTERISTICS:**

- Perennial herbaceous flowering plant can create large dense mats and blooms in March and April, spreads by seed and vegetatively
- Leaves kidney- to heart-shaped, succulent, dark green and shiny in a basal rosette
- Flowers bright rich yellow with a slightly darker yellow center, have 8 (typical) to 12 petals, and are borne singly on delicate stalks above the leaves.
- Tiny cream colored bulblets are produced in stem axils and many fingerlike tubers are produced by the roots
- Fruits (many) in round heads are hairy
- Threatens wet woodlands and forests, ravines, and floodplains

**NATIVE LOOK-ALIKES:**

Fig buttercup may be confused with marsh marigold (*Caitha palustris*). Marsh marigold is more robust and less delicate than lesser celandine and has flowers on stalks that are 8 inches or more in height and consist of five to nine deep yellow "petals" (actually sepals). Marsh marigold does not produce tubers or bulblets. It also resembles celandine (*Chelidonium majus*) and celandine poppy (*Stylophorum diphyllum*), which can be distinguished from lesser celandine by having flowers with four petals.

There are many varieties of lesser celandine including a double-flowered form with many petals and dark green leaves mottled with silvery markings.

**ADDITIONAL RESOURCES:**

Plant Conservation Alliance Factsheet.  
<http://www.nps.gov/plants/alien/fact/rafi1.htm>

USDA Plants Database.  
<http://plants.usda.gov/java/profile?symbol=RAFI>



Population with flowers



Flower close-up



Young plant



Marsh marigold flower



Lesser celandine flower

Table 1. Strike Team Herbicide Application Record by Population Treated

Below: Breakdown of Strike Team work by Target Species and Day with cost per hour and total value

