Program: Conservation Enhancements for a Living Landscape

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2006 Conservation Progress

E.L. Rose Conservancy

The cooperative conservation effort by the Cornell conservation education group, E.L. Rose Conservancy members, and volunteers was once again hugely successful in 2006. Under the program's umbrella, we held joint educational outreach activities, provided educational materials to Conservancy members, completed several demonstration sites and habitat enhancement efforts, and began invasive species eradication efforts at Highpoint Preserve. In addition, this year's activities addressed critical and emerging wildlife conservation issues such as the interactions between people and wildlife (e.g. bears and coyotes), the effects of overabundant wildlife on forest habitat, and the benefit of restoring and creating habitat to conserve biodiversity and species in need. All in all, education programs and workshops were well-received and these activities provided excellent vehicles for collaboration. As an added benefit, the habitat enhancement projects that were completed will provide the infrastructure for future workshops while simultaneously serving as a model for private landowners in the region.

Educational Outreach

As part of our effort to inform and engage Conservancy members, we provided geo-referenced trail maps to the Conservancy for distribution to its members. In addition, fact sheets on habitat enhancements and amphibian ecology that we designed and created were made available for the E.L. Rose web site. Specific outreach programs included a presentation on bears and coyotes, "The Bear (and Coyote) Necessities." This presentation included information on natural history, and ways to avoid conflicts with our increasingly abundant wild neighbors. More than 80 people attended the presentation, the highest number ever to attend a Conservancy-sponsored program. We also conducted a "Train the Trainer" session to teach Conservancy board members and volunteers to identify and eradicate garlic mustard, purple loosestrife and Japanese barberry. Following that session, participants led a larger education and "barberry pull" event at Highpoint Preserve, removing barberry shrubs from the forest, and invasive loosestrife from nearby wet areas.

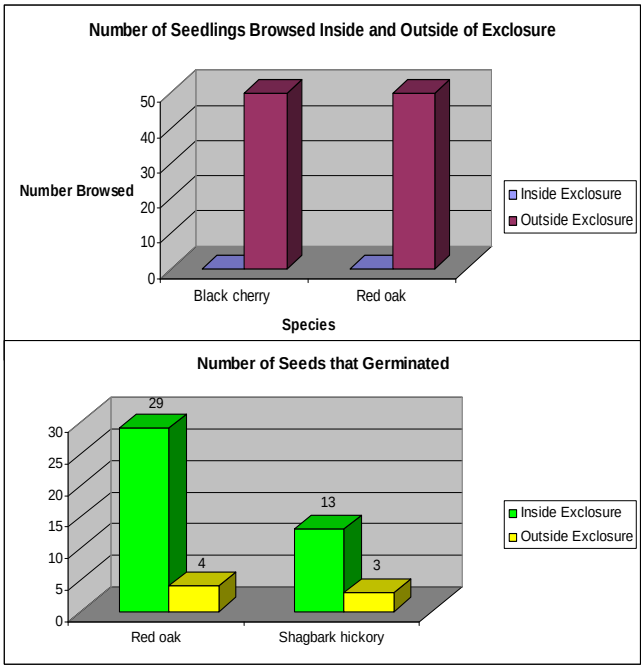
Habitat Enhancements/ Demonstrations

This past year, several exciting habitat enhancements and demonstration sites were created and completed in cooperation with E.L. Rose Conservancy members, volunteers from Rockwell Collins, and Arnot Forest Research and Extension interns. A major impetus for much of this stemmed from the efforts of Board President Tim Matthews who secured a Green Communities Grant from Rockwell Collins to involve their employees in environmental projects in communities where they operate. Highlights of this year include the planting of a Deer Exclosure experiment, creation of a Butterfly Meadow, and construction of two Vernal Pools.

Deer Exclosure

In 2005, Conservancy members and volunteers constructed a deer exclosure at Longford Lake. Following a study design by the Cornell conservation education team, acorns and hickory nuts were planted in a quadrat within the exclosure, and in an adjacent quadrat in an unfenced plot outside of the exclosure. To further the study, we obtained black cherry and red oak seedlings that the group planted inside and outside of the exclosure in spring 2006. Our objectives were to determine and demonstrate the severity of impacts that deer are having on vegetation and potential forest regeneration in the area. Perhaps a more important goal was to determine if landowners can accomplish successful reforestation by planting seeds (lower cost) in lieu of seedlings (higher cost).

