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## STRATEGIC CONSERVATION PLANNING

**Summary of the Amherst County land prioritization plan, a project of the Central Virginia Land Conservancy**

## Project Area Description

Located in central Virginia, Amherst County is bordered on the south and east by the James River and by the Blue Ridge Mountains to the west. The county straddles the Southern Appalachian Piedmont and the Blue Ridge Mountains ecoregions and is rich in natural and cultural resources. Forested and agricultural lands dominate its approximately 479 square miles. The county's 32,134 residents (2005 census estimate) enjoy extensive recreational opportunities in the George Washington National Forest, Mt. Pleasant National Scenic Area, the historic James River and the James River Heritage Trail, and the Blue Ridge Rail Trail, among others.

Like many communities in the Commonwealth, Amherst County is working to promote economic growth and development while preserving its rich cultural heritage, outdoor recreational opportunities and natural resources. This task is challenging, especially in the southern portion of the county, where urban growth emanating from the City of Lynchburg has outpaced other parts of the county.

## Conservation Plan

This project was partly funded by a grant from the Virginia Environmental Endowment and The Virginia Outdoors Foundation, as part of the Partnerships for Conservation – Building Land Trusts in Virginia grant program. Matching funds were provided by the Amherst County Service Authority and the Robert E. Lee SWCD. Representatives from the Central Virginia Land Conservancy (CVLC), the Amherst County Service Authority, the Robert E. Lee SWCD, and the Amherst County Citizens Advisory Committee for the Revision of the Comprehensive Plan contributed their time and expertise.

This project was initiated by CVLC in order to define and execute a conservation land prioritization process for Amherst County, Virginia, and to produce maps illustrating areas of high and low conservation value. This is the first known attempt to identify and prioritize land within Amherst County based upon its cultural, historic, aesthetic and biological importance to the community.

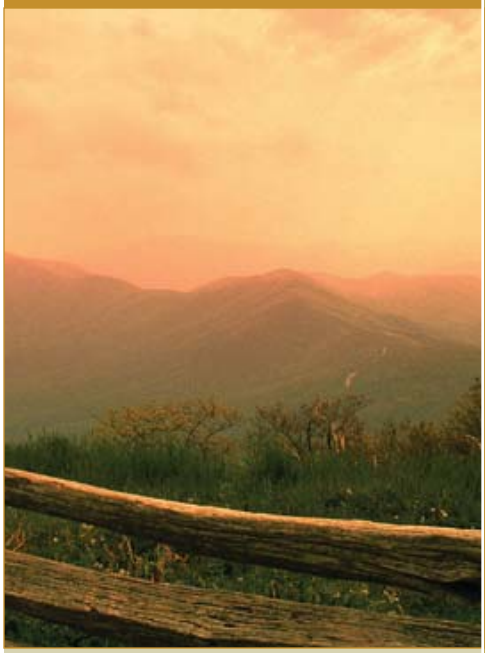
Objectives:

1. Define and execute a process by which the workgroup can prioritize Geographic Information Systems (GIS) layers of conservation interest;
2. Obtain and process relevant GIS data files with guidance from the workgroup;
3. Create surrogate data layers when available data layers are inadequate; and
4. Model GIS layers to produce a map of Amherst County, Virginia, illustrating the areas of high and low conservation value based upon the rankings provided by the workgroup (developed in Objective 1).

## Online LTA Resources

A full copy of the Amherst County land prioritization plan, including project maps along with other samples of strategic conservation materials, can be downloaded from The Learning Center, a Web resource available to Land Trust Alliance members and partners: **http://learningcenter.lta.org**

(*Continued on page 2*)



Mt. Pleasant, Amherst County

**Project area name:** Amherst County
**River basin:** James
**State:** Virginia
**Project area county:** Amherst
**Local land trust:** Central Virginia Land Conservancy

### FOR MORE INFORMATION

**CONTACT:**
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CVALC
Central Virginia Land Conservancy

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## Identification and Prioritization of Criteria

The Conservation Management Institute at Virginia Tech (http://www.cmiweb.org/) worked with representatives from the Central Virginia Land Conservancy and various other participating organizations and agencies to identify specific criteria that might be included in the land prioritization model. In total, there were seven identified conservation themes: scenic viewsheds, water quality, natural resources, rural heritage, vulnerability to development, cultural/historic resources, and other (table 1).

Once a list of conservation criteria and the corresponding spatial data had been developed, the workgroup ranked the importance of each factor relative to other criteria. Participants used a two-stage approach for the ranking process: First, the workgroup ranked the relative importance of each conservation theme to other themes. Each theme was weighted on a scale of 1 to 100, with the sum of all themes adding to 100; the higher the value, the greater the importance. Then, within each conservation theme, the workgroup ranked the relative importance of each criteria/factor that composed that theme, with the sum of all criteria weights equaling 100. The final importance value for a factor was then calculated in the following way: criterion/factor weight x theme weight. For example, a factor with a weight of 40 (or 40% of total) within a theme with a weight of 20 (or 20% of the total) would receive an importance value of 8% or 0.08 (0.40 x 0.20 = 0.08). Themes and their weights are presented in table 1.

Many factors had multiple levels associated with them. For example, riparian buffers had several distance classes: <100 m from the water feature, 100-200 m, 200-300 m, 300-400 m, and 400-500 m. The workgroup assigned importance weights to these levels to indicate that some levels were more important than others. The workgroup ranked each level on a scale of 0-5; higher values indicating greater importance.

Finally, level importance values were multiplied by factor values to obtain the final score for any factor-level combination. The following hypothetical example illustrates how level weights were calculated:

- If riparian buffers were given a factor weight of 0.08, and
- The level "100-200 m from water feature" was given a level score of 4 (4 of 5), then
- The final score for riparian areas between 100 and 200 m from the water feature would be calculated as follows: 0.08 x (4/5) = 0.064.

**Table 1: Conservation Theme Weights**

| THEME | THEME WEIGHT |
|---|---|
| Scenic Viewsheds | 0.17 |
| Water Quality | 0.22 |
| Natural Resources | 0.22 |
| Rural Heritage | 0.18 |
| Vulnerability to Development | 0.05 |
| Cultural & Historic Resources | 0.06 |
| Other | 0.10 |
| **SUM** | **1.00** |

## Discussion of Results

The model results (see prioritization map, page 3) were intended to illustrate broad patterns of conservation value within Amherst County. The intended use of this product is to identify regions or clusters of high or low conservation value. This map is not intended to illustrate conservation value of individual land parcels, unless those parcels are extremely large. Each dataset used in the analyses contained certain spatial inaccuracies ranging from meters to hundreds of meters, depending on the source of the data. Accuracy of some datasets is unknown. As a result, individual pixel (30 x 30 meter unit of analysis) scores should never be considered accurate. However, regions or clusters of similarly valued pixels are likely to accurately represent conservation value, based on the assessment of the workgroup. §

(*Prioritization map, page 3*)

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**Photo 1:** Hiking trails in Amherst County.

**Photo 2:** Scenic rural landscape.

**Photo 3:** Tobacco Row Mountain as seen from the north.

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**Prioritization map for the Amherst County land prioritization plan, a project of the Central Virginia Land Conservancy**

Figure 1: Amherst County conservation prioritization map