ACS Interim Report for Interdisciplinary Grant received October 6, 2006.

Ecological Restoration: Cultivating the "Civilized Landscape" in the Liberal Arts.

Submitted by Bruce Stephenson June 6, 2007

Project Summary

In 2002, Rollins faculty joined with the Morse-Genius Foundation to develop a management plan for Genius Reserve, a largely undeveloped 50-acre agricultural and natural landscape near campus. Utilizing the University of Wisconsin Arboretum (the nation's longest on-going ecological restoration project) as a model, faculty drafted a conceptual restoration plan. An interdisciplinary team then inventoried and "envisioned" the reserve, incorporating this exercise into five ES courses. The outcome was a management plan with the goal of "providing a working laboratory in ecological restoration."

The plan delineated areas dominated by exotic canopies, which were slated for restoration over a 10-year period. This project was integrated into the ES curriculum with a senior capstone course. This grant expanded the project's scope to other disciplines, funded the creation of a student-driven *Genius Reserve Field Guide*, advanced the liberal arts to the wider community, and funded a website. Rollins faculty also used their interdisciplinary deliberations to draw up a Florida Studies initiative and will present it as part of the college's ongoing curriculum reform. Finally, faculty plan on presenting a daylong colloquy, "*The Future is Florida*: Liberal Arts Education and Citizenship in a Bellwether State" next spring.

A common focus for this endeavor is Aldo Leopold's notion of a "land ethic" and a "natural esthetic;" integral not only to ecological restoration but a wide range of disciplines. The ACS grant improved faculty's ability to reveal the ties between ethical behavior and ecological processes by helping students see the world anew, and working with them to develop an eye to restore. For a generation suffering from an "Environmental Deficit Disorder," getting undergraduates to understand the integrity of nature's evolutionary heritage and the makeup of a healthy natural system offers a tested antidote to an increasingly common affliction.

ASSESSMENT OF PROJECT GOALS:

 # 1 Invigorate an earlier generation's pragmatic vision by integrating ecological restoration into the liberal arts.

The six professors involved in this grant utilized the works of Aldo Leopold and Marjorie Rawlings as they have been integral to the land restoration program at the 50-acre Genius Reserve in Winter Park, Florida. The Genius Reserve was the linchpin of this interdisciplinary grant, and the restoration of this property steeped in "Old Florida" has drawn its inspiration from Leopold's pioneering work at the University of Wisconsin Arboretum and Rawlings timeless classic, *Cross Creek.* In 1953, Jim Forsyth, a local reporter, wrote of his visit to the Genius Reserve: "I poked around in the jungle clearing, thoroughly enjoying myself and thing to leave…I had discovered *Cross Creek*, romantic old Florida, ancient trees, jungle quietude." This quote introduces the *Genius Reserve Guidebook*, which the grant funded. The rural and natural splendor that Rawlings described – has provided a context for a landscape restoration that has included planting the species (from orange to magnolia trees) that Rawlings adored. *Cross Creek* also provided the context for the landscape design for the Ward House, a restored 1883 gem of vernacular architecture, which was completed this Spring. Student and Faculty powerpoints presenting the ideas of Leopold and Rawlings as they relate to the Genius Reserve are attached and will appear on the Genius Reserve website.

On April 10th, before a crowd of 200, prize-winning author Bill Belleville unveiled footage from a new Marjorie Rawlings documentary that focuses on her travels on the St. Johns River. Belleville, who has written extensively about the river's natural history, discussed how the waterway shaped Rawlings and her works, linking the natural world with that of literature and art. Rollins instructor Leslie Poole, also a member of the documentary team, discussed how she used Rawlings in her environmental studies classes. As a window into the past, Rawlings paints a picture of lush natural splendor that is fading quickly in the face of a booming population and resultant development. Students often feel a kindred spirit with Rawlings' works and use it to

assess the current state of Florida's environmental quality. This presentation not only helped highlight the work on the Genius Reserve, it provided new insights into the grant funded trips students took to analyze, study, and interpret "Wild Florida."