The study yielded some interesting results. After just two months, deer had browsed 100 % of the seedlings planted outside the exclosure as compared to 0% browsed seedlings inside the exclosure. In July, 90% of the seedlings inside the exclosure were still alive, compared to 86% outside the exclosure. From these experiments it is obvious that deer are having a tremendous impact on the vegetation in the area, and likely are delaying or even preventing natural forest regeneration.



There were similar results for seed germination, with 42 of the planted seeds inside the exclosure germinating. In contrast, only 7 of the seeds planted outside of the exclosure germinated. Therefore, planting seeds seems to be a viable option for reforestation in lieu of planting seedlings, especially in areas that are fenced to prevent deer and other mammals (squirrels, mice, chipmunks, etc.) from digging up seeds or browsing on the newly germinated plants.

Butterfly Meadow

In a very impressive operation, Rockwell Collins volunteers and Conservancy members enhanced a small open meadow adjacent to Highpoint Preserve for butterflies and other pollinators. Native and pollinator-friendly flowers were planted in a section of the meadow, and clumps of naturally growing milkweed were retained for their attractiveness and use by butterflies.

Vernal Pools

In an effort to provide more optimal habitat, volunteers and Conservancy members also constructed two small vernal pools at sites we evaluated and selected at Highpoint Preserve. The first was located adjacent to the butterfly meadow, which further enhances habitat complexity and quality in the new area. The second, a woodland pool, was located next to a small wet meadow in the forest. Each of the pools filled with water within 2 weeks and are sure to attract and host a whole new suite of creatures. We will monitor both pools in the future to identify species that colonize the site and determine the effectiveness of these habitat enhancement techniques. This is a great site that is aesthetically pleasing and will likely have great long-term conservation value.

Infrared-triggered Cameras for Mammal Inventory

Beginning in the fall, we placed infrared-triggered cameras in various locations throughout Highpoint Preserve to conduct an inventory of mammals present at the site. To attract local wildlife we placed bait stations containing peanut butter, sunflower seeds, apple sections and sardines on the ground and set up a camera nearby to capture images of animal visitors. The inventory stations were established in areas where animal use was evident or predicted. This included areas where large tree cavities or rock caves were present, or areas along flowing water, deer trails or other natural funnels. In just our early attempts, we already have captured many images of deer, raccoons, opossums, and white-footed mice. We have also noted some interesting animal behavior (see image below). In all, we had up to five cameras running simultaneously for over 36 days and nights. We will continue to run the inventory stations in the winter and spring of 2007.

Deer greets raccoon at Highpoint Preserve

Potential Topics and Issues to Address 2007-2010

Previous projects and outreach efforts have laid the groundwork for additional cooperation among the E.L. Rose Conservancy, Rockwell-Collins volunteers, and the Cornell Conservation Education Program. Some potential focus efforts for the upcoming three years include amphibian conservation, mammal conservation, and habitat conservation and restoration. Each of these efforts, described below, aims to further the knowledge of natural resources on Conservancy lands and the surrounding landscape, enhance those resources when possible, and engage Conservancy members and local community members in natural resource conservation. As a secondary outcome, local residents and landowners will have an enhanced awareness of the critical conservation role that the E.L. Conservancy plays in their community.

The following potential projects will provide integrated opportunity for conservation, habitat enhancement, and outreach.

Amphibians and Amphibian Conservation

Egg mass and amphibian inventory in Highpoint Preserve and surrounding landscape

We propose to initiate a colonization study to determine which species are present in the area surrounding Highpoint Preserve and which might colonize the newly created vernal pools. As part of the study, we would conduct springtime egg mass survey of nearby ponds and wetland areas, including the inlet and outlet of Silver Lake and nearby farm ponds (with permission). We would also survey the newly created vernal pools in early spring to determine which species have begun to colonize the sites. Information from the surveys will enable us to determine whether and where additional habitat enhancements might facilitate colonization of species that are already present in the surrounding landscape.

Night time frog calls

As part of colonization study, we propose to conduct a night time frog call survey, involving student interns, volunteers and conservancy members. We would establish a driving route with stops along the way, tracking and recording our routes by GPS. Surveys would be conducted approximately three times throughout the spring and summer. Volunteers will learn the calls of several frog species in advance, and will stop at each designated location for a 5-minute period, recording all species heard during the visit, as well as the intensity of calls (indication of number of animals). The information derived from the frog call survey will supplement the information gathered during pond and wetland visits.

