

**ELEMENT OCCURRENCE ACQUISITION:  
THE APPALACHIAN NATIONAL SCENIC TRAIL  
AND  
THE NORTHEAST TEMPERATE NETWORK**

Submitted to the National Park Service by:

NatureServe

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## INTRODUCTION

National Park managers are directed by federal law to know the status and trends in the condition of natural resources under their stewardship in order to fulfill the National Park Service mission of conserving the scenery, and the natural and historic objects and wildlife in national parks unimpaired. In order to fulfill this mission, the Appalachian Trail Park Office (APTO) and the Northeast Temperate Network (NETN) needs to acquire a comprehensive inventory of existing natural resource data that lies on or in close proximity to the Trail. The Appalachian National Scenic Trail traverses 14-states as it follows the spine of the Appalachian Mountains from Maine to Georgia. Through prior efforts to acquire existing resource data, APTO possesses some of these data, but gaps in the knowledge base exist. The effort described in this proposal is intended to generate a comprehensive dataset from 11 states (including the Tennessee Valley Authority, or TVA) in the 14 state region. In addition to acquiring data from within the corridor, NatureServe will help to develop a data exchange strategy to keep the dataset that the Northeast Temperate Network is acquiring current as well as a mechanism for the Park Service to submit recent observations to NatureServe's member programs.

The element occurrence (EO) is the mapping unit developed by NatureServe's network of member programs for documenting the distribution of species populations. Formally defined as "an area of land and/or water in which a species or natural community is, or was, present," an element occurrence ideally reflects species population units; either a distinct population, part of a population (subpopulation), or a group of populations (metapopulation).

NatureServe is linked to its member programs through a process of regular annual data exchanges conducted between NatureServe's Central Databases and each of the individual member programs in the U.S. and Canada. Each month a series of member programs send their data to NatureServe for upload of the past year's updates to status ranking and inventory work. The exchange process includes both taxonomic and status reconciliation. New or updated Element Occurrence data is uploaded to NatureServe and in return centrally developed scientific information is distributed to the state and provincial programs.

## OBJECTIVE

The primary objective of this project is to acquire element occurrence data from NatureServe state member programs that are located within a corridor that encompasses the Appalachian National Scenic Trail (APPA). The dimensions of the corridor were established by the Northeast Temperate Network for the purposes of identifying significant resources on or in close proximity to the trail, and conveyed to NatureServe as an ArcGIS shapefile coverage. The secondary objective is to develop a standing data exchange protocol intended to ensure that data acquired by either NatureServe, the member programs, or the National Park Service NETN is shared. This protocol will ensure that the datasets held by either organization contains the most current available information.

## METHODS AND APPROACH

The objective, as stated above, will be achieved through the steps outlined below.

### **1) Acquire Element Occurrence Data from within a corridor surrounding the Appalachian Trail:**

Using the ArcGIS shapefile coverage of the APPA corridor provided by NPS, NatureServe will intersect all existing EO polygons in its Central Databases with the corridor for the states of CT, GA, MD, ME, NC, NY, TN, VA, VT, WV, and TVA. NatureServe will provide an ArcGIS shapefile of all intersecting EO polygons to NETN along with the attributes outlined in Table 1 of NatureServe's Data Sharing Agreement with NETN.

**2) Develop, in cooperation with the Northeast Temperate Network, a protocol designed to promote data sharing between NatureServe, the member programs, ATPO, and NETN:**

The key to creating interoperability among the more than 75 local database nodes that comprise the NatureServe network of member programs is its use of a rigorous set of biological inventory and data management standards and protocols. These standards and protocols are known collectively as natural heritage methodology, and serve as a common language for all participants in the network. In order for ATPO and NETN to be able to effectively and efficiently exchange data with the NatureServe network, it will be necessary for ATPO and NETN to either incorporate natural heritage methodology, in whole or in part, into their existing data model(s), or adopt the data model that is currently used by the NatureServe network, known as Biotics 4.

NatureServe will research the requirements, potential costs, and the advantages and disadvantages of implementing both of these options. This may include comparing the NPS and Biotics 4 data models, providing natural heritage methodology documentation, determining costs and requirements for NatureServe to install, support, and provide training for the Biotics 4 database system for ATPO and/or NETN, and researching data exchange protocols with local member programs once compatibility with natural heritage methodology is addressed. NatureServe will provide these results to NETN in a written report.

