



***Municipality of Princeton***  
**Department of Community Development**  
**Office of Planning**

Princeton Municipal Building  
400 Witherspoon Street  
Princeton, NJ 08540

609-924-5366  
609-688-2032 (fax)

**MEMORANDUM**

**TO:** Robert Bruschi, Administrator

**FROM:** Lee Solow, PP/AICP <sup>lee</sup>  
Director of Planning

**DATE:** February 12, 2013

**SUBJECT:** Princeton Ridge Stewardship Plan

Attached is a copy of a proposal from Ecological Solutions to undertake a Princeton Ridge Stewardship Plan. The scope of work and the idea for the plan has been developed in consultation between the D & R Greenway, NJ Conservation Foundation, Friends of Princeton Open Space, Stony Brook Millstone Watershed Association, Mercer County and the municipality. The total cost of the plan is \$13,844.00 and Mercer County has agreed to provide funding if the Township will manage the contract. The County has also agreed to prepare a shared service agreement regarding this arrangement.

The stewardship plan will compile a list of natural resources and make recommendations to stakeholders that can be used to manage the lands within the Princeton Ridge Preserve. The plan will cover approximately 463 acres (see map) of both public and private lands. Most of the properties in the plan are either publicly owned or were bought using Green Acres funds that require public access.

Please place the attached resolution authorizing the proposal and shared service agreement on the next available agenda.

Attachments

Cc: R. Kiser  
L. McDermott  
E. Schmierer

**RESOLUTION  
Princeton Ridge  
Stewardship Plan and  
Shared Service Agreement  
With Mercer County**

**RESOLUTION OF THE  
MUNICIPALITY OF PRINCETON  
MERCER COUNTY, NEW JERSEY**

**WHEREAS**, the Municipality of Princeton has designated an area of the municipality as the Princeton Ridge Preserve; and

**WHEREAS**, the Princeton Ridge Preserve consist of land that provide unique educational and recreational opportunities for the community; and

**WHEREAS**, preservation, protection and maintenance of the natural environment is important in safeguarding and enhancing the Princeton Community's quality of life; and

**WHEREAS**, strategies to preserve and protect the Princeton Ridge lands should be considered; and

**WHEREAS**, the Municipality, County of Mercer, State of New Jersey and private groups and individuals have contributed funds to protect the Princeton Ridge Preserve; and

**WHEREAS**, The County of Mercer has agreed to provide the funding for a stewardship plan of the Princeton Ridge Preserve.

**NOW, THEREFORE, BE IT ORDAINED** that the Mayor and the Clerk are hereby authorized to enter into an agreement with Ecological Solutions in the amount of \$13, 844 to prepare a stewardship plan and to enter into a shared service agreement with Mercer County who will provide the funding for said stewardship plan.

This \*\*th day of  
February, 2013

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Liz Lempert, Mayor

## SHARED SERVICES AGREEMENT

AGREEMENT is made this      day of                      , 2013 by and between the Municipality of Princeton, having its municipal offices at 400 Witherspoon Street, Princeton, NJ 08540 (the "Municipality") and the County of Mercer, having its offices at 640 S. Broad Street, Trenton, New Jersey 08650 (the "County").

**Whereas**, the Municipality and the County desire to contract with each other for the provision of services to each other in order to capitalize on joint cost-savings for the benefit of the taxpayers of Princeton and the County of Mercer; and

**Whereas**, the Uniform Shared Services and Consolidation Act, *N.J.S.A. 40A:65-1 et seq.*, permits local units of this State to enter into a contract with any other local unit for the joint provisions within their combined jurisdictions of any service that any party to the agreement is empowered to render within its jurisdiction; and

**Whereas**, Mercer County, Princeton and other conservation partners are the owners of preserved lands located on the Princeton Ridge, as illustrated on the map attached hereto and made a part hereof; and

