French Creek Watershed Cooperated Weed Management Area

Strategic Management Plan

Adopted October 15, 2019

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Why worry about invasive species in the French Creek Watershed?

Non-native invasive species flora and fauna that have been introduced to a new area by human means. The introduction may have been either intentional or accidental, but once there these new species have drastic effects on their new environments. They colonize new habitats quickly and – as they do not have any of their natural predators, parasites, or diseases to keep them in check in their new home – reproduce rapidly. Invasive species drastically change their new habitats by a variety of mechanisms, often to the point that native species diversity is impacted and ecosystem functions are compromised.

The 1,129-mi^2 Pennsylvania portion of the French Creek Watershed covers 47,007 acres of open water, river floodplains, wet meadows, swamps, freshwater marshes, peatlands, and other riparian habitat (Homer et al. 2015), as well as 51,789 acres of public land (U.S. Geological Survey, GAP Analysis Program (GAP) 2016). Monitoring and management of invasives are priorities in protecting the biological resources of the French Creek as emphasized in the French Creek Watershed Conservation Plan (WPC and FCP 2002). State, federal, and private resource managers have worked together in the watershed for years to reduce populations of invasive plants, but efforts have been confined by political or municipal boundaries. The formation of the French Creek Watershed Cooperative Weed Management Area (FCW-CWMA, Figure 1) offers the opportunity to share experience and limited resources (personnel, equipment, supplies, etc.) to coordinate the treatment of invasives. Furthermore, the FCW-CWMA will formalize our local partnership, effectively increasing the capacity of each individual group and allowing access to multiple funding sources.

What is a CWMA?

A CWMA is a local partnership between public and private entities that works towards increasing awareness, effective prevention, and control of weeds (here, defined as an organism that is not wanted in a given area, generally because it causes damage or otherwise interferes with management goals) and invasive plants (defined as non-native species alien to the local ecosystem, whose introduction causes or is likely to cause economic or environmental harm or harm to human health [Executive Order 13112]). These organizations are usually comprised of federal, state, and local government agencies, tribes, individuals, and other interested groups (MIPN 2011). CWMAs are generally characterized by six qualities, as identified in the MIPN's CWMA Cookbook (2011):

1) They operate within a defined geographic area, distinguished by a common geography, weed or invasive species problem, community, climate, political boundary, or land use.

2) They involve a broad cross-section of landowners and natural resource managers within the CWMA boundaries.

3) They are governed by a steering committee.

4) They have a long-term commitment to cooperation.

5) They have a comprehensive plan that addresses the management of invasive species within their boundaries.

6) They facilitate cooperation and coordination across jurisdictional boundaries.

This partnership may be formalized under a mutually developed Memorandum of Understanding or Hold Harmless Agreement. These documents identify the partners, describe the geographic scope, define the purpose, and detail how the CWMA will function. This management plan shall serve the same purpose for the partners listed in Appendix A.

Many local communities have established informal partnerships, working together to combat invasive plants. Informal partnerships have accomplished great things in many areas, but the formal agreement created during the formation of a CWMA establishes a long-term relationship that will not disappear after a joint project is completed. This formal agreement creates a mechanism for ongoing resource-sharing and collaboration that can be a highly effective long-term strategy for dealing with a long-term problem. Locally-driven CWMAs are especially effective at generating public interest in weed management and organizing community groups to support on-the-ground programs.

Mission

The French Creek Watershed Cooperative Weed Management Area (FCW-CWMA) provides a forum to share information, collaborate on planning, and cooperate on management activities focused on invasive species in northwestern Pennsylvania. The work of the FCW-CWMA helps members educate individuals, develop common management objectives, set realistic management priorities, facilitate effective treatment, and coordinate efforts beyond geographical and municipal boundaries with similar land types, use patterns, and problem species.

Background

The French Creek watershed is located in northwestern Pennsylvania and southwestern New York in the Northwestern Glaciated Plateau Section of the Appalachian Plateau Province, covering an area of over 1,000 square miles. The French Creek Watershed Cooperative Weed Management Area (FCW-CWMA) covers the Pennsylvania portion of the watershed (722,825 acres, Figure 1), which extends roughly 88 mi through Erie, Crawford, Mercer, and Venango counties (Watershed Boundary Dataset n.d.). The FCW-CWMA encompasses either portions or the full extent of 74 municipalities and townships (PennDOT 2017).

French Creek is sparsely populated and, thus, is one of the last intact river systems of northwest Pennsylvania still rich in ecological resources. Land use in the French Creek watershed has been dominated by farming and logging for the past 200 years, which can result in an increased sediment load and fertilizer and pesticide runoff entering our waterways. Nowadays, the watershed is 53 percent forested, 23 percent hay/pasture, 17 percent row crops, 5 percent water/wetlands, 2 percent urban, and 1 percent surface mine/quarry (WPC & FCP 2002, Figure 2). It has maintained a higher level of biodiversity than any other comparably sized stream in the Commonwealth, and possibly the whole northeastern United States (WPC and FCP 2002). This ecological wealth has earned French Creek several colorful names: The Nature Conservancy has called it one of America's "last great places," while many locals describe it as an "ecological" or a "community treasure". In 2003, it won the Pennsylvania Department of Conservation and Natural Resources' award for River of the Year. But it is not without its threats. The past century has seen the loss of many aquatic species in North America's riverine systems (WPC and FCP 2002). For example, it is estimated that 70% of our freshwater mussel species are extinct, endangered, or otherwise in need of special protection (Master et al. 1998). This watershed is home to over 27 species of freshwater mussels, many of which are threatened or endangered and found in only 5% of their historic range. French Creek is a stronghold representing "some of the last remaining relatively intact and continuous high-quality natural communities found anywhere in the Ohio River basin" (Smith and Crabtree 2010). Invasive competitors such as Zebra Mussels (*Dreissena polymorpha*), or species that change water clarity and nutrient cycling like Common Reed (*Phragmites australis*), pose a significant threat to freshwater mussels and other native biota in the French Creek.

The rich biodiversity of this ecosystem is reflected in the substantial number of locations designated as Natural Heritage Areas (NHAs) by the Pennsylvania Natural Heritage Program. The French Creek watershed is home to 102 swamps, fens, vernal pools, creeks, streams, rivers, emergent marshes, wooded bottomland wetlands, mesic forests, lakes, and constructed reservoirs designated as NHAs. These NHAs offer the FCW-CWMA a unique opportunity to preserve, enhance, and restore areas of high ecological value within the watershed that are threatened by invasive species. Furthermore, the FCW-CWMA will focus initial efforts within but not limited to these areas (Table 1, Figure 3).

Table 1. Natural Heritage Areas within the French Creek Watershed Cooperative Weed Management Area that will be the focus of initial invasive species control efforts.

Site	Natural Heritage Area	Description
Global Significance		
1	French Creek-Middle	High quality river with numerous species of concern present.
2	Muddy Creek Wetland	A large stream channel wetland that provides habitat to numerous plants, animals, and a natural community of conservation concern.
3	Conneaut Marsh Complex North	Northern portion of a large emergent marsh along Conneaut Outlet, which provides habitat to seventeen species of concern.
4	French Creek-Lower	Riverine community supporting many species of concern.

Regional Significance		
1	State Game Lands #277	Wetland community adjacent to French Creek that provides habitat for several species of concern.
2	Lake Creek Valley	Extensive emergent marsh surrounding Lake Creek as it flows into Sugar Lake, which provides habitat to numerous species of concern. Two natural communities of concern are also located here.
3	Conneaut Marsh Complex South	Southern portion of a large emergent marsh along Conneaut Outlet, which provides habitat to several animal and plant species of concern.
4	Conneaut Marsh Complex Central	Central portion of a large emergent marsh along Conneaut Outlet, which provides habitat to five species of concern.
5	Conneaut Lake	At risk to also loosestrife, water milfoil, fanwort, and other aquatic invasive species.
6	Harmonsberg Fen	Unique wetland area featuring historic marl mining and extensive pitted wetlands with distinctive habitat biomes. At risk to nearby loosestrife populations.
State Significance		
1	Sugar Lake	Glacial lake and surrounding marshy shoreline that supports an animal species of concern.
2	State Game Lands #69	Large wetland complex containing numerous odonate species of concern.
3	Cambridge Springs Swamp	Swampy area that provides nesting habitat to a species that is being considered for tracking.
4	Little Sugar Creek at Pettis Corners	Stretch of stream providing appropriate habitat conditions to support two species of concern.
5	Woodcock Creek Reservoir	Aquatic and riparian habitats of man-made lake supports two species of concern.
6	Little Sugar Creek at Blooming Valley	Large forested block containing three natural communities of conservation concern.
7	Yoset Lake Palustrine Forest	Wetland complex south of Yoset Lake that supports two natural communities of concern and a plant species of concern.
8	Torry Run	Small meandering stream that supports a species of concern.
9	Hemlock Natural Area	Wooded bottomland wetland area that is a Rich hemlock - mesic hardwoods forest Natural Community.
10	Beatty Run Headwaters	This area consists of a large complex of wetlands at the divide of Deckard Run and Beatty Run, and the forest surrounding these wetlands. Two unique natural communities and two species of concern were documented during recent surveys.
11	Sugar Creek at Wyattville	This site contains habitat for two species of concern.