#2 *Train students in ecological restoration and land management*

During the spring term 2007 (Jan. 17 to May 1) faculty proceeded with a variety of projects. Grant funding was used to visit Goethe State Forest, until recently the largest natural land acquisition project (20,000 acres) in Florida and an important restoration site. It has become home for endangered red-cockaded woodpecker, and its vast stands of long leaf pine are the product of a model program in prescribed burning and selective logging. Students were able to take these lessons back to campus, and examine how controlled burns or an alternative could be pursued in an urban environment. A faculty-student visit to the University of Wisconsin Arboretum looked at the same management techniques, which have been on-going for decades and are integral to the nation's longest on going ecological restoration project. Information gleaned from the trip were integrated into a faculty-student presentation at the Rollins *Transformative Education Summit* on April 20th and will be on the website.

In an entry-level Biology class, the restoration work on the Genius Reserve introduced students to basic concepts in environmental science. Students focused on plant biology at the site, and the grant funded additional field excursions to study major plant communities in Central Florida's terrestrial ecosystems. Coming back to the Genius Reserve, they had a better understanding of the planting regimen underlying restoration efforts.

Students from English, Philosophy, Environmental Studies, and Biology also participated in a series of work days on the Reserve: two hundred live oaks and pignut hickory sprigs were potted, three acres of restored habitat weeded, and eighty mostly native trees and shrubs were planted to restore a historic garden that had fallen into disrepair after Hurricane Charlie (2004). A group of students from an ethics course in Philosophy also based their required service

learning projects on work they engaged at the Genius Reserve. It also provided the setting for these ten students (half the class) to address the ethics of restoration in a required discussion with the professor. Their research project for the class also incorporated their hands-on site work and was built into a presentation for students at the nearby Ferncreek Elementary school, with the aim of familiarizing the younger children with the Reserve and getting them to think about their relationship with the environment.

 # 3 Utilize the grant as a catalyst to include the disciplines of Biology, English, and Philosophy and serve as the catalyst for creating a Florida Studies concentration.

Rollins is currently undergoing curriculum reform, and the faulty involved thought a series of courses taught on a common theme might offer a new model for meeting general education requirements in an inter-disciplinary fashion. The following proposal was the outcome of this grant.

Florida Studies; Rollins College

Florida provides a wealth of educational opportunities for students in multiple disciplines. Florida possess unique characteristics that differentiate it from every other state in the union, yet at the same time issues that Florida faces today and, has faced in its past, are broadly applicable in a global setting. Indeed, Florida may be viewed as a bellwether state, in that challenges confronting Florida today will be elsewhere in the United States in the future.

The Following are five major subject areas that we believe are essential to any Florida Studies initiative adopted by Rollins College (letters in parentheses represent general education requirements).

1. Conservation of Florida Ecosystems

Across the earth at the 27th parallel the land is desert, except in Florida. Here is a unique ecosystem defined by an abundance of water, which defines the state's environment and politics.

Bio 109 Wild Florida (O/N)
Bio 119 Conservation of Florida's Freshwater Ecosystems (O/N)
Bio 320 Medicinal Botany

Bio 330 Field Botany and Florida Ecosystems
Bio 316 Ecology
Env 325 Florida Natural Habitats

2. Art, Literature, and Culture. Florida has established a rich history in the arts and since arrival of the first Spanish colonists has encapsulated all of the major social and historical trends that have been faced in the western hemisphere since 1492.

ENV 209 Environmental Literature
ENV 315 Cultivating Wildness, the Art of Landscape Design and Restoration (potential A)
PHI 108 Ethics (V)
PHI 240 Evolution + Law (V)
PHI 302 American Philosophy (V)
PHI 309 Environmental Ethics (V)
ENG Visions of Paradise
ENG 235 Poetry of Earth and the Songs of Florida (V/L)
ENG 277 Writing in the Community
ENG 241 Film and Literature (L)

3. Growth Management and Sustainability. Florida faces a population explosion that surpasses global rates. How Florida manages its growth has implications for the rest of the U.S.A. as seen in the Everglades restoration, and equally so as Global Warming becomes a reality..

