

E.L. Rose Conservancy
Program: Conservation Enhancements for a Living Landscape
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Progress Report 2005



The teaming up of the Cornell conservation education group and the E.L. Rose members and volunteers was very successful in 2005. Activities such as the habitat assessment and habitat enhancement projects continued and expanded; additional data were collected on wildlife and habitats; and education programs and workshops continued to be well-received and proved to be excellent vehicles for collaboration. All in all, it was a pretty good year for ongoing projects, for the initiation of new conservation projects. In addition, a new educational demonstration area was established on Conservancy land.

Habitat Assessment Projects

In 2005, we continued to assess and document habitats and key attributes at Highpoint Preserve and other Conservancy lands. Using high-end GPS (Global Positioning System) units, we acquired and mapped new spatial data layers to add to previously collected information. Data gathered in 2005 include the entire trail network at Highpoint Preserve, all seeps and water crossings along the trail system, potential areas for future woodland pool development, potential deer exclosure sites, the coverboard trail, and locations of invasive Japanese barberry, *Berberis thunbergii* (see maps in Appendix). These data, in conjunction with important habitat features and animal and plant locations, will provide the means to analyze and rate existing habitats, assess potential habitat vulnerabilities, and determine habitat enhancement needs.



Kristi maps key conservation features using gps at Highpoint Preserve.

Habitat Enhancement and Data Collection Projects

In another facet of our conservation efforts in 2005, we began collecting data on wildlife use of our coverboard arrays. In July, 2005, we recorded the species and numbers of animals found under each board along the coverboard trail, along with the sex of individuals and age class (adult or juvenile). We also recorded the presence of small mammal holes or runways associated with the coverboards. Two salamander species, the eastern red-backed salamander (*Plethodon cinereus*) and the dusky salamander (*Desmognathus ochrophaeus*), were found under the coverboards. We detected salamanders under 19 (38%) of the 50 coverboards, and both adults and juveniles of each species were present. A total of 22 red-backed salamanders was found under 17



A female red-backed salamander guards her 4 eggs under a coverboard.

of the coverboards, along with 2 dusky salamanders found under 2 separate boards. A highlight of our survey was the discovery of a female red-backed salamander nestled under a coverboard, guarding her four eggs. This was exciting – indeed a sight that many people never see in their lives.

In addition, small mammal activity (burrows or runways) was evident under 6 of the coverboards. Interestingly, no salamanders were found under boards with signs of small mammal activity, either because of avoidance or predation.

Heavy usage of coverboards by amphibians, as well as small mammals, suggests that these structures are already enhancing the forest floor habitat by providing increased texture in the woods. Expansion of the coverboard trail could add further benefits, as could accumulation of more woody debris on the forest floor. Toward this end, several brush piles were constructed by E.L. Rose Conservancy members and volunteers under our guidance. We feel that these enhancements will help provide needed habitat structure on the forest floor and the future addition of more piles, placed in areas with little woody debris, is warranted.

Education Programs and Demonstration Areas

We conducted a GPS training for E.L. Rose Conservancy members and volunteers during May, 2005. Participants learned how to use handheld Garmin Etrex gps units, as well as larger, more powerful (and much more expensive) Trimble units. To prevent erosion and disturbance of valuable wet sites, volunteers used the gps units to map out and collect seep locations near the High Point Preserve trails. The objective of habitat mapping was to identify locations for footbridge placement and possible trail diversion.

In June, E.L. Rose members visited Cornell's Arnot Teaching and Research Forest. There, they attended a program called "Advanced Pond Development for Wildlife". While they were there, they joined us on a tour of some deer exclosure sites, where we discussed research and design, and some of our findings. To summarize, deer are having a substantial effect on vegetation growth on lands throughout Susquehanna County, and specifically on Conservancy lands. To provide opportunity for Conservancy members and the neighboring public to see first-hand, the profound influence that deer have on northeastern forest ecosystems, we worked together to establish a deer exclosure to serve as an educational demonstration area. We also developed a study design and suggested planting protocols that will allow measurement of deer impacts to vegetation both within and outside of the deer exclosure (see Appendix). Conservancy members gathered acorns, which along with shagbark hickory nuts supplied by us, were planted in one quadrat of both the exclosure and the control area this fall. Next spring, seedlings will be planted in another quadrat next spring, and measurements of seed germination and seedling development and



American beech stems browsed by deer at Highpoint Preserve.

growth will be measured. These measurements, as well as specific measurements of deer impacts, will continue through next summer.



Tim Matthews at the deer enclosure.

As part of our education and outreach activities, we conducted an education program for conservancy members at E.L. Rose Conservancy’s annual meeting in July. In this program, we emphasized the benefits of establishing “demonstration clusters”, which are areas where multiple habitat enhancement methods are established in close proximity to one another. This provides opportunity to teach and learn multiple concepts at one location. For example, a deer enclosure, log piles, snags, and woodland pools all could be established on the same property and close to each other. Demonstration clusters are efficient and effective teaching tools, and would be an excellent vehicle for outreach and education on E.L. Rose Conservancy lands.

Proposed Activities for 2006

– We are going to continue to catalogue and spatially reference the following key environmental and biological attributes of the Preserve and possibly expand our efforts to include other Conservancy lands. Some targets for our conservation mapping activities include:

- 1) Snag locations – GPS coordinates, mapping, assess distribution and abundance for wildlife needs
- 2) Ponds and wetlands in the surrounding landscape that could serve as sources of existing animals that are living in the Preserve and as potential sources of future colonization
- 3) Potential sites suitable for new pond development

- We will continue to promote, design and build habitat enhancements that could include: additional coverboards, brush piles, log piles, snags, and woodland pools.
- We would like to initiate a mammal inventory at 2 or 3 Conservancy properties using motion-triggered digital cameras.
- We will continue to conduct educational outreach activities for Conservancy members and the public, including a presentation on black bears. Black bear sightings and interactions have been increasing in the area. In order to minimize negative bear/human interactions, educating the public about how to avoid conflict via feeding, etc. is critical. Preventing bears from establishing bad habits is easier than trying to change those habits once they have been learned.
- We will acquire and oversee the planting of seedlings inside and outside of the deer enclosure (May).
- We will work with student interns to collect data inside and outside of the deer enclosure. Data collected may include:
 - 1) Germination rate of seeds (acorns, hickory nuts) that were planted in the fall
 - 2) Number of stems browsed by deer over time (every other week beginning 2 weeks after planting for both the seed-planted and seedling-planted trees)
 - 3) Diversity of tree species in each 25-ft subplot
 - 4) Diversity of grass species and wildflowers in the unplanted, untilled subplots
 - 5) Natural colonization of tree seedlings in tilled, unplanted subplots

These data can be compared to similar, ongoing research at the Arnot Forest.

Appendix

1. Exclosure design and planting protocol
2. Schematic of exclosure planting protocol
3. Highpoint Preserve Trail Map
4. Map of barberry locations at Highpoint Preserve
5. Map of habitat features at Highpoint Preserve