**Whereas**, the County has provided funding toward the acquisition of much of the land;  
and

**Whereas**, these lands are largely unimproved, and generally contiguous; and

**Whereas**, the conservation partners desire to manage the lands in an ecologically sensitive manner; and

**Whereas**, the services of a consultant are needed to develop baseline environmental data and conservation strategies; and

**Whereas**, Princeton has obtained a proposal from Ecological Solutions to perform such services; and

**Whereas**, the County, as owner and preservation partner has an interest in the properties;  
and

**Whereas**, the County has funds available in the Open Space Preservation Trust Fund for stewardship activities;

**NOW, THEREFORE**, in consideration of the mutual agreements and covenants contained herein, the parties hereto agree as follows:

The County will fund the study to be conducted by Ecological Solutions at a cost not to exceed \$13,844.

The Municipality shall be the Contracting Agent and shall be responsible for contracting and payment necessary to complete the study.

This Agreement shall be binding upon the parties and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, parties of the Agreement have caused it to be signed by their proper officers as of the day and year set forth above.

ATTEST:

**MUNICIPALITY OF PRINCETON**

\_\_\_\_\_  
Linda McDermott, Clerk

\_\_\_\_\_  
By: Liz Lempert, Mayor

**COUNTY OF MERCER**

\_\_\_\_\_  
Jerlene Worthy, Clerk to the Board  
of Chosen Freeholders

\_\_\_\_\_  
By: Brian Hughes, County Executive



**Ecological ES Solutions**

February 6, 2013

Lee Solow, Planning Director  
Princeton Township  
400 Witherspoon Street  
Princeton, NJ 08540

RE: Princeton Ridge Stewardship Plan

Dear Lee,

I have attached a proposed stewardship plan outline in response to the RFP and subsequent meeting with the Princeton Ridge Preservation Partners. Three additional tables summarize activities, timelines and costs associated with supplies and mileage reimbursement. A map is included to show the proposed activities for field investigations. I have also attached a single page quote that summarizes activities and related costs. Finally, I have included examples of work products from a similar project completed for the New Jersey Conservation Foundation (Wickecheoke Creek Preserve).

Please feel free to contact me with any questions regarding desired alterations to my proposal.

Sincerely,



Michael Van Clef

FEB -6 2013

## Outline of Activities for Quote 2013-100

### 1. Statement of Work:

The Princeton Ridge Stewardship Plan will be a compendium of natural resource data and recommendations from stakeholders that will be used to manage lands within Princeton Ridge. The Plan will include a biophysical assessment (which looks at the local climate, hydrology, soils, forest ecosystems, special forest communities, forest health issues, wildlife habitat), and the social aspects of the project area (e.g., public survey, stakeholder interviews, and historical land use). This will inform possible stewardship objectives which include: water quality, habitat preservation, maintaining property values, preservation of open space, and educational and recreational opportunities.

The Stewardship Plan will be provided in the following format pending partnership approval:

- 1) Front Pages
  - a. Title Page
  - b. Introductory Information
  - c. Executive Summary
  - d. Primary Stewardship Recommendations
  - e. Table of Contents
  - f. List of Tables, Figures, Maps and Appendices
  - g. List of Plan Contributors
- 2) Overview
  - a. Introduction (Vision and Goals, Preserve Values, Threats and Their Mitigation)
  - b. Land Use History (from 1930 aerial photography and other sources as available)
  - c. Physical Features (Climate, Geology, Soils, and Water)
  - d. Landscape Context / Surrounding Land Use Patterns (from 2007 land use data)
  - e. Social Context and Public Survey Results
  - f. Partnerships and Results of Partner Interviews
- 3) Conservation Targets
  - a. Introduction
  - b. Ecological Communities (descriptions and maps from field delineations)
  - c. Flora (from literature review and direct observation)
    - i. Lists Provided as Appendices
  - d. Fauna (from literature review, species lists by taxa - e.g., birds, fish, amphibians, etc.)
    - i. Lists Provided as Appendices
  - e. Rare Species (from literature and Landscape Project and Heritage Program data review)
    - i. Species Lists and Life History Summaries
    - ii. Maps Depicting Locations
- 4) Conservation Challenges
  - a. Introduction (threats to conservation targets)
  - b. Evaluation of White-tailed Deer Impacts
    - i. Visual Assessment with Photographic Documentation
  - c. Evaluation of Invasive Species Impacts
    - i. Descriptions and Maps From Field Delineations
  - d. Other Threats - To Be Determined

