

PROJECT SUMMARY

The proposed project builds upon the first year's work developing a Chicago Wilderness Land Management Research Program (CWRP). This program emerged as a high priority within the Chicago Wilderness Research Agenda, which identifies critical gaps in our scientific and management knowledge that must be closed over the next decade in order for the CW coalition to move toward realizing its vision of increasing the number of accessible, interconnected, restored, diverse and healthy ecosystems in the greater Chicago metropolitan area. The first year of developing the Chicago Wilderness Land Management Research Program, or CWRP, was made possible by support from the Gaylord and Dorothy Donnelley Foundation with co-sponsorship by Chicago Wilderness and DePaul University. We provide a brief overview of progress to date before giving specific details on the proposed work plan for the next three years.

Progress to Date

During the past year we have been designing a network of over 100 one-hectare research sites across the Chicago Wilderness region. The sites are representative woodland, savanna and prairie habitats, and have been selected along gradients of management effort, from those that are highly degraded, usually due to impacts of invasive species, to mature restoration sites that have been managed for several years. We have also included sites that represent the "highest quality/pristine" habitats in the region as well as some sites of particular interest to the county. This network of sites is the core of CWRP. It will be used to evaluate the effectiveness of biodiversity management practices, allowing us to validate (where appropriate), and improve and invent (where necessary), the most effective restoration practices for the Chicago region.

A novel aspect of CWRP, and its major strength, is an active collaboration between regional managers, volunteer stewards, and research scientists, which will lead both to enhanced land management and improved scientific understanding of basic ecosystem processes related to biodiversity. CWRP is an active collaboration between four county forest preserve districts, CW veteran land stewards, and regional scientists. This regional collaborative approach is rapidly establishing Chicago Wilderness as a model of conservation in a metropolitan context, in which enhancement of regional biodiversity is linked to improved economic vitality and the quality of life for millions of citizens.

We are continuing the process of site selection and description initiated earlier this year. We are refining the choice of certain sites, based upon site visits and consultations with managers, and are incorporating each site into a Geographical Information System. In addition to collating preexisting data for all sites from published literature and land-owner records, we will start evaluating the suitability of a range of ecological criteria, or response variables, to serve as indicators of management success. Variables currently include plant species diversity and relative cover (based upon initial plant inventories), presence of representative ground-active arthropods (based upon pitfall sampling), and key ecosystem processes (decomposition rates, major soil nutrient pools and rates of nutrient cycling). The methods we will use for ecosystem monitoring will be those of the National Science Foundation's Long-Term Ecological Research (LTER) sites and of the Illinois Natural Areas Inventory (allowing us to compare sites in CWRP with other sites throughout the state).

In the past year we have also made substantial progress towards achieving another goal of the Chicago Wilderness Research Agenda, one that is directly related to the aims of CWRP: use of replicated, controlled field experiments to evaluate the effectiveness of alternative restoration techniques. In collaboration with the Mettawa Openlands Project, we are investigating the effectiveness of several methods of restoring soil nutrient balance after the removal of invasive European buckthorn in order to improve the success of subsequent efforts to restore native plant diversity. This field experiment has attracted considerable attention, and we hosted several student projects on this site in 2008. Professors David Wise (University of Illinois at Chicago) and Liam Heneghan (DePaul University) have recently submitted a proposal to the National Science Foundation to continue this research.

Proposed Work Plan for the Next Three Years

We are seeking support in order to consolidate the success of the past year and to extend, and expand, our effort for the next three years. **At the end of the three years we will have the first comprehensive snapshot of the effects of management across a gradient of management practices in woodlands, savannas and prairies.** We intend for this work to continue well beyond this three-year period with

support from several funding sources. With this goal in mind, we will aggressively pursue funding from several different sources. Our specific goals for the next three years are the following:

(1) Analyze the baseline data on response variables (ecological criteria) from the research sites, which will suggest hypotheses about the success of management techniques and serve as a critical foundation for ongoing and future research. Development of a network of sites for long-term observations and research has been called for since the inauguration of Chicago Wilderness.

(2) Conclude the field experiment with the Mettawa Openlands Project study on novel soil restoration techniques, publish the results in the scientific literature, and disseminate the results widely to land managers.

(3) Encourage participation in the CWRP from more agencies, researchers, students, and volunteers. The new sites should serve as a magnet for the research programs of many university scientists and their students throughout the region.

(4) Diversify funding sources. We recognize that continuing a long-term research project such as this one is a burden that should be shared by several funding agencies. We will seek funding from a variety of federal, state and private agencies and organizations.