

## E. L. ROSE CONSERVANCY 2006 ANNUAL REPORT

### GROUND-BASED PHOTOMONITORING OF ECOLOGICAL CHANGE PROJECT

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#### **Abstract**

The Photomonitoring Project completed its second year by designing and completing a major ground-based photo survey of Susquehanna County, PA. Over 600 geo-referenced locations along eight transects were photographed during the summer of 2006. A database of historical and current photographs is being established and will be archived with the Conservancy and the Susquehanna County Historical Society. Some ecological indicators noted in various landscapes were hilltop clearings, lakeshore developments, and unsustainable agriculture. In addition to the ecological changes, the Conservancy has expressed an interest in preserving the historical and cultural attributes of the land such as old barns and stonewalls. When completed, the archived photo database will serve as a historical reference for assessing land use changes over time across the county.

This year's annual report was designed as a poster for presentation at public and professional meetings. It was first used at the 2007 Department of Natural Resources Graduate Student Association Symposium *Setting the Trends: DNR Research in the Second Century of CALS*, January 18-19, 2007. Copies have been provided to the E.L. Rose Conservancy of Susquehanna County for their use. What follows is the text and pictures used in this poster; a MS Powerpoint copy of the poster is provided at the end of this report.



*The E. L. Rose Conservancy  
of Susquehanna County*



Cornell University  
Department of Natural Resources

# *Repeat Landscape Photography in Susquehanna County, PA*

**Jessie Comba & Jim Lassoie  
Cornell University**

## **What is the Susquehanna photomonitoring project about?**

Photomonitoring is the process of monitoring landscape change through the use of photographs. This qualitative research tool has proven very effective in gaining public support and documenting changes in the land. Another term used to describe this technique is repeat historical photography, which simply compares pictures from many years ago to recently re-photographed pictures from the same photo point as the original. These pictures are then compared to one another to see how the landscape has changed over time. Hypotheses can be determined for possible reasons of change and methods of further conservation can be enacted. This documented proof of landscape changes makes it easier for people to understand conservation and the effect that it will have on their community therefore more likely to support its implementation.

The Department of Natural Resources has had ongoing conservation planning with the E.L. Rose Conservancy of Susquehanna Co. since 1999. On this project we have photographed over six-hundred geo-referenced pictures along eight transects and are in the process of establishing a historical and current photo-database to be archived with the conservancy and the historical society. The database will enable a future database and improved strategies and implementation of conservation goals for the E.L. Rose Conservancy.

## **Methodology**

- Methodology was based on Dr. Lassoie's China project and then adapted to conservation planning on a smaller scale
- Cameras: Nikon D200 and Nikon CoolPix8800
- 7 road transects N to S
- 1 road transect W to E
- Avg. 24 photopoints per transect
- Multiple geo-referenced photos per photopoint
- Stopped approx. every 5-10 miles to photograph the landscape

## **Results of Summer Photographs**

### **Conservation Targets:**

- | <u>Primary</u>        | <u>Secondary</u>    |
|-----------------------|---------------------|
| - Hardwood Forests    | - Agricultural Land |
| - Conifer Plantations | - Ponds             |

- Intact Shorelines
- Wildlife Diversity
- Riparian Areas
- Stonewalls
- Barns

**Examples of Threats:**

- Unsustainable Agriculture
- Unsustainable Forestry
- Shoreline Development
- Track-Home Development
- Tourism
- Hilltop Clearing

**Susquehanna County Transect and Photopoints Per Transect**

<b>Transect #</b>	<b>Road Name</b>	<b># Photo Points</b>	<b># Views</b>
1	Rt. 858 continuing to Rt.367	33	89
2	Rt. 267	42	132
3	Rt. 167	26	96
4	Rt. 29	26	75
5	Rt. 11	7	23
6	Rt. 92	18	54
7	Rt. 171	13	53
8	Rt. 706	26	106
<b>Total # trans: 8</b>	-----	<b>Total # pp: 191</b>	<b>Total # views: 627</b>