ENV 389 Environmental Planning
ENV 289 Nature in the City (S)
PO 327 Urban Policy Analysis (S)
PO 361 Urban Politics (S)
PO 481 Seminar in American Politics; Disney's World

4. Melting Pot Politics: As part of its population growth Florida finds itself on the cutting edge of the changing demographics in the United States. Florida faces issues with immigration, migrant labor, education, and politics that have wider implications for the rest of the United States.
POL XXX Florida Politics (Proposed)
HIS 370 Race and Ethnicity in United States (D)
HI 330 Urban America (D)

5. Capstone/Practicum: Provides a pragmatic, applied study to conclude the Florida Experience. It offers the hope of consilience, tying varied disciplines into a logical and coherent expression of an issue pertinent to Florida and global citizenship.

In addition, this grant produced the idea for a two day colloquy devoted to Florida and the Liberal Arts, entitled: *The Future is Florida*: Liberal Arts Education and Citizenship in a Bellwether State. The agenda is based on the above categories, and the hope is that leading experts in the field will serve on panels to discuss the following:

The future is Florida. After a half-century of explosive growth, the problems and potential of the human experience are being worked out in Florida. The state has much to teach, but what should be taught? How can the liberal arts prepare a generation of civic leaders that can serve both Florida and the wider world?

#4 *Faculty to plan and execute the teaching of ten linked courses for the 2007 Winter and Spring terms.*

A common framework for both the intersession and the spring semesters was a series of studies presenting a new vision to control growth and conserve wilderness habitat in central Florida: The Naturally Central Florida Plan and the Florida 2050 Project.

The best interdisciplinary experience was realized during the Intersession period when classes had the most interaction: shared planting day at Genius Reserve, shared field trips, and a shared viewing of *Sunshine State*. These courses (*Icons in Paradise, Wild Florida, Experiencing Wild Florida*, and *Florida in Film*) were the only ones students were taking and there was a flexibility to focus on a common theme and bring students together on a series of common tasks. Student feedback from the Intersession courses was of immediate use for establishing the types of courses that should be incorporated into Florida Studies.

The Spring Term had the advantage of utilizing common texts over a longer period, a series of field trips to the Genius Reserve, and the opportunity for students to craft a meaningful project. While the Genius Reserve Field Guide brought much of this together, it was more difficult to have a common experience and wide group interaction as experienced in the one-week intercession. In the future we anticipate offering courses with a required Saturday component to enhance the interdisciplinary dynamic.

#5 *improve faculty's ability to reveal the ties between ethical behavior and ecological processes by helping students see the world anew, and working with them to develop an eye to restore.*

Medicinal Botany students visited the Genius Reserve as part of its section on native plants used in healing and conservation. Students were able to observe the restoration results and discussed the fact that conservation of medicinal plants is also important in the United States. They had also read several chapters of *Cross Creek* before the visit and used it as way of

imagining what it was like living in Florida in the 1930's. In the site tour, students commented on the peaceful presence and rhythm of a landscape set to agriculture. Medicinal Botany, of course, is a form of agriculture and many species Rawlings used were also on the Genius Reserve. Moreover, the site offered the opportunity for students to envision their own medicinal garden and, as part of the course, an area of partial sun near a live oak restoration segment was deemed most appropriate. Students also researched possible native additions to the landscape of medicinal plants including trees, shrubs, and herbaceous plants. A list of possible Florida native plants with medicinal properties existing on site from which seeds could be extracted for planting are listed below:

	Common name	**Scientific name**	**Medicinal property**
Trees	Sweetgum	*Liquidambar styraciflua*	gum from bark for Sore throat, skin sores
	Witch Hazel	*Hamamelis virginiana*	skin astringent
	Dogwood	*Cornus florida*	roots for fever skin aliments
Shrubs	Wax myrtle	*Myrica cerifera*	Repels insects, many reported med uses but carcinogenic
	Elderberry	*Sambucus nigra*	colds and flus
	Saw palmetto	*Serenoa repens*	reduce prostate enlargement
Herbaceous	Horsemint	*Monarda punctata*	leaf tea several uses
	Pleurisy root	*Asclepias tuberosa*	pleurisy toxic large quantity
	Virginia snakeroot	*Aristolochia serpentaria*	roots used, may be toxic
	Poke weed	*Phytolacca Americana*	research as antiviral
	Geranium	*Geranium maculatrum*	rhizome several uses
	Pennyroyal	*Hedeoma pulegoides*	insect repellent
	Purple coneflower	*Echinaceae purpurea*	Immune stimulant

The Genus Reserve also proved essential for seeing the world anew for an Environmental Studies class, Nature in the City. Students were required to analyze three contiguous landscapes: a common postwar subdivision, the Genius Reserve, and a New Urbanist project (Baldwin Park).