12	Warden Run Headwaters	Warden Run Headwaters is a glacial peatland, containing an occurrence of a plant species of concern.
13	Vernal Pools west of Utica	This site contains a cluster of vernal pools, temporary wetlands that provide critical breeding habitat for many amphibians. Because the pools dry down, predatory fish populations are excluded, allowing the larval amphibians to thrive. The forest surrounding the vernal pools is equally important to the amphibians during the rest of the year, and some species are known to move several hundred meters away from these breeding pools.
14	Reynolds Church Vernal Pools	A cluster of vernal pools, critical wetlands for a host of amphibian, invertebrate, and plant species.
15	McCune Run Vernal Pools	A cluster of ephemeral fluctuating natural pools, which provide critical breeding habitat for a suite of amphibians adapted to these temporary wetlands because of their periodic drying which excludes fish populations. These pools were not surveyed during the inventory and future survey work should focus on this area to determine the quality of these wetlands.
16	Hannasville Wetlands	A complex of small streams, glacial wetlands, beaver marshes, and temporary vernal pools support two species of concern.

Cooperative weed management is not a new concept within the watershed. Multiple state agencies, non-governmental organizations, academic institutions, and local community volunteers have worked together to restore and enhance several unique natural communities within the watershed.

Conneaut Lake

Conneaut Lake is Pennsylvania's largest natural lake, by surface area, at 947 acres, and is listed as a High-Quality, Warm Water Fishery (HQ-WWF). There are three public access areas to the lake: a PA Fish and Boat Commission boat launch, a public beach at the amusement park (Conneaut Lake Park), and Fireman's Beach operated by the Borough of Conneaut Lake. In addition, it is estimated that one million people visit and recreate at Conneaut Lake each year. These recreational activities include individual fishing, fishing tournaments, ice fishing, swimming, various water sports and boating. A variety of land-based activities are also enjoyed at Conneaut Lake; some of these activities include jogging, biking, golfing, camping, etc. In addition, there is an amusement park and an 18-hole golf course located on the northern portion of the lake, which are key components of the tourism industry.

While Conneaut Lake is a significant focal point for regional tourism it is not without serious water quality issues that threaten this use. The major impacts to the lake include high densities of the invasive aquatic plants Eurasian water milfoil (Myriophyllum spicatum) and fanwort (Cabomba caroliniana), the recent invasion of the exotic zebra mussel (Dreissena polymorpha), high rates of sedimentation and large algal blooms, particularly of blue-green algae (cyanobacteria). Ever since water clarity improved with the infestation of zebra mussels, the western shoreline of Conneaut Lake has experienced dense mats of benthic algae (Mougeotia, Oedogonium, Spirogyra) that break loose and wash up as rotting mats along the shoreline. There is also a large hydrilla (Hydrilla verticillata) infestation in Pymatuning Reservoir, only

8 miles west of Conneaut Lake. With boater movement between the two waterbodies on a daily basis, the threat of hydrilla infestation at Conneaut Lake is high.

Conneaut Lake Aquatic Management Association has been actively managing invasive submerged aquatic plant species since 1999 with both mechanical harvesting and chemical applications. The target species for both these operations are Eurasian water milfoil (Myriophyllum spicatum) and fanwort (Cabomba caroliniana). Mechanical harvesting is a conventional aquatic plant control technique where specially designed machinery cuts, captures and removes aquatic plants from ponds and lakes, specifically submersed and floating leaved plants. The harvester does not completely remove the plants from the lake, as it only cuts the stems of aquatic plants, but it helps to remove large quantities of plant biomass from the lake. Harvesting removes the nutrients tied up within the biomass, preventing these nutrients from being recycled and re-used within the ecosystem.

Many of the shallower sections of Conneaut Lake are susceptible to the proliferation of nuisance densities of rooted aquatic plants. Given its size, the composition of its aquatic plant community, and its heavy and diverse recreational use, mechanical weed harvesting is the most cost effective and ecologically sound method of controlling nuisance weed densities at Conneaut Lake. Thus, the weed harvesting program has been in operation at Conneaut Lake since 1999. The program has had varying degrees of success depending on operation schedules, ranging from harvest yields of 40 tons/year to 700 tons/year, with an inter-annual mean of approximately 400 tons/year.

Erie National Wildlife Refuge

Nested in the Upper Allegheny River drainage, Erie National Wildlife Refuge is an exceptional complex of meandering streams, forested bottomland wetlands and glacially influenced plant and animal communities. These “little river” ecosystems serve as habitats and corridors for vast numbers of native wildlife, fish, and plants. The 8,815 acre Refuge manages healthy and thriving natural systems that once characterized Pennsylvania’s Western Allegheny Plateau.

Erie National Wildlife Refuge consists of two separate land divisions. The Sugar Lake Division lies 10 miles east of Meadville on the outskirts of the Guys Mills village. It contains 5,206 acres lying in a narrow valley which includes Woodcock Creek draining to the north and Lake Creek draining to the south. This division contains the Lake Creek Valley NHA. Beaver ponds, pools, and marshland along the creeks are bounded by forested slopes interspersed with croplands, grasslands, marshes and wet meadows. The Seneca Division is about 10 miles north of Sugar Lake Division or 4 miles southeast of Cambridge Springs. It consists of 3,609 acres situated in a forested valley where Muddy Creek and Dead Creek, two significant tributaries to the French Creek, provide much of the pristine wetland habitat. This division contains the Muddy Creek Wetland NHA. The restoration and maintenance of the riparian-riverine ecosystem has the highest priority for management.

Education, interpretation, and wildlife-dependent recreation activities are designed to enhance the public’s understanding and appreciation of the importance of the refuge’s role in the National Wildlife Refuge System and in the conservation of natural resources. The Refuge fosters partnerships with local,

state and Federal agencies, community organizations and individuals and builds community relationships outside the refuge boundary to increase the refuge's contribution to landscape level conservation.

Invasive species management at the Refuge consists of a multi-faceted approach that utilizes mechanical and chemical control as well as habitat manipulation. Biological control will be added to its integrated pest control program in 2018. The Refuge treats an average of 10-15 acres of habitat for invasive species annually, focusing on sensitive and high-priority habitat types.

State Game Lands 277

State Game Land 277 (SGL 277), also known as Land-O-Lakes, is about 972 acres and borders French within the PA Game Commission's Northwest Region, Wildlife Management Unit 1B. The game land is used by small game, waterfowl, deer and turkey hunters, birders, wildflower enthusiast, photographers and trappers with priority given to wildlife dependent uses.

SGL 277 contains over 80 impoundments. These are generally relics from prior history as a privately operated fishery and waterfowl hunting area. This SGL also features many natural wetland areas interspersed with scrub-shrub and grassland systems. It also contains upland forests harboring a significant oak-hickory component uncharacteristic of the surrounding landscape.

SGL 277 harbors the normal compliment of invasive species found on game lands in the northwest region of Pennsylvania. The invasive shrub species were typically planted under the guise of wildlife habitat management. Most openings have some presence of multiflora rose (Rosa multiflora), Asian bush-honeysuckles (Lonicera spp.), autumn olive (Eleagnus umbellata) or reed-canary grass (Phalaris arundinacea). Japanese knotweed (Fallopia japonica/Polygonum cuspidatum) is common along French Creek and it is not unreasonable to expect it to colonize SGL 277 from sources upstream. Reed-canary grass occurs throughout this SGL, particularly in the wetter areas. Although native to PA, it is invasive and very competitive in many of the fields. It seed banks well (25 yrs. or >) and establishes quickly in disturbed areas and tends to form dense monocultures.

Invasive vegetation control on SGL 277 continues on a small scale on an annual basis. Priority has been given to species that are newly established or have restricted populations with eradication as the primary objective (e.g., Japanese knotweed, Phragmites [Phragmites australis], Purple loosestrife [Lythrum salicaria]). Treatment of invasive species that have long standing extensively colonized populations has been restricted to areas that interfere with other sensitive species, systems or other management projects.