- 5) Conservation Strategies and Actions
  - a. White-tailed Deer Management
  - b. Invasive Species Management
  - c. Restoration Opportunities
  - d. Coordinated Strategies Among Private and Public Landowners
  - e. Monitoring and Evaluation Protocols
  - f. Potential Funding and Cooperative Stewardship Activities
  
- 6) Recreation Plan
  - a. Evaluation of Existing and Potential Trail System
    - i. Review of existing trail system, GIS maps, incorporation of public survey and partner recommendations

**2. Project Items and Anticipated Completion Dates (Items referenced on one-page quote attached):**

Item #1 – Research existing information	February 2013
Item #2 – Field Studies	August 2013
Item #3 – Stakeholder Interviews	March 2013
Item #4 – Public Survey	April 2013
Item #5 – Trail Investigations	August 2013
Item #6 – DRAFT PLAN SUBMISSION	October 2013
Item #6 – FINAL PLAN SUBMISSION	December 2013
Item #7 – Presentation to Partnership	December 2013

The remainder of this quote is provided as three tables. Table 1 provides a summary of Activities and Time Estimates for particular tasks. Table 2 provides costs for supplies and Table 3 provides an estimate of mileage reimbursement costs.

**Table 1. Activities and Time Estimates**

Project Items (referenced on one-page quote attached)	Description	Proposed Time Estimate (Hours)
1) Research existing information	<ul style="list-style-type: none"> <li>• Compile and analyze available GIS data and perform literature review. Sources will include USDA SSURGO and NJ Geological Survey. Results will be displayed using GIS maps and summarized in tables for ease of interpretation. Soil data will be presented for owned properties and the entire project area. Climate data will be taken from the nearest weather station.</li> <li>• Compile existing data and field surveys for all plant communities (e.g., forest, woodland, shrubland, meadows / grasslands). Utilize ENSP Landscape Project to define habitat patch sizes within the project area.</li> <li>• Utilize 2007 Land Use data to define landscape context within the project area and utilize 1930 aerial photography to determine historical land use patterns.</li> <li>• Compile and analyze existing GIS data from ENSP (animals via Landscape Project) and NJNHP (plants and ecological communities via Heritage Grid)</li> <li>• Compile existing field surveys within project area.</li> </ul>	40
2) Field Studies	<ul style="list-style-type: none"> <li>• Provide approximate locations and extent of ecological communities within owned properties (utilizing Alliance-level nomenclature of Breden et al. 2001). Mapping results will be displayed as unique GIS polygons representing ecological community types.</li> <li>• Provide approximate locations and extent of invasive species occurrences and provide a site-specific risk assessment with management recommendations. Mapping results will be displayed as unique GIS polygons containing uniform coverage of invasive species.</li> </ul>	90
3) Stakeholder Interviews	<ul style="list-style-type: none"> <li>• Conduct interviews with public and private landowners and other stakeholders within the project area. Interviews will be conducted with a minimum of 15 stakeholders as determined by the Partnership.</li> </ul>	20
4) Public Survey	<ul style="list-style-type: none"> <li>• Design and implementation of survey for local community and preserve users. Survey will be conducted through Survey Monkey and include 15 questions.</li> </ul>	15