By understanding the basis of the still intact native habitats on the Reserve, they could better assess the meager remnant native species in the subdivision and the quality of the large-scale native plantings in Baldwin Park. This study was also an important introduction to urban ecology, as members of the fox colony on the Reserve were also seen in Baldwin Park. This provided an opportunity for students to better understand the relationship between the make up of a habitat and its ability to support wildlife—even in an highly urbanized area.

Perhaps the most innovative and life-learning experience was produced in the English Course, "Poetry of Earth and Songs of Florida." Imagine what it would be like if you had binoculars for your ears, a magnifier that would give your hearing the 8-10 power advantage of a pair of binoculars or the 200 power advantage of a birding scope. With this grant, the technology was acquired to magnify the poliphony an owl hears up to 800 feet away. The following is an excerpt from Steve Phelan's account of how he and his students tuned into nature:

At 6:00 a.m. Alex, Kelsey, Jess, and I tumble out of my car, enter the Genius Reserve, and head down the sandy road toward the orange grove. Even as we gear up, the cardinals have stared their dawn song, and all of us can hear one or tow of them. Alex has the Sony recorder in his left hand, hold his giant 13" metallic ear in his right, and turns the mike and recorder buttons on.

"Wow, I can hear everything at once," he says with a big smile. *Everything* means first of al, a web of cardinal calls of various magnitudes across the preserve and the nearby Windsong subdivision. Each cardinal's territory is defined by its central caller and the circle of rival neighbors. Imagine being the female that gets to ride through that party and find the finest crooner. It's a seasonal, poetry-of-earth contest.

Other birds and some crickets are also within his parabola, even thought it's still quite early and for the naked ear not much is happening. Alex is also hearing his clothing that scrapes up against the parabola, traffic along Aloma Avenue a mile away, the rustle of feet as we walk and leaves crunching underneath, and any word that is whispered in our group of four. For a generation that loves its iPOD world of music, this natural show is ear-opening. As each student tries on the earphones, the amazement is palpable, a muffler is being lifted, and a new world discovered.

We located the sounds in terms of the ecology of the habitat, from water, bush, canopy, mid-tree, and ground. A loud rustle along the left side of the road turns out to be an armadillo that diapers so quickly before we make out what it is that we don't get the recording.

The trick with teaching wildlife or field ecology is to get students to see what is not there, but operating all the time. The bird songs are magnified can be aimed like a gun and pinpoint locations in the dark, blocking out any intruding sounds directly in the rear-song mirror. It

captures populations of species in consort as we walk along the waterfront of Lake Virginia where a dense clump of reeds hides anything from view, day or night, in this natural auditorium.

Three teams of students got to gather the sounds of the Genius Reserve, record their time and place, edit those recordings to isolated the most common species of the site, and put them into electronic products for the education of future classes. Using a bird list complied by three Audubon experts along with the Raven software form the Cornell Laboratory of Ornithology, they were able to do elementary bioacoustics research and create PowerPoint presentations that introduce the songs of Florida that are unique to the Genius Reserve.

The most important and exciting sound we got was of the red ("Rollins") fox. Each year a spontaneous free day is secretly declared by the President (at 6 a.m. on an April morning) when he puts out on the Mill lawn, under the flagpole, a statue of a gentleman fox. This practice has an ecological history since it was founded by Hugh McKean, the former President of the College, who lived in the estate sited on the Genius Reserve. The red fox population is still thriving there, as is the time-honored tradition it inspired.

All three teams of recorders saw foxes in the early morning, but one team had the good fortune to actually get a recording from a distance of fifty years, through ground cover, of first one, then two foxes barking. This call of the wild, smack dab in the middle of urban Orlando, is a reminder to the all who hear the importance of wildlife and its habitat to the poetry of the earth. In their final examination essays on the effects of this project on their General Education, it was universally agreed that America's great nature poetry began to make much more sense to the students when they turned on their giant ecological ears.