State Game Lands 69

State Game Land 69 (SGL 69) is in two tracts and currently consists of 4,496.01 acres. It is located in Randolph, Richmond, and Troy Townships in Crawford County, Pennsylvania, within the PGC's Northwest Region, Wildlife Management Unit 1B. SGL 69 is characterized by rolling terrain and poorly drained

depressions that ultimately drain into Sugar Creek, a tributary to French Creek. The diverse array of natural communities present on SGL 69 provide equally diverse consumptive recreational opportunities.

In the early 1970's, 14 impoundments were designed for construction, of which 12 were constructed. The largest, dam #11, is approximately 165 acres and is at the headwaters of Little Sugar Creek. These dams, with the exception of dam #11, were legally breached in 2016.

In 2007 the Western Pennsylvania Conservancy (WPC) facilitated the development of the Crawford County Natural Heritage Inventory. The inventory lists SGL 69 as one of five "Landscape Conservation Areas." It received this designation because it is a relatively large forest tract exceeding 1000 acres, an uncommon feature in Crawford County. WPC recommend that the PGC consider minimizing edge and fragmentation effects in future management strategies.

Invasive species management aims to control the multiflora rose (Rosa multiflora), Phragmites australis, Japanese knotweed (Polygonum cuspidatum), and reed-canary grass (Phalaruis arundinacea) present on SGL 69. Populations on private land serve as reservoirs and contribute to ongoing problems with many of these species. Most infestation occur on herbaceous and moist soil areas. Although a native species, striped maple (Acer pensylvanicum) has caused forest regeneration interference. Efforts to control this species have been conducted to facilitate diverse forest regeneration in areas slated for commercial timber operations.

Small scale control of non-native invasive species occurs on an annual basis with priority given to species that have isolated populations, are not well established, newly detected or are interfering with other management strategies or sensitive native species.

Target Species

The following lists were developed with the cooperation of FCW-CWMA partners and represent the primary invasive species of concern and interest in the watershed. Target species are usually state-listed as a noxious weed under Title 7A PA Code, Chapter 110, Section 110.1, and appear on the Pennsylvania DCNR Invasive Plant List (Appendix B). This is not a comprehensive list of all invasive species. Management activities targeting these species will take priority over other invasives, unless the species is a new invasion to the area. Additionally, although these are the primary focus of the 2019 plan, other invasive species encountered will be addressed.

Immediate targets

Aquatic		Terrestrial	
Common Name	Scientific Name	Common Name	Scientific Name
Hydrilla	*Hydrilla verticillata*	Garlic mustard	*Alliaria petiolata*
Eurasian water milfoil	*Myriophyllum spicatum*	Japanese barberry	*Berberis thunbergii*
Water chestnut	*Trapa natans*	European barberry	*Berberis vulgaris*
Common buckthorn	*Rhamnus cathartica*	Autumn Olive	*Eleagnus umbellata*
Glossy buckthorn	*Rhamnus frangula*	Japanese knotweed	*Fallopia japonica*
Multiflora rose	*Rosa multiflora*	Exotic bush honeysuckle	*Lonicera spp.*
Narrow-leaved cattail	*Typha angustifolia*	Purple loosestrife	*Lythrum salicaria*
Hybrid cattail	*Typha x glauca*	Reed canary grass	*Phalaris arundinacea*
Common reed	*Phragmites australis* spp. *australis*	Carolina fanwort	*Cabomba caroliniana*

Watch list

Aquatic		Terrestrial	
Common Name	Scientific Name	Common Name	Scientific Name
Poison hemlock	*Conium maculatum*	Porcelain-berry	*Ampelopsis glandulosa var. brevipedunculata*
European frogbit	*Hydrocharis morsus-ranae*	Bull thistle	*Cirsium vulgare*
Curley leaf pondweed	*Potamogeton crispus*	Canada thistle	*Cirsium arvense*
Yellow iris	*Iris pseudacorus*	Common teasel	*Dipsacus fullonum*
Guelder rose	*Viburnum opulus*	Cut-leaved teasel	*Dipsacus laciniatus*
Starry stonewort	*Nitellopsis obtusa*	Oriental bittersweet	*Celastrus orbiculatus*

Yellow floating heart	*Nymphoides peltata*	Japanese stiltgrass	*Microstegium vimineum*
		Wild privet	*Ligustrum vulgare*

Goals

Invasive species outcompete native species in their new habitats by means of rapid colonization and reproduction, unchecked by the forces of predation or disease. The drastic changes wrought over native ecosystems and impacts on native natural communities are nearly ubiquitous on the landscape. The productivity of private and public lands is at risk, and more specifically many of the unique and sensitive habitats within the FCW-CWMA are being overwhelmed by invasive plants. Fishing streams, fields, city lots, favorite hunting areas, scenic byways, parks, and wildlife refuges are under siege by invasive species. With this in mind, the FCW-CWMA has established goals that members of the group have agreed to work collectively to accomplish. These goals are as follows:

1) Prevent the introduction, reproduction, and spread of designated noxious weeds and invasive exotic plants into and within the French Creek Watershed.

2) Provide control efforts within priority areas to restore native species and habitats.

3) Increase awareness and support for the CWMA through education and outreach efforts.

4) Implement standard methodologies to constantly inventory and monitor the status of invasive species throughout the watershed.

Prevention, Early Detection, and Rapid Response

The most feasible and effective strategy in the fight against invasive species is the prevention of their initial establishment. Preventative measures often offer the most cost effective means for eliminating future environmental and economic impacts directly related to invasive infestations. However, if prevention efforts fail, early detection and rapid response (EDRR) are critical components of any effective invasive species management program. When new invasive species infestations are detected, a prompt and coordinated containment and eradication response can reduce environmental and economic impacts. This action results in lower cost and less resource damage than implementing a long-term control program after the species is established.

Approach

The FCW-CWMA's approach to prevention, early detection and rapid response is a comprehensive combination of education, constant inventory, monitoring and control. The FCW-CWMA will constantly strive to educate a broad audience on the threats posed by invasive species through the use of social media, presentations to local clubs and organizations, and interpretive signs and boot brushes placed at

recreational hotspots. With the watershed-wide use of invasive species data available through the iMapInvasives database and website, we will be documenting and encouraging others to document invasive species wherever they might occur. All FCW-CWMA partners will participate in data gathering and be provided login information for iMapInvasives. Finally, the FCW-CWMA encourages landowners and interested individuals to report all new invasive species populations, and to take the initiative to manage their own properties with guidance from the FCW-CWMA.

Goal: Prevent the introduction, reproduction, and spread of designated noxious weeds and invasive plants into and throughout the French Creek Watershed.

1. **Objective**: Establish an early detection framework and mechanism for CWMA partners.

   Strategy 1: Encourage partners to report all invasive species distributional data via the iMapInvasives website and utilize the website's alert system.

   Strategy 2: Encourage the use of the Rapid Response Plan and Procedures for Responding to Aquatic Invasive Species in Pennsylvania (Pennsylvania Invasive Species Council 2014), and utilize a similar framework of response for terrestrial invasive species.

2. **Objective**: Improve communication between existing natural resource professionals and growing volunteer networks.

   Strategy: Develop a forum enabling stakeholders and interested citizens to access information about invasive species and management options and their timing, ask questions, and share individual experiences.

3. **Objective**: Encourage use of the online mapping tool for locational data.

   Strategy: Encourage the use of iMapInvasives as a centralized, online mapping system that will show exact locations of invasive infestations and allow for the input of management actions and the consolidation of information across the watershed.

4. **Objective**: Continue to evaluate target species status and develop fact sheets for distribution.

   Strategy: Conduct a yearly assessment of the targeted species lists as part of the CWMA agenda and add species that are considered imminent invaders of the watershed.

5. **Objective**: Encourage the expansion of CWMA's activities to neighboring watersheds and municipalities.

   Strategy: Share information, attend meetings and workshops, and consider across border projects with other CWMAs and invasive species control interests in adjacent jurisdictions.

Control, Management, and Restoration

By identifying and prioritizing invasive species that will be controlled and managed, and where, we strive to effectively implement management plans. When invasive species become established in an ecosystem,

a strategic approach for control is required to minimize their impacts or reduce their spread. Effective control relies on a clear understanding of the target species including its biology, the ecosystem it has established, and associated introduction pathways. It also relies on persistent follow-through with monitoring of treatment efficacy and follow up control when needed.

Approach

The steering committee of the FCW-CWMA will meet three (3) times annually to discuss potential projects for the upcoming season, control, management, and restoration focus areas and potential projects, summary of prior treatment season efforts, and possible expansion of the CWMA.

Goal: Provide control efforts within priority areas to restore native species and habitats.

