2009

Gordon Natural Area (GNA) - (2009) - An Ecological Treasure Island in a Sea of Development

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History: Since the GNA was established by the Council of Trustees in 1973, no budget for personnel or management was allocated for this facility until October 2006. Routine maintenance-mowing fields, road upkeep and removal of fallen trees- had been, and are, conducted by Grounds. In all other respects, the GNA had been inadequately managed and was showing significant signs of ecosystem degradation by white-tailed deer, non-native invasive plants, non-native earthworms, excessive storm water discharge into its streams and trail bikers. In 2004 we were awarded a President's Initiative grant to identify threats and put together a science-based management plan. The GNA was divided into several different management areas, and some management objectives were pursued with funding by the Environmental Council (now the Sustainability Advisory Council). From January 2002 until September 2006 activities were undertaken by volunteers under the direction of the Facility Administrator. In October 2006 we were funded (as a pilot project) for the rest of the fiscal year by the ABC. Since then ABC has funded every year except this year when carryover funds will allow us to continue until June 30, 2010. This funding has allowed the GNA to prosper-more students, faculty, staff and neighbors use the area; more volunteers contribute their time; forest restoration and control of non-native plants is well underway, a number of new research programs have been initiated; and all are much more aware of the treasure we have.

Mission: The GNA is an ecological treasure island in a sea of development with a mission to preserve native biodiversity while serving as a natural laboratory for teaching and research in the environmental sciences. In its natural state it serves as the last public land link to Penn's Woods on our campus. The University community and interested publics have come to cherish this treasure. Furthermore, it stands as a monument to WCU's stewardship of the environment and our commitment to a sustainable future. To assure that this property maintains its ecological integrity will always take more than volunteer efforts and minimal Grounds maintenance support.

Project objectives: Our goal is to enhance the ability of the GNA to fulfill its mission. To achieve this we will need to deal aggressively with the threats mentioned above, restore areas of the GNA that have become degraded in the last 35 years, and regulate the expanding utilization of the GNA by classes, researchers and our local community. All of these efforts will be coordinated by the current GNA Stewardship Manager, Dr. Gerard D. Hertel, who will continue in this capacity through June 2010. Dr. Hertel came to WCU after a 34 year career with the Forest Service in the US Department of Agriculture. As an Adjunct Professor in WCU's Department of Biology and Assistant Facility Administrator for the GNA, he has been actively

involved in the GNA for many years. He spent four years as a volunteer doing an assortment of activities and has spent the last 3+ years (October 2006 through January 2010) administering the ABC pilot projects.

By all measures, the pilot project has been successful beyond our original expectations. In summary, with Dr. Hertel serving as our Stewardship Manager we have a steady flow of grants, a volunteer base of 70 folks, an increased awareness of the benefits of the GNA by the university community, our neighbors and interested publics. Some of the non-native invasive plants species have been dealt with successfully by mechanical means and a biological control effort began in 2009 with the University of Delaware and in 2010 with Penn State University. A major forest restoration program began in 2008. These accomplishments clearly demonstrate how critical the continuation of our Stewardship Manager position is.

The Stewardship Manager is responsible for the implementation of our science-based stewardship management plan with the assistance from students hired from many disciplines across campus. Dr Hertel will:

1. Coordinate and monitor all teaching, research and funding activities of the GNA. These include our computerized GIS (Geographic Information System) database of maps, all classroom exercises, all research projects, all funding requests.
2. Coordinate and supervise all community outreach programs in the GNA.
3. Collaborate with Public Safety and Grounds to ensure protection of the students, faculty and public users.
4. Collaborate with Public Relations to ensure WCU and local community receives accurate and timely information about relevant events and activities.
5. Collaborate with the Office of Development to secure funds for the GNA
6. Update the WCU Community on activities in the GNA and progress made in our management efforts.
7.

Centrality to WCU's mission. Located in one of the most prosperous and dynamic parts of this country, WCU is now providing a regional model for excellence in the protection and management of natural areas. The GNA is an outdoor classroom where land use/environmental problems can be viewed, researched, discussed and solutions debated and implemented; thus making it an outstanding resource for our students, alumni, and citizens of southeastern Pennsylvania. For our students, their experiences in the GNA are preparing them to connect with the real world and acquire the skills they will need to meet the challenges of global climate change the world now faces.

Centrality to WCU's values. The GNA provides members of the University community with opportunities for learning and leadership development as we deal with some of the most pressing environmental issues of our times - urban sprawl, stormwater management, loss of native biodiversity, and global climate change. These interdisciplinary GNA experiences provide the perfect context for teaching students to think clearly and critically, to make logical and ethical judgments, and to communicate effectively with others. Thus, we believe that the educational

and research opportunities provided by having our own well-managed natural area on campus will enable the University community to successfully address the concerns of local, regional and global societies.