Tasks - Plan Components	Activity Proposal	Proposed Time Estimate (Hours)
5) Trail Research	<ul style="list-style-type: none"> <li>• GPS existing trails</li> <li>• Evaluate potential additions/subtractions from the existing trail network.</li> <li>• Incorporate results of public survey and previously conducted recreational survey performed by Princeton Township</li> <li>• Create GIS maps depicting existing and recommended trail network, including potential amenities</li> <li>• Recommendations will focus on visitor satisfaction, site characteristics, public survey results, and partner input.</li> </ul>	15
6) Plan Preparation	<ul style="list-style-type: none"> <li>• See outline on page 1</li> <li>• Recommendations will focus on maintaining or improving ecological health of broad habitat types, rare and unique species &amp; ecological communities, white-tailed deer management, and invasive species management. The importance of coordinated stewardship across property boundaries within the project area will be included as specific recommendations.</li> <li>• Provide protocols and thresholds to evaluate and track the health of each broad plant community type to guide future management decisions (e.g., invasive species control, deer management, restoration).</li> <li>• Develop appendices including: Compile existing information from work already performed in the project area; Compile raw data from public surveys and partner interviews; Complete listing of documented and potential species of plants, mammals, birds, herptiles, etc. with their global, national, regional, and statewide significance.</li> </ul>	60
7) Presentation to Partnership	<ul style="list-style-type: none"> <li>• Prepare PowerPoint presentation summarizing the plan and provide one hour talk for Partnership.</li> </ul>	10
<b>TOTAL HOURS</b>		<b>250</b>
<b>TOTAL COST</b>		<b>\$12,500</b>

**Table 2. Supplies**

<b>Item</b>	<b>Total Cost</b>	<b>Notes</b>
Supplies	\$200.00	Paper, toner, field supplies, etc.
Postage	\$500.00	Postcard printing & mailing rate of \$0.50 per card. Number of recipients is 1,000.
Web Survey	\$72.00	SurveyMonkey.com monthly charge of \$24.00 per month for their "Select" plan for three months.
<b>TOTALS</b>	<b>\$772.00</b>	

**Table 3. Mileage\***

<b>Location</b>	<b>Round-Trip Mileage</b>	<b>Number of Trips</b>	<b>Total Miles</b>	<b>Total Cost</b>
Princeton	104	10	1,040	<b>\$572.00</b>

\*Mileage reimbursement rate calculated at \$0.55 per mile (2012 IRS Standard Mileage Rate)

**Ecological Solutions, LLC**

Quote No. 2013-100

Michael Van Clef, Ph.D.  
 9 Warren Lane, Great Meadows, NJ 07838  
 Phone: 908-528-6674, Fax: 908-637-4448  
 E-mail: mvanclef@hotmail.com  
 EIN: 20-3480893

Customer	
Name	Lee Solow, Planning Director
Organization	Princeton Township
Address	400 Witherspoon Street
City	Princeton
State	NJ
Zip	08540
Phone	609-924-5366
E-mail	lsolow@princeton-township.nj.us

Quote Date
01/17/13

Hours	Description	Unit Price	Sub-Total
	<b>Scope of Work - Princeton Ridge Stewardship Plan</b>	\$50.00	\$12,500.00
40	1) Research existing information including historic and environmental context Compile existing studies and surveys of project area Includes preparation of numerous GIS maps		
45	2) Field Studies (approximately 464 acres) Invasive Species Field Mapping, GIS Maps, Data Summarization		
45	Ecological Community Field Mapping, GIS Maps, Data Summarization		
20	3) Stakeholder Interviews - Develop Questionnaire and Perform Interviews Assumes 15 interviews and transcription		
15	4) Public Survey - Develop Survey, Compile & Interpret Results Assumes 15 questions, postcard mailer design and use of Survey Monkey		
15	5) Research trail plan based upon field investigation and partner & public input Includes strategic review (potential additions and subtractions) and references 2010 Princeton Township Recreation Survey Includes GPS'ing existing trails at Autumn Hill and Herrontown Woods		
60	6) Prepare Complete Stewardship Plan Considering Above Components Provide plan and GIS data in electronic format via CD's to all partners.		
10	7) Prepare and provide presentation to Partnership		
	<b>See attached description for additional details.</b>		
250	<b>Total Project Hours</b>		
	<b>Supplies and Materials</b>		
	Survey Monkey subscription	\$72.00	\$72.00
	Postcard Survey Request Mailing	\$500.00	\$500.00
	Miscellaneous Field and Office Supplies	\$200.00	\$200.00
<b>Miles</b>	<b>Other Charges</b>		
1,040	Mileage reimbursement at \$0.55 per mile. 10 Round Trips x 104 miles per trip (Source: 2012 IRS Standard Mileage Rate)	\$0.55	\$572.00
<b>TOTALS</b>			<b>\$13,844.00</b>