1. **Objective**: Perform reconnaissance within the (5) highest priority areas determined by steering committee

   Strategy: Map areas of infestation, develop implementation plans, and follow-up monitoring plans. Develop ranking criteria to use while assessing properties for control efforts.

2. **Objective**: Reduce the extent and density of established invasive plants to an acceptable density for that particular vegetative community.

   Strategy: Based upon the site inventory and evaluation work, determine a desired state including maximum coverage of invasives, frequency of follow-up needed, and specific indicators of health that can be references in future evaluations. Collaborate with partners to target and share resources needed to reduce the density of established invasive plant populations.

3. **Objective**: Work with private landowners to provide management recommendations, expertise, and sources of funding to aid invasive plant control efforts. Encourage landowner self-sufficiency as being of equal importance to invasive species control.

   Strategy: Prepare materials and disseminate to partners. During contact with landowners for various reasons, evaluate their interest and possible participation in the CWMA and specific projects that could involve their properties. For specifically targeted landowners, help to develop a comprehensive management plan for their property and provide them with tools and management options for each target species.

4. **Objective**: Initiate, facilitate, and support small-scale research projects on invasive plant control and management, and share results with the public.

   Strategy: Working with partners and participants in the CWMA, consider options for incorporating research questions into management activities. Look for sources of support from partners, local industries, and various programs with a stake in the control of invasive species.

5. **Objective**: Work with local governments, schools, non-profit organizations, and state natural resource professionals to create programs to manage invasive species within municipal parks and publically owned lands.

   Strategy: Initiate a Weed Warrior volunteer program to help manage invasive species on municipal parks and publicly owned lands.

6. **Objective**: In designated priority areas, restore native vegetation and reduce or eliminate invasive species.

   Strategy: Through natural processes (allowing the natural regeneration of native species) or active management processes (replanting) re-establish native, indigenous vegetation.

Education and Outreach

Education and awareness programs foster public understanding of the threat invasive plants pose to natural resources, techniques used to manage these species, and the role humans play in the dispersal and establishment of invasive weeds. Awareness also provides an important first step in the detection of new invaders. Education includes the training of weed district and agency personnel, private landowners, and the general public in weed identification, new management techniques, monitoring protocols, and other skills needed for the management of noxious and other invasive plants.

Approach

The FCW-CWMA will target new groups to educate and gain interest in invasive plant identification and management through presentations, displays, publications, webinars and social media outlets.

Goal: Increase awareness, encourage personal action and gain support for the CWMA through education and outreach efforts.

1. **Objective**: Develop and distribute materials to increase awareness and encouraging personal action to prevent the introduction and spread of invasive species.

   Strategy: Develop and distribute species specific information at local events and meetings to citizens.

2. **Objective**: Involve private landowners in the FCW-CWMA and look for opportunities to combine control efforts on public and private lands.

   Strategy 1: Develop and distribute a brochure aimed specifically toward landowners in priority control areas.

   Strategy 2: Incorporate landowner properties in control efforts.

   Strategy 3: Invite specific landowners to serve on the FCW-CWMA steering committee.

3. **Objective**: Encourage the use of native and non-invasive plant materials within the watershed.

Strategy 1: Develop documents that encouraging landscaping with native non-invasive species; documents should include information regarding threats posed by landscaping with non-natives and a list of native alternatives.

Strategy 2: Compile a list of possible invaders and photographs that are sold or frequently promoted or sold within the CWMA region.

Strategy 3: Meet with representative owners and managers of leading vendors and plant suppliers in the region to establish working relationships, promoting landscaping with native species and reducing the distribution of invasive plants.

4. **Objective**: Develop materials articulating the process of native species regeneration.

   Strategy: Develop materials explaining the process of invasive species management and regeneration of native species. Materials will include strategies and photographs from the various phases of the restoration process through the differing ecological communities.

5. **Objective**: Disseminate educational materials regarding BMPs for preventing the spread of invasive species through the use heavy machinery.

   Strategy: Target local logging and construction companies to assure they are aware of BMP's that reduce the spread of invasive species. Work with partners to identify knowledge gaps, and distribute appropriate educational materials

6. **Objective**: Educate outdoor enthusiasts on the unintentional transport of invasive plants.

   Strategy: Reduce the unintentional transport of invasive plants through the placement of educational signs and boot brushes at trailheads and other popular recreational areas.

7. **Objective**: Work with local schools to increase student interest in and knowledge of invasive plants.

   Strategy: Work with educators to incorporate information into lessons concerning threats invasive species pose, identification, small scale control projects on school properties, and the development of a site specific weed management plan (universities).

8. **Objective**: Increase the knowledge and expertise of key groups in identifying invasive species.

   Strategy: Host identification and control workshops that address target audiences and high priority species.

Inventory and Monitoring

Monitoring is defined as a survey repeated through time to determine changes in the status and demographics of abiotic resources, species, habitats, or ecological communities. Monitoring can play a vital role in invasive plant management and prevention. It can provide justification for evaluating management actions, adjustments, and aids in reaching invasive plant management objectives and sustainable land management goals more effectively and efficiently.

Approach

Initial site analysis will provide a baseline inventory for each location with detailed descriptions of invasive plant populations. CWMA members are encouraged to report all invasive species locations via iMapInvasives. By designating iMapInvasives as the sole reporting platform for the FCW-CWMA, distributional data will be updated and can be viewed by all members. Distributional data obtained and recorded thru iMapInvasives allows further prioritization for control, management, and restoration efforts.

Monitoring is an essential component to determine the efficiency of treatment. By recording and mapping the extent of individual invasive species infestations pre and post treatment, the FCW-CWMA will then be able to determine the efficiency of treatment, suppression, and control.

Goal: Implement a system to inventory and monitor invasive species populations at select sites and record distribution throughout the watershed.

1. **Objective**: Update Invasive Species Control Plans for each priority site as treatment proceeds.

   Strategy: Design invasive control site plans to allow updates while maintaining a history of work and progress. Utilize iMapInvasives treatment logs for recording details of treatment and outcome.

2. **Objective**: Monitor priority sites to assess potential spread of targeted invasive species.

   Strategy: From yearly monitoring determine optimal frequency for follow up visits, which may or may not be annually.

3. **Objective**: Monitor infestations where eradication/control measures have been implemented to determine their effectiveness.

   Strategy: After control efforts have taken place, monitor the effectiveness of each treatment and the percent reduction in invasive cover resulting from the previous application.

4. **Objective**: Identify, monitor, and minimize vectors that have the ability to move invasive plants throughout the watershed through partnerships.

   Strategy: Work with partners to identify known and possible movement vectors within the watershed.

5. **Objective**: Verify the establishment of invasive and weedy species.

   Strategy: Soon after new invasive or weed communities are identified, confirm sightings and record baseline infestation information and suggested management efforts

6. **Objective**: Obtain and record distributional data from locations throughout the watershed.

Strategy: Record and map all invasive species inventories creating one source of reference for all groups to reference and compare results by location. Utilize iMapInvasives website to house all distributional data obtained through site work and reports from partners throughout the watershed.

Site Prioritization and Management Process

The Pennsylvania Natural Heritage Program (PNHP) is a partnership between Western Pennsylvania Conservancy (WPC), the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Game Commission (PGC), and the Pennsylvania Fish and Boat Commission (PFBC). Using a standard science based approach, PHNP collects and stores baseline ecological information about rare plants, rare animals, unique plant communities, significant habitats, and geological features in Pennsylvania. Not only providing information regarding the location of rare species, significant habitats, and geological features, the inventory includes a system of global and state ranks used to describe the relative degree of rarity for each species and natural community.

The Crawford County Natural Heritage Inventory (CNHI) report presents the known outstanding natural features in Crawford County. The CNHI provides maps of the best natural communities as well as the known locations of animals and plant species of concern. Contained within the report are written descriptions for each site that include the degrees of quality and rarity, site ranking on local, state, and globally significant scale, potential threats, and recommendations for protection.

The information presented in the Crawford CNHI, updated in 2008, will be used to guide and focus efforts of the FCW-CWMA. By identifying the unique and rare habitats within the watershed, the CHNI has provided an extremely valuable tool enabling the CWMA to direct effort to preserving, enhancing, and restoring the ecological integrity of these sites (Figure 3).

Determining Sites

Initial site evaluations documented in the Inventory and Monitoring section of this plan are essential to determining the highest priority locations within the French Creek watershed. The initial prioritization of these sites will be based upon existing information regarding invasive plant communities present and the ecological sensitivity of each site. Given this information and considering the severity of the infestation as well as site accessibility and ownership, the steering committee will be responsible for choosing a minimum of two sites for analysis and management each season.