ANY CHANGES MADE IN GOALS/OBJECTIVES TO DATE

After drawing up the list of courses for a Florida Studies curriculum and the positive experience of the college's Colloquy on the Liberal Arts (which was tied to curriculum reform), the grantees decided to host: *The Future is Florida*: Liberal Arts Education and Citizenship in a Bellwether State. The college will fund filmmaker Victor Nunez as part of this effort, and Dr. Cummings was hoping to allocate her remaining grant funds to this initiative. In addition, funds remaining from Dr. Paul Stephenson and workshop seed money will go to the same source. Funds remaining from Dr. Schmalstig will be used to print copies of the *Genius Reserve Field Guide.*

Grant funds for Dr. Musgrave will be used as followed: a small research library on Environmental Ethics resources to be kept in the French House commons (the Philosophy building). So that students can also bring images of the reserve & short movies to groups when they do future presentations, an inexpensive

camera/video recorder will be part of the library and available for class projects to check out. Some groups wanted to do web pages (including images & video snippets) on the project, and this will facilitate that further step. A small stipend will be set aside for a speaker on Environmental Ethics as well.

$400 camera/video cam to record time/events at Genius Reserve
$300 books & materials on environmental ethics
$300 for a speaker

ACTIVITES UNDERWAY AND COMPLETED TO DATE

1. Field Trips tied to the following courses: *Wild Florida, Experiencing Wild Florida, Florida in Film, Senior Project: Environmental Studies* and to the University of Wisconsin Arboretum.
2. Completion of nature audio recording project.
3. Completion (still fine tuning) of website: http://www.apheliondesigns.com/Genius
4. Completion of draft (70-page) *Genius Reserve Field Guide*

ANY SNAGS OR UNANTICIPATED DELAYS ENCOUNTERED

1. The website and *Genius Reserve Field Guide* are currently undergoing their final revisions (which includes the Morse-Genius Foundation)
2. Printing the *Genius Reserve Field Guide* will proceed by the end of June as should the incorporation of materials on the web page

APPROVED BUDGET - $8500.00

Web Portal (Student hours at $7.40 an hour) overseen by Miller/Zhang	$1250
GRFC Compilation and stipend for B. Stephenson	$ 750
Marjorie Rawlings Documentary and Panel Discussion with Filmmakers	$500
B. Stephenson (Student Travel $150, Eqip.$200, Travel to UWA $650)	$1000
P. Stephenson (Student Travel)	$1000
J. Schmalstig (Student Travel)	$ 500
D. Cummings (Student Travel/Filmaker Speaking Fee)	$1000
R. Musgrave ($500 student travel, $250 student Genius Res. library)	$1000
S. Phelan (bioacustic equipment and software)	$1000
Workshop Seed Money	$500

	Funds Spent	Funds approved	Fund Balances left
Paul Stephenson - van rental. Winter intersession class - Blue Springs, Indian & Banana Rivers, Genius Reserve. Spring semester - travel and gas receipts for travel to local state parks.	$607.94	$1,000.00	$392.06
Denise Cummings - van rental Winter intersession class - Blue Springs, Indian & Banana Rivers, Genius Reserve. Florida books - The Swamp, Paradise Lost, Losing it all to Sprawl, state library and archives of Florida, Bullfrog film rentals	$445.36	$1,000.00	$554.64
Steve Phelan - bird/animal sound recording equipment	$1,000.00	$1,000.00	$0.00
Bruce Stephenson - Senior Seminar to Cedar Key and Goethe State Park. Bruce with Env. Studies Senior Scott Bianconi - Madison Wisconsin trip for research at University and Arboretum	$1,000.85	$1,000.00	-$0.85
Stipend for Genius Reserve Guidebook	$750.00	$750.00	$0.00
Equinox Documentaries - Honoraria for presentation of Marjorie Rawlings Documentary April 10th	$500.00	$500.00	$0.00
Ryan Musgrave		$1000.00	$1000.00
Judy Schmalstig		$500.00	$500.00
Web Portal		$1,250.00	$1,250.00
Workshop Seed Money		$500.00	$500.00
	$4,304.15	**$8,250.00**	**$4,195.85**