**Continuing Plans**

- Develop 'old' photo database
- Relocate and retake 'old' photos
- Develop analytical framework
- Design and archive image database
- Catalog and designate keywords

## Examples of Photopoints and Ecological Interpretations

### Photopoint #14 Transect 3 Agricultural Fields and Stonewalls

Cultural conservation

- Stonewalls (sold for quick revenue)
- Old barns



### Rt. 29 Munger Tannery: Early 1900s vs. Present

Changes over time

- Extended forest growth
- New agricultural business
- Road development



**Photopoint #8 Transect 3  
Riparian Habitats**

- Riparian habitat without disturbance
- Increased wildlife diversity
  - Tree species and understory diversity



- Possible effects of cow grazing on riparian habitat
- Two completely different habitats
  - No understory growth
  - Stream contamination

**Agricultural and Forest Land**

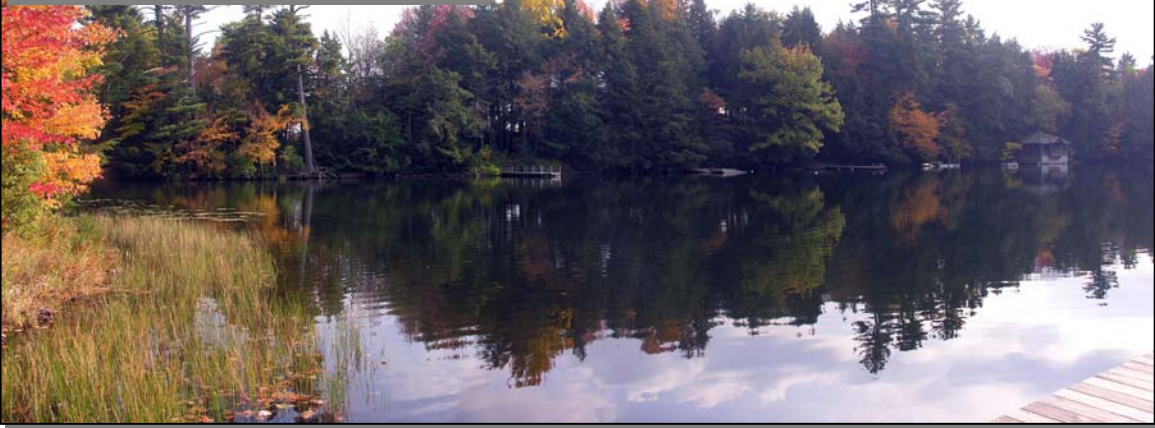


- Clearing trees off hilltops for:
- Gravel
  - Stonewalls
  - Timber (less)

**Silver Lake Early 1900s vs. Present**



- Changes over time
- Increased shoreline development
  - Tree species composition



**Quaker Lake Early 1900s**



- Changes over time
- Very heavy shoreline development
  - Woody debris removal
  - Houses packed together
  - Tourism



A cd is provided below of the poster in MS Powerpoint that comprises the 2006 Annual Report: *Repeat Landscape Photography in Susquehanna County, PA* by Jessie Comba and Jim Lassoie, Cornell University.

**Note: For a copy of  
this cd contact:  
Jim Lassoie  
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### **Related Publication**

Lassoie, J. P., R. K. Moseley, and K. E. Goldman. 2006. *Ground-based photomonitoring of ecoregional ecological changes in northwestern Yunnan, China*. pp. 140-151. IN: Aguirre-Bravo, C.; Pellicane, Patrick J.; Burns, Denver P.; and Draggan, S, Eds. *Monitoring Science and Technology Symposium: Unifying Knowledge for Sustainability in the Western Hemisphere*. 2004 September 20-24; Denver, CO. Proceedings RMRS-P-42CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 990 p.  
Available electronically at: [http://www.fs.fed.us/rm/pubs/rmrs\\_p042.html](http://www.fs.fed.us/rm/pubs/rmrs_p042.html)