When the five sites have been chosen for inventory, the FCW-CWMA coordinator will be responsible for contacting the property owners and educating them on the impacts of invasive plant species, informing them of the group's mission and determining their interest in evaluating their properties. After permission to access the site has been granted, the FCW-CWMA coordinator will be responsible for assembling a team to evaluate the site and contacting the landowner with a day and time for the assessment. During the site visits, members of the CWMA will thoroughly comb the property and complete the attached site evaluation form (Appendix C). Information recorded during each site visit will include, but is not limited to, a list of all invasive species populations present, GPS location, size and severity of each invasive species

infestation, threat to native plant communities, management options, difficulty of control, proximity to public lands, accessibility to the target area, and any other notable observations.

Once data sheets have been completed and maps have been produced for each location, the steering committee will meet to discuss the findings and determine which sites are the best candidates for management and restoration efforts. After the information from data sheets and maps is presented, the group will select a minimum of three target locations The FCW-CWMA will strive to take part in three management projects per year. By taking into consideration that management efforts in most sites will require multiple treatments over an extended period of time, the FCW-CWMA will have to consider all factors including funding sources and available resources such as manpower, equipment, and other assets held by involved groups.

When management locations have been chosen, a site management plan for each location will be developed and approved by the Steering Committee before moving forward. This site specific plan will outline the management timeline and goals for each site, target species, known locations and approximate size of each infestation, dates for each treatment (assuming multiple treatments are necessary), and available resources to aid in restoration effort.

Throughout the management process photographs of the site will be taken to document the changes within each site as infestations are treated and new communities develop. At the end of each season, information regarding all restoration efforts will be presented to members of the FCW-CWMA. The success of management efforts will be determined by the impact of treatment on infestations taken before and after. Using GIS to determine the size of these areas, the FCW-CWMA will review the site management plans, update them as necessary, and evaluate the success of specific control efforts for a minimum of three years.

Adapting and Updating the Plan

This management plan is a dynamic document and will be used to guide decisions of the French Creek Watershed Cooperative Weed Management Area through 2022. This plan will be in effect for five years from the date the agreement is signed by all parties. This plan is to be adapted and changed as the Steering Committee sees fit within this five year period. When this plan expires in 2022 the FCW-CWMA will develop a new 5 year plan to assess the impacts of this plan, new threats and strategies to protect the biological integrity of the Pennsylvania portion of the French Creek Watershed into the future.

Measurable Outcomes

The development, coordination, and administration of the FCW-CWMA has heretofore been achieved through the dedication of the partners involved. Invasive species control efforts within the watershed have been accomplished with donations from the constituent members. The following metrics of success

detail the CWMA's successes thus far (Table 2). Potential funding sources will be pursued as they arise in order to secure the future of this partnership and further carry out the goals set forth in this plan throughout the watershed.

Table 2. Metrics of success for the French Creek Watershed Cooperative Weed Management Area (FCW-CWMA) during its initial two years of operation.

Project Activity	Metric	Achievements
Building Institutional Capacity	• Organizations involved	• 10 partners pledged to participate
Management or Governance Planning	• Plans developed	• Development of the Strategic Management Plan & site management plan for at least 2 locations annually
Outreach/Education	• People reached	• Potential to reach 15,000 people from local papers, social media, and events
Removal of Invasive Plant Species	• Acres restored	• Partners already manage for invasive species on 15+ acres annually
Volunteer Participation	• Volunteers participating	• Average volunteer turnout of 10 per program

The success of the FCW-CWMA will be measured by the following metrics in the next five years.

Table 3. Measureable outcomes of the French Creek Watershed Cooperative Weed Management area for the lifespan of this Strategic Management Plan (2019–2023).

Measureable Outcomes	2019	2020	2021	2022	2023
Groups Represented					
Individual Members					
Social Media Followers					
Educational Events Held					
New Populations Discovered					
Management Projects					
Acres Restored					
Proposals Written					
Proposals Funded					

In years to come, the French watershed will inevitably continue to face issues related to invasive species. As we work together to curb their negative effect on our native communities, we also must take into consideration factors such as climate change and native and exotic pest introductions that have the potential to expand distribution and increase hardiness of invasive species. Controlling existing populations of invasive species and keeping watch for the spread of as yet undocumented invasive species into the watershed are key priorities for the FCW-CWMA. By working in coordination with many partners and cooperators throughout the watershed, we hope to achieve substantial outcomes and preserve some of the watershed's most significant resources.

Acknowledgements

The FCW-CWMA would like to acknowledge the Lake Erie Watershed Cooperative Weed Management Area and the Southern Laurel Highlands Plan Management Partnership Cooperative Weed Management Area for their support and guidance.

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Figures

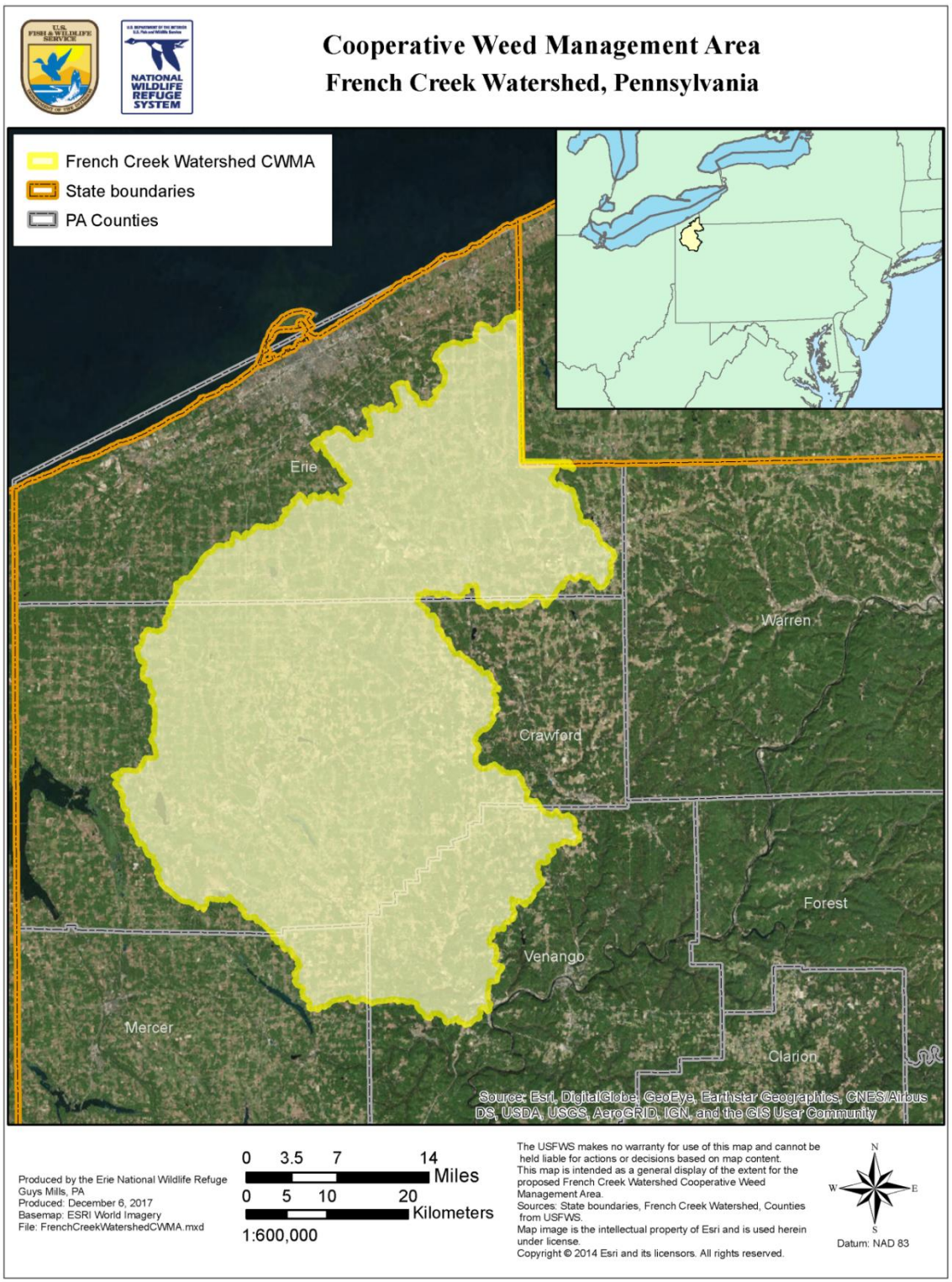


Figure 1. Extent of the French Creek Watershed Cooperative Weed Management Area (FCW-CWMA) encompassing portions of four counties in northwestern Pennsylvania.