Date	Preserve	Polygon Number	Species	Start	Crew size	Hours	Total Hour	Method of Application
9/14/2011	IBSP - N. Unit	35	Lyme Grass	1:15	3	1.00	3.0	BPS
9/15/2011	IBSP - N. Unit	32	Cypress Spurge	12:30	3	0.50	1.5	BPS
9/16/2011	IBSP - N. Unit	33	Cypress Spurge	8:45	2	3.50	7.0	BPS
10/24/2011	IBSP - N. Unit	34	Oriental Bittersweet	1:30	2	1.50	3.0	BPS
10/28/2011	IBSP - N. Unit	34	Oriental Bittersweet	9:00	2	1.00	2.0	BPS
10/28/2011	IBSP - N. Unit	New	Japanese Barberry	10:15	2	0.25	0.5	BPS
7/29/2011	BSP - North Unit	39	Spotted Knapweed	8:45	2	2.00	4.0	BPS
7/29/2011	BSP - North Unit	36	Lyme Grass	10:45	2	1.50	3.0	BPS
7/29/2011	BSP - North Unit	35	Lyme Grass	12:45	2	1.00	2.0	BPS
7/7/2011	IBSP - S. Unit	64	spotted knapweed	1:00	1	1.00	1.0	BPS
9/14/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	2.50	7.5	BPS
9/14/2011	IBSP - S. Unit	no point	Lyme Grass	11:15	3	1.50	4.5	BPS
9/14/2011	IBSP - S. Unit	10	Giant Manna Grass	2:15	3	0.50	1.5	BPS
9/15/2011	IBSP - S. Unit	41	Cypress Spurge	8:45	3	0.25	0.8	BPS
9/15/2011	IBSP - S. Unit	42	Cypress Spurge	9:00	3	1.00	3.0	BPS
9/15/2011	IBSP - S. Unit	43	Cypress Spurge	10:00	3	1.00	3.0	BPS
9/15/2011	IBSP - S. Unit	30	Cypress Spurge	11:00	3	0.50	1.5	BPS
9/15/2011	IBSP - S. Unit	40	Cypress Spurge	11:30	3	0.50	1.5	BPS
9/16/2011	IBSP - S. Unit	29	Cypress Spurge	8:15	2	0.50	1.0	BPS
9/16/2011	IBSP - S. Unit	65	Cypress Spurge	12:45	2	1.25	2.5	BPS
10/3/2011	IBSP - S. Unit	48	Cypress Spurge	10:15	1	1.00	1.0	BPS
10/3/2011	IBSP - S. Unit	47	Cypress Spurge	11:15	1	1.00	1.0	BPS
10/3/2011	IBSP - S. Unit	64	Spotted Knapweed	12:45	1	2.00	2.0	BPS
7/29/2011	BSP - South Unit	44	Lyme Grass	1:45	2	1.25	2.5	BPS
5/27/2011	IBSP - N. Unit	33	Cypress Spurge	8:30 AM	1	7.50	7.5	BPS
6/7/2011	IBSP - N. Unit	32	Cypress Spurge	2:00 PM	1	0.50	0.5	BPS
6/7/2011	IBSP - N. Unit	33	Cypress Spurge	2:30 AM	1	0.50	0.5	BPS
6/30/2011	IBSP - N. Unit	37	Cypress Spurge		1	1.50	1.5	BPS
6/30/2011	IBSP - N. Unit	38	Cypress Spurge				0.0	
6/30/2011	IBSP - N. Unit	62	Cypress Spurge				0.0	
7/5/2011	IBSP - N. Unit	39	Spotted Knapweed	1:30	1	1.50	1.5	BPS
7/8/2011	IBSP - N. Unit	39	Spotted Knapweed	10:00	1	2.00	2.0	BPS
9/16/2011	IBSP - N. Unit	37	Cypress Spurge	7:30	2	0.50	1.0	BPS
9/16/2011	IBSP - N. Unit	62	Cypress Spurge	8:00	2	0.25	0.5	BPS
5/19/2011	N. Unit (N. Pt. M	32	Leafy Spurge	1:00 PM	1	2.50	2.5	BPS
5/20/2011	N. Unit (N. Pt. M	32&33	Cypress Spurge	1:00 PM	2	1.00	2.0	BPS
5/19/2011	IBSP - S. Unit	41&42&43	Cypress Spurge	9:00 AM	1	3.50	3.5	BPS
5/20/2011	IBSP - S. Unit	30	Cypress Spurge	8:30 AM	2	2.50	5.0	BPS
5/20/2011	IBSP - S. Unit	40	Cypress Spurge	10:30 AM	2	2.50	5.0	BPS
6/14/2011	IBSP - S. Unit	47	Cypress Spurge	9:00 AM	2	0.50	1.0	BPS
6/14/2011	IBSP - S. Unit	48	Cypress Spurge	9:30 AM	2	0.50	1.0	BPS
6/17/2011	IBSP - S. Unit	10	Giant Manna Grass	1:00 PM	1	2.00	2.0	BPS
6/30/2011	IBSP - S. Unit	41	Cypress Spurge	10:00	1	3.00	3.0	BPS
6/30/2011	IBSP - S. Unit	42	Cypress Spurge				0.0	
6/30/2011	IBSP - S. Unit	43	Cypress Spurge				0.0	
7/7/2011	IBSP - S. Unit	30	Cypress Spurge	2:00	1	1.00	1.0	BPS
7/8/2011	IBSP - S. Unit	40	Cypress Spurge	8:30	1	1.50	1.5	BPS
7/13/2011	IBSP - S. Unit	10	Giant Manna Grass	2:00	2	1.00	1.5	BPS
7/25/2011	IBSP - S. Unit	10	Giant Manna Grass	8:30	3	5.50	16.5	BPS
7/26/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.50	22.0	BPS
8/1/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.75	23.0	BPS
8/4/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.75	23.0	BPS
8/5/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	4	5.75	23.0	BPS
8/10/2011	IBSP - S. Unit	44	Lyme Grass	8:45	4	2.50	10.0	BPS
8/10/2011	IBSP - S. Unit	10	Giant Manna Grass	11:15	4	2.00	8.0	BPS
8/18/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	5.75	17.3	BPS
8/19/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	5.75	17.3	BPS
8/30/2011	IBSP - S. Unit	no point	Lyme Grass	8:45	3	4.75	14.3	BPS
8/30/2011	OT ROW- Manville	78	Giant Hogweed	2:30	1	0.50	0.5	BPS
10/7/2011	John Mansville	74	Common reed	12:00	2	0.00	0.0	BPS
7/6/2011	Manville	46	Knapweed/Cr. Vetch	9:00	2	0.00	0.0	ATV/BPS
7/7/2011	Manville	66	common reed	8:30	1	0.00	0.0	BPS
7/7/2011	Manville	76	common reed	10:00	1	0.00	0.0	BPS
6/9/2011	Sheridan Road	4	Japanese Knotweed	9:00 AM	2	2.00	4.0	Injection
6/9/2011	Sheridan Road	5	Japanese Knotweed	11:00 AM	2	2.50	5.0	Injection
6/28/2011	Sheridan Road	4	Japanese Knotweed	1:45	1	1.00	1.0	BPS
6/28/2011	Sheridan Road	5	Japanese Knotweed				0.0	
8/3/2011	Sheridan Road	4	Japanese Knotweed	12:45	2	1.00	2.0	Injection
8/3/2011	Sheridan Road	5	Japanese Knotweed	1:45	2	1.00	2.0	Injection
7/8/2011	Spring Bluff	6	Japanese Knotweed	12:30	1	1.00	1.0	BPS
8/3/2011	Spring Bluff	6	Japanese Knotweed	10:45	2	0.50	1.0	BPS
						Total Hours	295.0	
						Per hour rate	41.75	
						Total Value	\$ 12,316.25	