

Chapter 2

Methodology

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Approaches used to conduct Part II of the LGWR ecological assessment

Part II of the ecological assessment provides additional baseline data and sets up protocols for ongoing monitoring and management of the Refuge. To effectively inventory and monitor a recovering habitat and biodiversity, many forms of expertise and types of projects are required. The Lehigh Gap Nature Center is extremely fortunate to have a wide array of scientists, institutions, and research ideas committed to the goals of this proposal and the restoration and protection of a unique site.

This assessment project was made possible through funding from the Wild Resource Conservation Program (WRCP) of the Pennsylvania Department of Conservation and Natural Resources (DCNR). This is Pennsylvania's biodiversity conservation program that supports the study and conservation of rare species and habitats. A Superfund site that has been converted to a grassland and wildlife refuge is indeed a unique habitat! Part I of the ecological assessment (2007) also identified a number of rare plant species for Pennsylvania.

This state funding was leveraged greatly by support from academic institutions, particularly Moravian

College's Student Opportunities for Academic Research (SOAR) student summer research program, Lehigh University's Lehigh Earth Observatory (LEO) and faculty members from Moravian, Lehigh, and several other institutions. Lehigh Gap Nature Center also dedicated significant staff resources to the project. The grant from WRCP, the previous restoration success at the LGWR, and partnerships with Pennsylvania Audubon and the Lehigh Valley Audubon Society made possible a successful proposal to the Audubon *TogetherGreen* Innovation Grant program to help support the deer exclosure and habitat enhancement projects. In 2008, D. Kunkle was awarded an Audubon *TogetherGreen* Fellowship, the money from which was used to support many of the projects conducted by the LGNC Naturalists Club members and an intern that are included in this report.

Our approach for completing the baseline ecological assessment and develop expanded species databases and mapping collections has been to utilize our network of cooperating researchers along with paid or credit-earning student interns, pre-college student researchers, and citizen science volunteers working under the supervision of the researchers to collect the information and answer the research questions. This is a cost-effective process and has the added benefit of students (graduate or undergraduate) and local community

members being involved in research involving real world problems—a process through which they both learn about ecology and restoration and gain a stronger appreciation for conservation. The researchers have donated their services as an in-kind contribution to the project.

This assessment was conducted by the network of researchers from academic institutions at relatively low cost to the LGNC (with substantial support from the colleges in the form of equipment, consumable supplies, and staffing), and with tremendous educational value to undergraduate interns and graduate students which is another way this project has broader significance. Not only is our approach to restoration a model for others, but also our research and education network can also be emulated.

Numerous individuals, agencies, and organizations outside of academe have partnered with the LGNC to provide their expertise and other resources. Coordinating all of these

people and projects is, of course, a challenge, but without these collaborations, this project could not have come to fruition. The LGNC has developed a strong track record of conservation and restoration work, public outreach and education, and working collaboratively with a number of partners at the local, state and national levels. This is an important model for other conservation and ecological research groups to consider and has been essential to the completion of this assessment project and much of the other work of the organization. A list of the collaborators is included both in the acknowledge section and in Appendix A.

Subsequent chapters describe a range of different types of studies conducted by the various research groups and volunteers. Each research question required unique approaches, so the details of the experimental methodology are provided either in the chapter for that part of the project or in the related appendices.