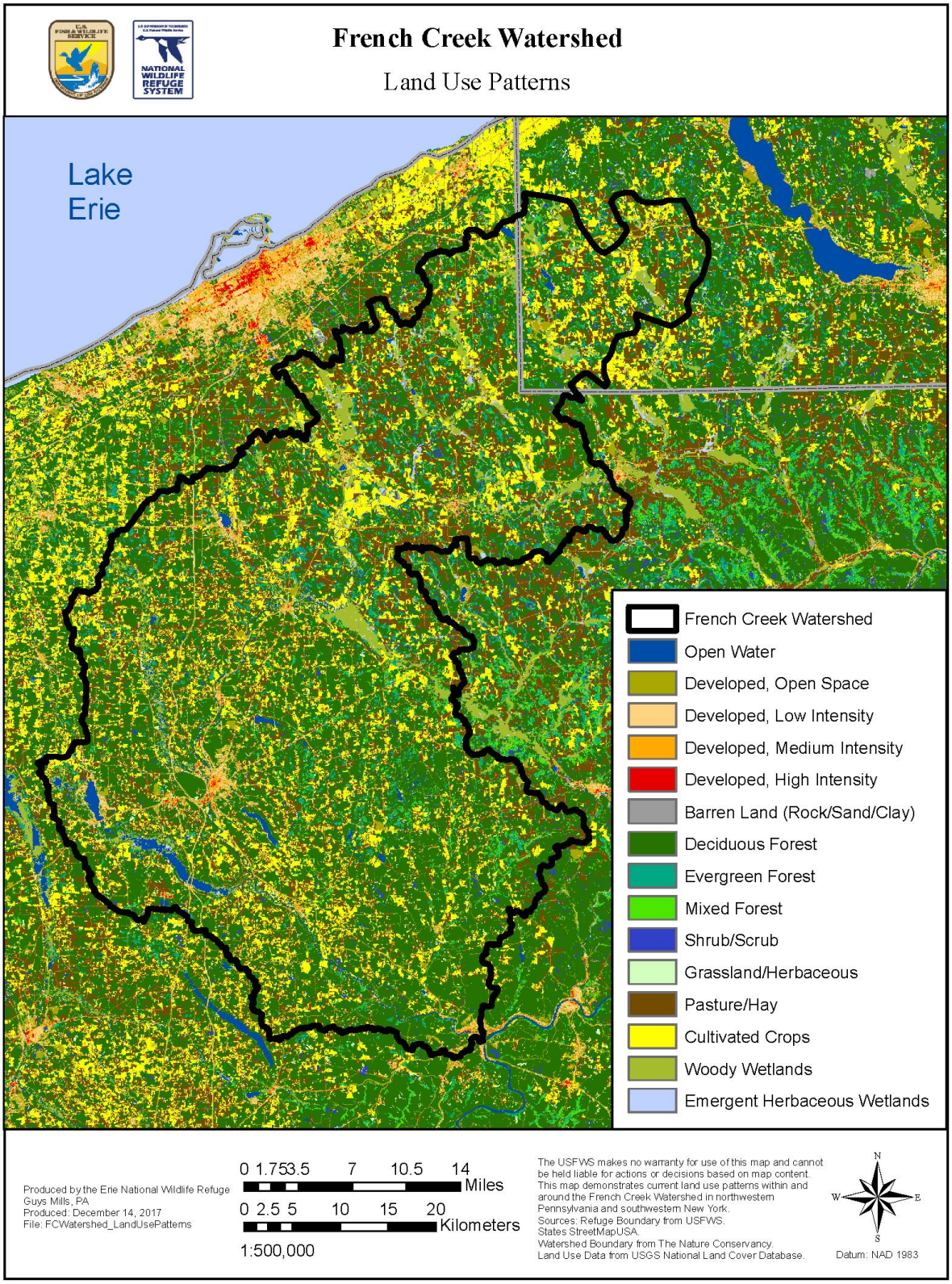


Figure 2. Land use patterns within and around the French Creek Watershed in northwestern Pennsylvania and southwestern New York.

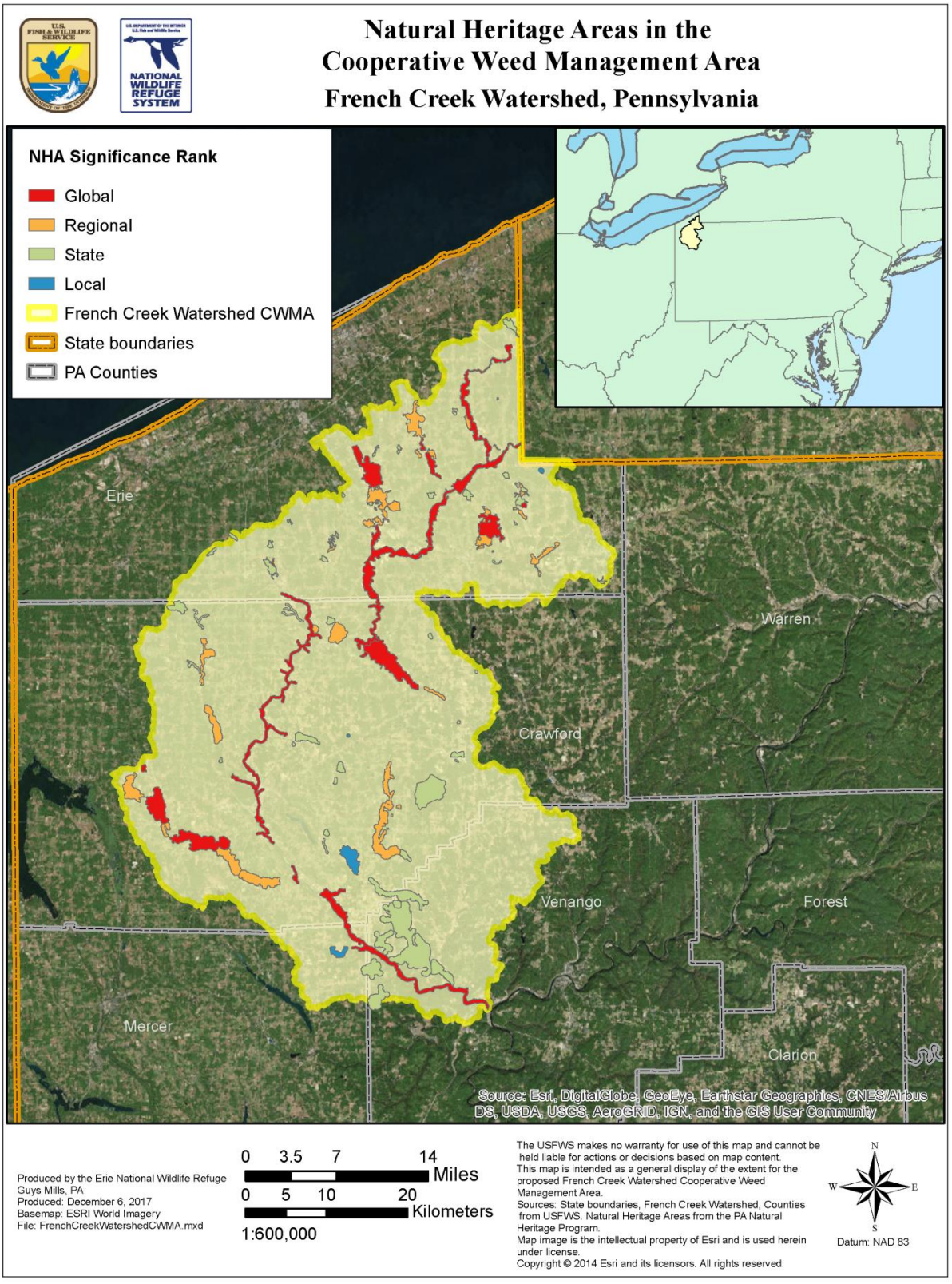


Figure 3. Location and significance ranking of the 102 Natural Heritage Areas within the French Creek Watershed Cooperative Weed Management Area (FCW-CWMA) in northwestern Pennsylvania.