Pickerel frogs are easy to identify by their calls

Mammals and Mammal Conservation

Infrared-triggered cameras for mammal inventory

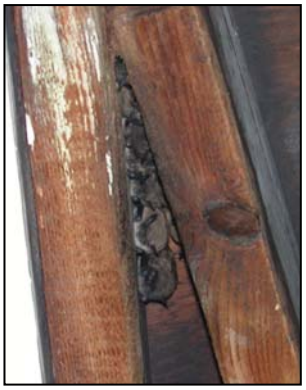
In 2007, we plan to expand the photographic mammal inventory efforts we began in Fall 2006. We would like to expand to a larger geographic area, and include other Conservancy owned sites such as Long Pond. We will establish additional bait stations to capture more photos, and analyze existing photos to determine how weather conditions influence movement of various mammal species. For example, in previous photos, we have noticed that opossums seem to move and feed mostly on rainy nights.

Photos and information derived from them can be shared with Conservancy members through presentations, and on-line. We will make these photos available for members to view and enjoy as an on-line photo album for the Conservancy web site.

An opossum visits the bait station on a rainy night

Track boards

Track boards are a new and improved tool that researchers are using to inventory and study mammals. We would like to combine the use of track boards with the infrared-triggered cameras to inventory mammals on the property. In this interesting technique mammals walk across a carbon board and then across a white board on the way to bait, leaving tracks on the white board. This technique is informative, educational, and fun.



Little brown bats

Bats conservation and management

Bats are interesting and diverse animals, important to our ecosystems, and threatened by many factors. We will use our Anabat detector (an electronic acoustical decoding device) and analytical software to inventory the bat species present in the Silver Lake area. Knowing which species are present will help to better target habitat enhancements to those species in the area. Such species-specific enhancements could include planting trees that are beneficial to certain bats as roosting sites, or constructing bat boxes.

Habitat Enhancement, Conservation and Restoration

We would like to continue to look for additional ways to enhance habitat and demonstrate habitat enhancement/restoration and conservation techniques to others.

Natural barriers

Using seedling grown from acorns collected last year, we would like to test a “natural barrier” method of preventing deer damage in the forest. By planting some seedlings under brush

piles formerly built by volunteers, and some in adjacent areas outside of the brush piles, we expect to see greater survival of the seedlings protected by the brush piles. In addition to providing a barrier to browsing by deer, studies at the Arnot Forest have shown that tree tops reduce the fluctuation of ground temperature and may provide a greenhouse effect for growing seedlings.

Habitat restoration project

We would like to partner with the Conservancy, its members and volunteers, to jointly pursue a habitat restoration grant and project. The project could take place anywhere in the nearby area.

Invasive species

Forest habitat restoration efforts through invasive species eradication efforts began in 2006, with an effort to remove barberry from Highpoint Preserve. Additional barberry is present, and could be the target of further efforts. Garlic mustard is another species that could be removed to provide the opportunity for more native plants and wildflowers to flourish.

Japanese barberry

<u>Public Programs/Outreach</u>

Past efforts and future efforts (described above) could serve as the basis for a variety of outreach and educational efforts including:

Self-guided trail brochure

We would like to develop a self-guided trail brochure for Highpoint Preserve that includes stops along the way highlighting the work done by Rockwell Collins Volunteers, Cornell, and the Conservancy. Potential stops might include: the new bridges, the salamander coverboard trail, the butterfly garden, the new vernal pools, the site of the recent bear encounter, a barberry bush, a tree that has fallen into the lake, a spring seep area, and more. Each stop would include a conservation message detailed within the brochure.

Bat program

An educational program on the natural history of bats, bat conservation, and keeping bats out of places where they are not wanted would be an ideal follow-up to bat inventory work. Following an indoor talk, we could go outside and use the Anabat detector to hear the otherwise inaudible ultrasonic calls of bats.

Field Day at Highpoint Preserve

We propose to hold a field day for the public and conservancy members. We would have various stations participants could visit to see the topics described in the brochure. A variety of live salamanders and frogs would be present onsite for people to see (in aquariums). The hub of

the field day would be the field with the butterfly garden, where handouts (including the self-guided trail brochure) would be available and where animals would be on display. Activities could include a guided visit to the vernal pools to see amphibian eggs and hands-on activities where participants get to pull out a barberry bush, build a brush pile, or actively engage in other types of conservation-oriented activities. Each participant would receive a checklist of potential activities and sites to visit. Each activity in which the participant engages would earn her/him points toward prizes.

Frog call survey

The frog call survey could serve a dual role of collecting data and engaging/educating the public. Following the evening surveys, participants could gather together to share results.

Green frog with eggs