Relationships to the Plan for Excellence transformations. (1) **Responsiveness**: WCU should "encourage environmental awareness through training, curricula, and co-curricula programming, assess and reduce the ecological impact of the University, and promote research and service that foster regional and global sustainability." A well-managed GNA that fulfills its mission will support this transformation by providing an outdoor classroom in environmental studies and sustainability. Its demonstration research projects on proper management techniques are open to the public and provide a template for preservation of our natural heritage. (2) **Student success**: students will have the opportunity to participate in a real-world land use decision making processes as part of their educational experience. Theory from text books is translated into practice, with results (a sustainable GNA) that are concrete and benefit the university and its neighbors. (3) **Human capital**: We are applying the most innovative, state-of-the-art technologies in our efforts to study and improve the GNA. This has been a challenging professional development opportunity for the interdisciplinary team of faculty and staff we have assembled, as we learn to employ GIS (geographic information systems), data-logging environmental sensors, GPS (global positioning systems), etc. (4) **Resourcefulness**: In the last few years, the amount of external support for the GNA has increased dramatically. This support takes many forms, including community volunteers to help with maintenance, donations from local vendors to support our community volunteers, expertise shared with us from our outside agency partners, and external grants and awards to fund research and management. In recent years faculty have secured $42,000 in external funding to support activities in the GNA. As discussed above, one of the primary responsibilities of the Stewardship Manager is to promote the acquisition of external grants and gifts, and such efforts will be increased in the near future. Our first new initiative is to work with the Development Office to identify and cultivate potential donors to support the most urgent management projects for the GNA.

Presidential Initiatives 2009–2010-- Enable WCU to achieve national and global recognition as a leader in the implementation of green technologies, in sustainable energy, and in the reduction of our carbon footprint.—the GNA plays an important role in sequestering and storing carbon. This capacity to store carbon will continue to increase as we expand our reforestation program.

Lasting benefit for WCU. If the GNA is properly cared for, it will outlast all of the human-made facilities on campus. The GNA will serve the needs of WCU and our community for generations to come.

Education

Classes:-22 classes from 7 departments

Annual seminar:-every year in April

Research

Grants: USDA Forest Service ($10,000)-one year grant to enhance and maintain the restoration project and deer/non-native invasive plant interaction study and to maintain the GNA web page was completed January 2010.

Student research (undergrad & grad)

Tesoriero, Kim 2009. The Effects of Deer and Non-native Invasive Plants on Native Plants: Demonstration Area in the Gordon Natural Area on the Campus of West Chester University of Pennsylvania, West Chester, Chester County: base-line plant data. Masters of Science.

Clay, Steven 2007- present. MS Thesis project investigating new methodologies for monitoring salamander populations as environmental indicators of the Gordon Natural Area.

Schneider, Marie. 2009. Undergraduate independent study: Using coverboards to monitor invasive earthworm populations in the Gordon Natural Area.

Nagle, Carly 2009. Analysis of Forest Health in the Robert B. Gordon Natural Area, West Chester University, Chester County Pennsylvania (2001/2-2009). First draft of paper

Adaptive management: Released weevil (in partnership with the University of Delaware) for biological control of mile-a-minute vine (non-native invasive plant)

Publication: Turner, G.D., Robin Van Meter, G.D. Hertel. 2007. Changes in forest understory composition from 1970 to 2003 at the Gordon Natural Area, an Urban Preserve in Chester County, Pennsylvania. Journal of the Pennsylvania Academy of Science 8: 8-13.

Permanent Plot System:

Overlease plots-16-established in 1969

Forest health monitoring plots-18-established in 2003

Carbon plots-5-established in 2009

Protecting Biodiversity:

Planted additional trees and maintained (tree tubes) existing trees in restoration project supported by the USDA Forest Service grant

Website: (www.gordonarea.org)

Maintained and updated site with funds from the USDA Forest Service grant

Spinoffs:

Outdoor Classroom

Arranged dedication of first outdoor classroom by Dr Weisenstein during Earth Week-2009

Highlighted as a success story by Audubon Pennsylvania (http://pa.audubon.org/habitat/SuccessStories.html)

Assisted with an Honors Cap Stone project: project "CREATING AN OUTDOOR CLASSROOM: A comprehensive guide to establishing and maintaining an outdoor classroom for educational and recreational purposes' by Erika Szonntag December 2009/

Outdoor Garden

Worked with Dr Gange to get an area next to the Outdoor Classroom designated as the outdoor garden

Honors 314 "Science, Technology & Environmental Systems" will design, construct and plant the new beds. A composter is already in place.

Earth Week 2010

Chair of Earth Week Committee-students, faculty & staff

Research Consortium

GNA had three posters for Research Day

Worked with Research Consortium and the Chester Co Intermediate unit to have three winners from the Science Fair display at our Research Day

Chester Co. Intermediate Unit

Judged the high school Biology Section for science fair day

East Goshen Township

Provided technical assistance for the Deer Management Committee

Provided technical advice for their __acre forest restoration project on Paoli Pike. Worked with a graduate student to measure (diameters and heights) of 220 trees and worked with a team of students from Geography Field Methods course to GPS tree locations and report on future carbon storage potential.

Sustainability Advisory Council-active member

Wellness Fair-provide a get outdoors and walk in the GNA display

Partnerships:

Environmental Resources Management: working with technical specialists to solve white-tailed deer problem. We estimated we have 81 deer that use the Gordon Area-there should be about 6-8 to maintain biodiversity.

Natural Lands Trust: working with technical specialists to figure out how to put this land in a permanent protection

Ecological Benefits

contribution to lowering WCU carbon footprint via carbon sequestration

protection of the high-quality tributary to Plum Run

providing habitats for many living things

Budget ($45,000 [26,200 salary & benefits])

Item	Cost
Student Salaries	4,000
Mileage	2,000
Supplies	1,000
Student Research	3,000
Trees/protectors	2,000
Volunteer Support	2,000
Bridge design & construction	4,800

Total Operating	18,800