Appendix A Current Partner List

Allegheny College
520 N Main Street
Meadville, PA 16335

Crawford County Conservation District
21742 Germany Road
Meadville, OA 16335

Erie National Wildlife Refuge
U.S. Fish and Wildlife Service
11296 Wood Duck Lane
Guys Mills, PA 16327

French Creek Valley Conservancy
301 Chestnut Street
Meadville, PA 16335

Pennsylvania Department of Agriculture
13410 Dunham Road
Meadville, PA 16335

Pennsylvania Game Commission
P.O. Box 31
Franklin, PA 16323

Sea Grant Pennsylvania
301 Peninsula Drive #3
Erie, PA 16505

Pennsylvania Natural Heritage Program
Western Pennsylvania Conservancy
Galena Building, Suite 100
1140 Liberty Street
Franklin, PA 16323

Foundation for Sustainable Forests
22418 Firth Road
Spartansburg, PA 16434

Rich Eakin*
Guys Mills, PA

* Private landowner

Appendix B Pennsylvania DCNR Invasive Plant List

DCNR defines invasive plants as those species that are not native to the state, grow aggressively, and spread and displace native vegetation. Invasive plants are generally undesirable because they are difficult and costly to control and can dominate whole habitats, making them environmentally destructive in certain situations.

Not all non-native plants become invasive. In fact, very few actually do. The plants listed here have been determined by DCNR to be invasive on State Forest and State Park lands and may act aggressively in other parts of Pennsylvania. Some of the species listed below are only invasive in certain environmental conditions and there may be cases where they may be used with little environmental risk. This list was compiled through coordinated efforts between ecologists in Pennsylvania and other natural resource partners.

New species cross state borders and some plants that have been here for decades may suddenly become invasive due to changing land uses, changes in weather or climate, or genetic reasons, so this list may change over time and will be updated periodically. This list is not regulatory. It is used to guide the management efforts of DCNR lands because of knowledge that these species can become invasive under the right environmental conditions.

Invasive plant species have been ranked in terms of the threat they pose to native plant communities. Each rank is defined below:

Rank 1- Severe Threat. Exotic plant species that possess characteristics of invasive species and spread easily into native plant communities and displace native vegetation. Includes species that are or could become widespread in Pennsylvania.

Rank 2- Significant Threat. Exotic plant species that possess characteristics of invasive species but are not presently considered to spread as easily and aggressively into native plant communities as those species listed as Rank 1.

Rank 3- Lesser Threat. Exotic plant species that spread in or near disturbed areas, and are not presently considered a major threat to undisturbed native plant communities.

Watch List- Exotic plant species that are severe problems in surrounding states but have not been widely reported in Pennsylvania, OR may naturalize and become a problem in the future and require more monitoring.

Scientific Name	Common Name	Rank
Vines		
Ampelopsis glandulosa	Porcelain Berry	1
Celastrus orbiculatus	Oriental Bittersweet	1
Humulus japonicus	Japanese Hops	1
Lonicera japonica	Japanese Honeysuckle	1
Persicaria perfoliata	Mile-a-Minute	1

Pueraria montana var. lobata	Kudzu	1
Vincetoxicum nigrum	Black Swallow-Wort	1
Vincetoxicum rossicum	Pale Swallow-Wort	1
Euonymus fortunei	Wintercreeper	2
Wisteria floribunda	Japanese Wisteria	2
Wisteria sinensis	Chinese Wisteria	2
Hedera helix	English Ivy	3
Vinca major	Bigleaf Periwinkle	3
Vinca minor	Common Periwinkle	3
Akebia quinata	Chocolate Vine	Watch
Clematis terniflora	Japanese Clematis	Watch
Dioscorea polystacha	Chinese Yam	Watch
Herbs and Forbs		
Alliaria petiolata	Garlic Mustard	1
Conium maculatum	Poison Hemlock	1
Fallopia japonica	Japanese Knotweed	1
Fallopia sachalinensis	Giant Knotweed	1
Fallopia X bohemica	Hybrid Knotweed	1
Ficaria verna	Lesser Celandine	1
Galega officinalis	Goatsrue	1
Heracleum mantegazzianum	Giant Hogweed	1
Lythrum salicaria	Purple Loosestrife	1
Centaurea jacea	Brown Knapweed	2
Centaurea nigra	Black Knapweed	2
Centaurea stoebe	Spotted Knapweed	2
Chelidonium majus	Greater Celandine	2
Cirsium arvense	Canada Thistle	2
Cirsium vulgare	Bull Thistle	2
Hesperis matronalis	Dames Rocket	2
Iris pseudacorus	Yellow Flag Iris	2
Lespedeza bicolor	Shrubby Bushclover	2
Lespedeza cuneata	Chinese Bushclover	2
Pastinaca sativa	Wild Parsnip	2
Perilla frutescens	Beefsteak Plant	2
Rubus phoenicolasius	Wineberry	2
Securigera varia	Crown-vetch	2
Aegopodium podagraria	Goutweed	3
Anthriscus sylvestris	Wild Chervil	3
Artemisia vulgaris	Mugwort	3
Butomus umbellatus	Flowering Rush	3
Cardamine impatiens	Narrowleaf Bittercress	3
Carduus acanthoides	Spiny Plumeless Thistle	3
Carduus nutans	Musk Thistle	3
Datura stramonium	Jimsonweed	3
Epilobium hirsutum	Hairy Willow Herb	3
Epilobium parviflorum	Smallflower Hairy Willow-Herb	3
Hemerocallis fulva	Orange Day-Lily	3

Lysimachia nummularia	Moneywort	3
Pachysandra terminalis	Japanese Pachysandra	3
Persicaria longiseta	Bristled Knotweed	3
Stellaria media	Common Chickweed	3
Amaranthus palmeri	Palmer Amaranth	Watch
Trees		
Ailanthus altissima	Tree-of-Heaven	1
Aralia elata	Japanese Angelica Tree	1
Acer platanoides	Norway Maple	2
Albizia julibrissin	Mimosa	2
Alnus glutinosa	European Black Alder	2
Paulownia tomentosa	Empress Tree	2
Phellodendron amurense	Amur Corktree	2
Phellodendron japonicum	Japanese Corktree	2
Phellodendron lavallei	Lavella Corktree	2
Pyrus calleryana	Callery Pear	2
Tetradium daniellii	Bee-Bee Tree	2
Broussonetia papyrifera	Paper Mulberry	3
Morus alba	White Mulberry	3
Acer ginnala	Amur Maple	Watch
Acer palmatum	Japanese Maple	Watch
Koelreuteria paniculata	Golden Rain-Tree	Watch
Quercus acutissima	Sawtooth Oak	Watch
Ulmus pumila	Siberian Elm	Watch
Grasses		
Microstegium vimineum	Japanese Stiltgrass	1
Oplismenus hirtellus	Wavyleaf Basketgrass	1
Phragmites australis ssp australis	Common Reed	1
Trapa natans	European Water Chestnut	1
Arthraxon hispidus	Small carpetgrass	2
Phalaris arundinacea	Reed Canary Grass	2
Phyllostachys aurea	Golden Bamboo	2
Phyllostachys aureosulcata	Yellow Groove Bamboo	2
Phyllostachys bambusoides	Giant Timber Bamboo	2
Poa trivialis	Rough Bluegrass	2
Bromus japonicus	Japanese brome	3
Bromus sterilis	Poverty Brome	3
Bromus tectorum	Cheatgrass	3
Holcus lanatus	Velvetgrass	3
Miscanthus sinensis	Chinese Silvergrass	3
Schedonorus arundinaceus	Tall Fescue	3
Sorghum bicolor ssp. x. drummondii	Shattercane	3
Sorghum halepense	Johnson Grass	Watch
Arundo donax	Giant Reed	Watch
Imperata cylindrica	Cogon Grass	Watch

Tripidium ravennae	Ravenna Grass	Watch
Shrubs		
Berberis thunbergii	Japanese Barberry	1
Berberis vulgaris	European Barberry	1
Frangula alnus	Glossy Buckthorn	1
Lonicera fragrantissima	Sweet Breath Honeysuckle	1
Lonicera maackii	Amur Honeysuckle	1
Lonicera morrowii	Morrow's Honeysuckle	1
Lonicera morrowii x bella	Beautiful Honeysuckle	1
Lonicera standishii	Standish Honeysuckle	1
Lonicera tatarica	Tartarian Honeysuckle	1
Rhamnus cathartica	Common Buckthorn	1
Rhodotypos scandens	Jetbead	1
Rosa multiflora	Multiflora Rose	1
Spiraea japonica	Japanese Spiraea	1
Buddleja davidii	Butterfly Bush	2
Elaeagnus angustifolia	Russian Olive	2
Elaeagnus umbellata	Autumn Olive	2
Euonymus alatus	Winged Euonymus	2
Ligustrum japonicum	Japanese Privet	2
Ligustrum obtusifolium	Border Privet	2
Ligustrum sinense	Chinese Privet	2
Ligustrum vulgare	Common Privet	2
Viburnum dilatatum	Linden Viburnum	2
Viburnum plicatum	Doublefile Viburnum	2
Viburnum sieboldii	Siebold Viburnum	2
Viburnum opulus	Guelder Rose	3
Aquatic		
Hydrilla verticillata	Hydrilla	1
Myriophyllum aquaticum	Parrot feather watermilfoil	1
Myriophyllum spicatum	Eurasian Watermilfoil	1
Potamogeton crispus	Curly Pondweed	1
Typha angustifolia	Narrow-Leaved Cattail	1
Typha x glauca	Hybrid Cattail	1
Cabomba caroliniana	Carolina Fanwort	3
Egeria densa	Brazilian Water-Weed	3
Najas minor	Brittle Waternymph	3
Nitellopsis obtusa	Starry Stonewort	3
Hydrocharis morsus-ranae	Common Frogbit	Watch
Ludwigia grandiflora ssp. Hexapetala	Large Flower Primrose Willow High	Watch
Nymphoides peltata	Yellow Floatingheart	Watch

Source:

Pennsylvania DCNR. DCNR Invasive Plant List. N.d. <http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20033302.pdf>. Accessed 18 December 2017.