**PERSONNEL**

NatureServe staff funded through this project include:

Jason McNees, Database Project Specialist  
Shara Howie, Director, Heritage Data Services  
Cristiane Nascimento, Administrative Assistant  
Leah Oliver, Associate Botanist/Information Scientist  
Margaret Ormes, Director, Science Information Resources  
Nicole Capuano, Associate Zoologist/Information Scientist

**TIMELINES:**

|                    |                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------|
| September 30, 2005 | Deliver Element Occurrence Data within the specified APPA corridor for CT, GA, MD, ME, NC, NY, TN, VA, VT, WV, and TVA to NETN. |
| December 31, 2005  | Prepare a draft protocol for transferring newly acquired data between NatureServe, the member programs, ATPO, and NETN          |
| February 28, 2006  | Prepare a final protocol for transferring newly acquired data between NatureServe, the member programs, ATPO, and NETN          |

**DELIVERABLES**

**1) Element Occurrence Data: September 30, 2005**

NatureServe will coordinate the export of Element Occurrence data from each of the NatureServe member states that intersects with the APPA corridor, and the transfer of these data to NETN in an ArcGIS shapefile including all attributes. NatureServe will also prepare the draft and final data exchange protocol. The following deliverables will be provided for each of the 10 states and TVA:

Table 1. Element Occurrence Data: Delivered September 30, 2005

| The delivered datasets will include the following fields: |                                         | As available, the datasets will also include the following data fields: |
|-----------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------|
| Classification Status                                     | Longitude                               | Element Occurrence Rank                                                 |
| County Name                                               | Mapping Precision                       | Element Occurrence Type                                                 |
| Data Sensitive EO Indicator                               | Nation                                  | Element Occurrence Data                                                 |
| Element Code                                              | Quad Code                               | General Description                                                     |
| Element Global ID                                         | Quad Name                               | Managed Area Code                                                       |
| Element Occurrence Code                                   | Rounded Global Rank                     | Managed Area Name                                                       |
| Element Occurrence ID                                     | Subnation                               |                                                                         |
| EO Interpreted USESA Status                               | Subnational Common Name                 |                                                                         |
| FIPS Code                                                 | Subnational Conservation Rank           |                                                                         |
| First Observation Date                                    | Subnational Exotic Status               |                                                                         |
| Global Common Name                                        | Subnational Population Status           |                                                                         |
| Global Conservation Status Rank                           | Subnational Presence/Absence            |                                                                         |
| Global Habitat Comments                                   | Subnational Protection Status           |                                                                         |
| Global Rank Date                                          | Subnational Regularity Status           |                                                                         |
| Global Rank Review Date                                   | Subnational Scientific Name             |                                                                         |
| Global Scientific Name                                    | Survey Date                             |                                                                         |
| Habitat Types (Animals)                                   | U.S. Endangered Species Act Status      |                                                                         |
| Last Observation Date                                     | U.S. Endangered Species Act Status Date |                                                                         |
| Latitude                                                  | Watershed                               |                                                                         |
| Locational Uncertainty                                    |                                         |                                                                         |
| Locational Uncertainty Distance                           |                                         |                                                                         |

**2) Draft Data Exchange Protocol: December 31, 2005**

Review existing data exchange mechanisms as described above and present one or more options for keeping the member program databases and NatureServe's Central Databases synchronized with new occurrence data developed as part of ongoing monitoring activities performed by the National Park Service, ATPO, or NETN. The data exchange protocol will also address mechanisms that will insure that the National Park Service, ATPO and NETN have the most current data available from NatureServe and the member programs. After NPS staff have reviewed the draft protocol they will provide written comments, edits, and proposed changes back to NatureServe. NatureServe and NPS staff will participate in a conference call sometime between January 16 and February 8, 2006, to discuss these changes before starting work on the Final Data Exchange Protocol.

**Final Data Exchange Protocol: February 28, 2006**

Revise the draft data exchange protocol to address any concerns and/or comments identified during the protocol review.

## Budget

Name of the Project: Element Occurrence  
Acquisition  
Name of the Funder: NPS

Start Date: 6/15/05  
End Date: 2/28/2006

### BUDGET TEMPLATE

|                               |                                    |               |                | Total<br>Cost      |
|-------------------------------|------------------------------------|---------------|----------------|--------------------|
| <b>I. Salary</b>              |                                    |               |                |                    |
|                               | Position                           | # of<br>Hours | Hourly<br>Rate |                    |
| a.                            | Project Manager                    | 7             | \$38.95        | 272.65\$           |
| b.                            | GIS/Data Analyst                   | 160           | \$20.10        | 3,216\$            |
| c.                            | Administrative Asst.               | 3             | \$18.90        | 56.70\$            |
| d.                            | Botanist/Zoologist                 | 168           | \$19.89        | 3,340.78\$         |
|                               | Fringe Benefits @ 42%              |               |                | 2,892.17\$         |
|                               | <b>Subtotal Salaries</b>           |               |                | <b>9,778.30\$</b>  |
| <b>II. Other Direct Costs</b> |                                    |               |                |                    |
| a.                            | Technology Fee                     |               |                | 2,021.24\$         |
| b.                            | Communication                      |               |                | 22.00\$            |
| c.                            | Data Usage Fee (states)            |               |                | 6,500\$            |
|                               | <b>Subtotal Other Direct Costs</b> |               |                | <b>8,543.24\$</b>  |
|                               | <b>Total Direct Cost</b>           |               |                | <b>18,321.54\$</b> |
|                               | <b>Indirect Cost @ 36.45%</b>      |               |                | <b>6,678.20\$</b>  |
|                               | <b>TOTAL COST</b>                  |               |                | <b>25,000\$</b>    |