*This quote is valid for 90 days. Work will not commence until a formal contract is signed.*



## **Sample Work Products from Wickecheoke Creek Preserve**

1. Ecological Communities
2. Invasive Species (Combined Infestations)
3. Invasive Species (Distribution of Autumn Olive)

**New Jersey Conservation Foundation  
Wickecheoke Creek Preserve  
Management Plan**

**Map 15 - Close Up. Ecological Communities  
at the Wickecheoke Creek Preserve**

0 250 500 1,000 1,500 2,000 Feet



Map prepared by Michael Van Clef, Ph.D., Ecological Solutions, LLC

**Legend**

- Wickecheoke Creek Project Area
- Wickecheoke Creek Preserve
- Forest Habitat Lead Types**
- Lead Type**
- 0 N/A - Edge or Hedgerows
- 1 Sugar Maple (upland)
- 2 Oak-Hickory Type
- 4 American Beech
- 5 Oak-Hickory Type
- 7 Sugar Maple (floodplain)
- 8 Red Maple / Pin Oak Variant
- 9 Eastern Hemlock
- Lawn or Ponds
- Plantation
- Shrubland
- Meadow
- Hay

Early Successional Patch Numbers in Black/Blue  
Forest Patch Numbers in Black/White

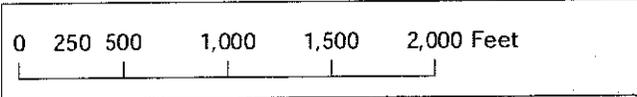


New Jersey Conservation Foundation  
 Wickecheoke Creek Preserve  
 Management Plan

Map 18 - Close Up. Invasive Infestation Categories Per Mapped Patch  
 at the Wickecheoke Creek Preserve