Appendix C Site Evaluation Form

French Creek Watershed Cooperative Weed Management Area

Site Evaluation Form

Location Name: _____ Date: _____ Evaluator Name(s): _____

Species Detected		Threat to Natural Communities	Biology & Ecology	Distribution & Abundance	Difficulty of Control	New Invasiveness Rank	Former Invasiveness Rank	GPS Location(s)	
Scientific Name	Common Name							Latitude	Longitude

Weighted average/point system

SUBRANK:	SCORE:
Impact	H = 4, M = 3, L = 2, I = 0
Biology	H = 3, M = 2, L = 1, I = 0
Distribution	H = 1, M = 0, L = 0, I = 0
Control	H = 2, M = 1, L = 0, I = 0

These scores are tallied to yield overall Plant Species Invasiveness Rank. Highest possible score = 10

Overall ranking scale:

0-3	I	Species represents an **insignificant** threat to natural communities
4-6	L	Species represents **low** threat to natural communities
7-8	M	Species represents **moderate** threat to natural communities
9-10	H	Species represents **high** threat to natural communities

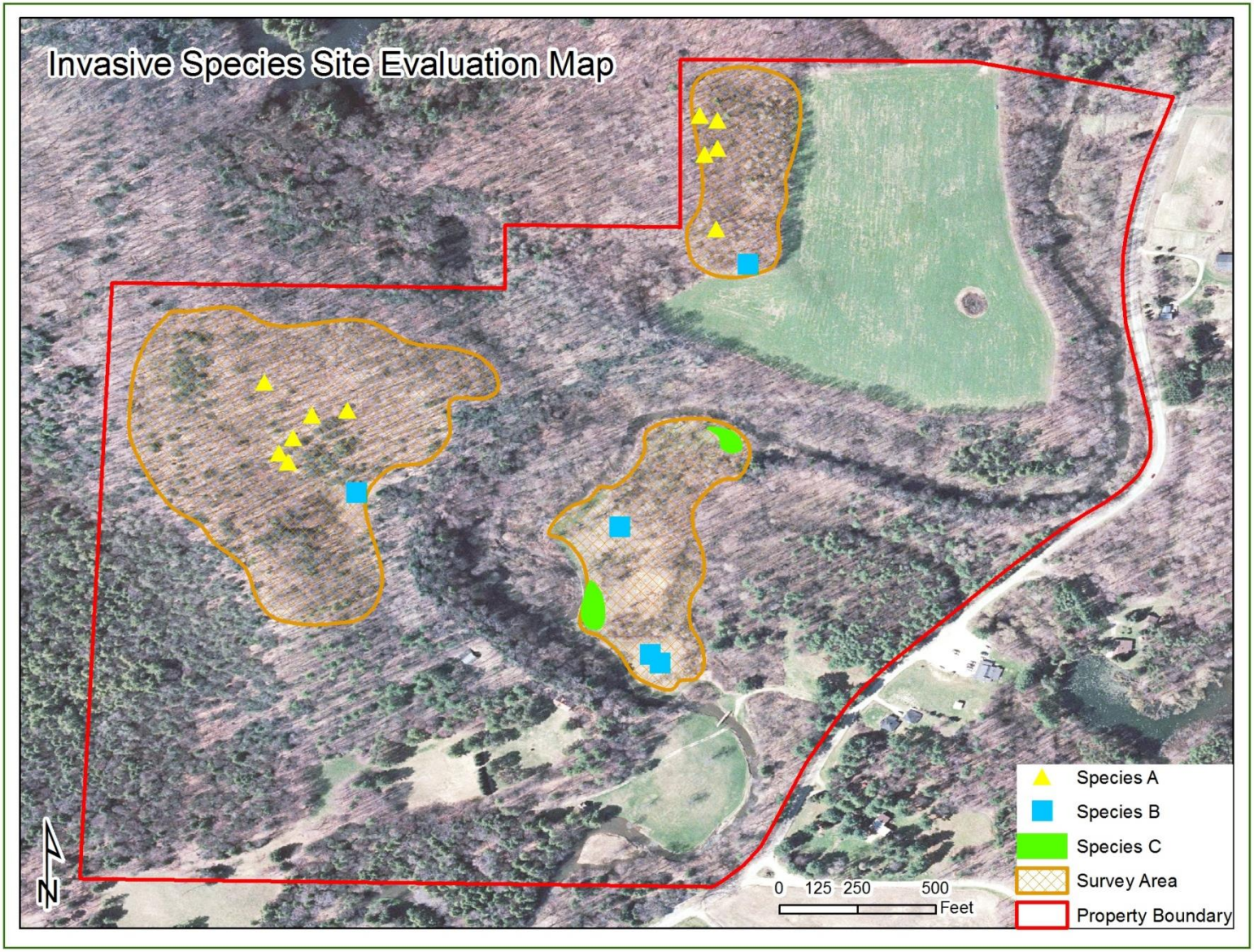
Location: _____ Date: _____ Page _____ of _____

Notes

Observations:

Management Recommendations:

Other:


Invasive Species Site Evaluation Map
Species A
Species B
Species C
Survey Area
Property Boundary
0 125 250 500
Feet
N

Date: _____ Location: _____

Photographer(s): _____

Photo Location:	Picture Number:
Latitude:	Longitude:

Photo Location:	Picture Number:
Latitude:	Longitude:

Photo Location:	Picture Number:
Latitude:	Longitude:

Photo Location:	Picture Number:
Latitude:	Longitude:

Appendix D Private Landowner Working Agreement

French Creek Watershed
Cooperative Weed Management Area

Invasive species are organisms foreign to the area that, once there, causes or is likely to cause economic or environmental harm, or harm to human health. The French Creek Watershed Cooperative Weed Management Area (FCW-CWMA) is working to control the spread of invasives in our watershed. This program is a joint effort between the FCW-CWMA and you, THE PROPERTY OWNER. Efforts to control these plans may include regular monitoring, Integrated Pest Management tactics (the use of cultural, mechanical, and chemical methods) and the proper applications of herbicides over the next several years. In order to determine the best control method to use against the invasive species in our area, we would appreciate your cooperation in allowing us to access the infestation area(s) on your property and permitting the judicious use of herbicides, if necessary, to achieve control.

Grant of Permission to Enter

I, the undersigned, am the owner of the property described below. I hereby grant permission to the FCW-CWMA and their REPRESENTATIVES to access my property, as needed, to exercise a control program on the infestation area(s) of my property targeting the invasive species listed below, as long as access is deemed necessary. This access may include the lawful application of herbicides and other measures to control or eliminate the infestation. I understand that I am responsible to continue control efforts following preliminary labors by the FCW-CWMA, and that such efforts should be reported to the FCW-CWMA on the Annual Reporting Form on an annual basis.

NAME OF PROPERTY OWNER(S): _____

ADDRESS OF PROPERTY INFESTED: _____

SITE DESCRIPTION OF INFESTATION AREA: _____

INVASIVE SPECIES PRESENT: _____

MAILING ADDRESS OF PROPERTY OWNER: _____

_____

TELEPHONE: DAY (_____) _____ EVENING (_____) _____

*I do*_____ *I do not* _____ grant permission to the FCW-CWMA to enter my property to assist me with treating the above invasive species _____ (property owner initials).

SIGNATURE OF PROPERTY OWNER(S)_____ DATE _____

_____ DATE _____

SIGNATURE OF REPRESENTATIVE OF THE FCW-CWMA

Mail to: French Creek Valley Conservancy, 411 Chestnut Street, PO BOX 434, Meadville, PA 16335