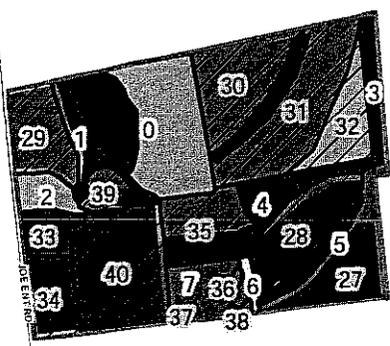
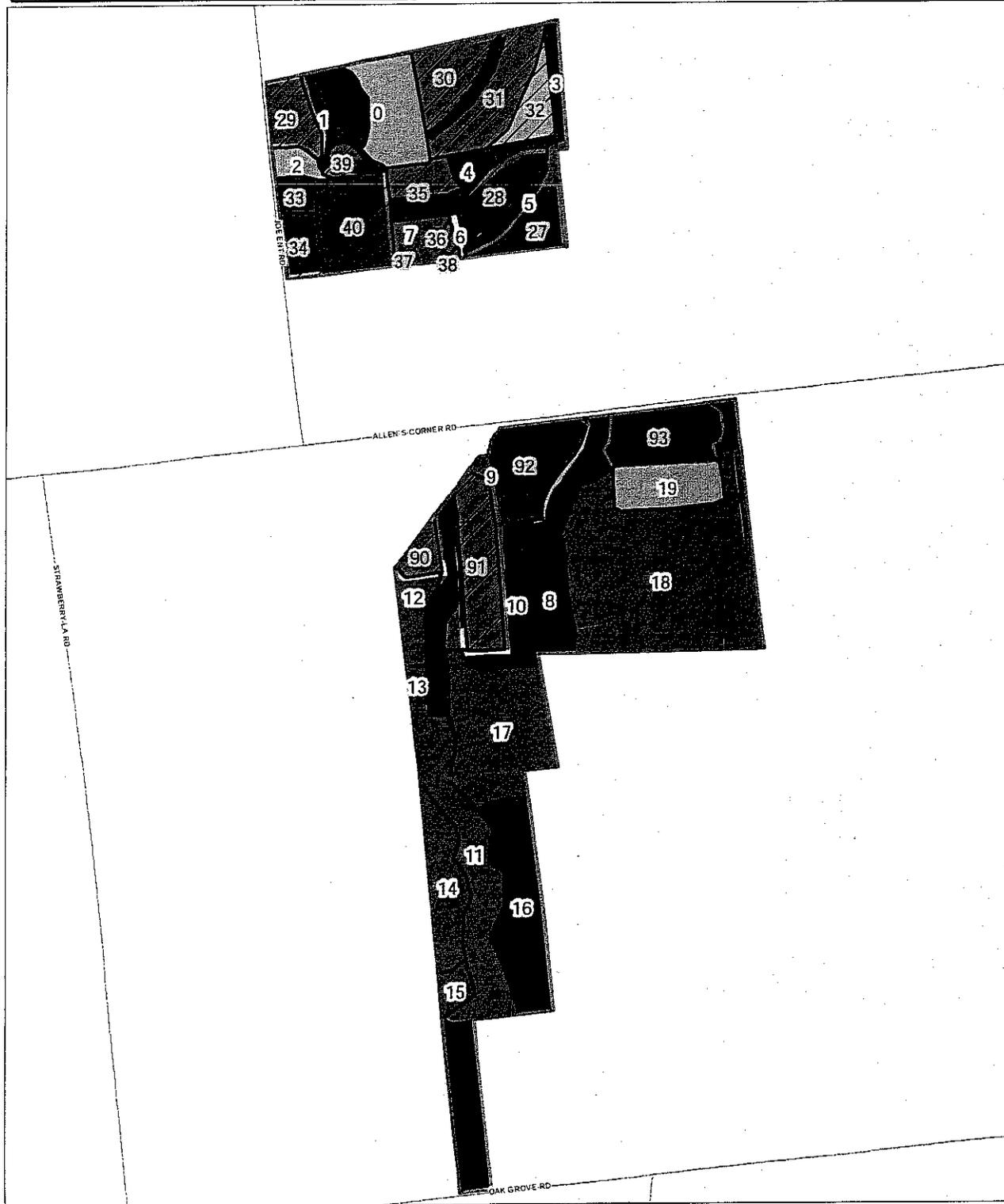
**Legend**

- Wickecheoke Creek Projed Area
- Wickecheoke Creek Preserve
- Early Successional Habitat
- Forest Habitat
- Invasives - Combined Infestations**
- Clean
- Low
- Moderate
- High
- Very High



Map prepared by Michael Van Clef, Ph.D., Ecological Solutions, LLC

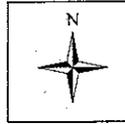
Early Successional Patch Numbers in Black/Blue  
 Forest Patch Numbers in Black/White



New Jersey Conservation Foundation  
 Wickecheoke Creek Preserve  
 Management Plan

Map XX. Invasive Species Distribution - Autumn Olive  
 at the Wickecheoke Creek Preserve

0 250 500 1,000 1,500 2,000 Feet



Map prepared by Michael Van Clef, Ph.D., Ecological Solutions, LLC

**Legend**

- Wickecheoke Creek Project Area
- Wickecheoke Creek Preserve
- Invasives - Autumn Olive**
- Cover Class**
- 1 (1-10%)
- 2 (11-25%)
- 3 (26-50%)
- 4 (51-75%)
- 5 (76-100%)
- Forest Habitat
- Early Successional Habitat

Early Successional Patch Numbers in Black/Blue  
 Forest Patch Numbers in Black/White

