

**Final Report for:  
The Santa Fe River and Poe Springs Park Riparian  
Restoration Project**

**June, 2005**



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## Final Reporting Form for Five Star Projects FY2004

**Grantee:** Alachua County Board of Commissioners on behalf of  
The Alachua County Environmental Protection Dept.

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**Project Location:** Poe Springs State Park

**Project Title:** The Santa Fe River and Poe Springs Riparian Restoration Project

**Project Start Date:** 10/12/2004\*\*      **Project End Date:** 6/30/2005

**Grant Amount:** \$ 11,300.00      **Grant Match (in-kind & cash):** \$ 49,022.00

**Amount Requested:** \$ 11,296.00

The CD included with this report contains:

- Articles about the Project
- Photographs
- Site Plans for the three sites, and
- Copies of Correspondence on the Success of the Project
- Workshop Announcement Flier
- Signage Design Templates

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### **The Santa Fe and Poe Springs Riparian Restoration Project (Poe Springs Park Riverfront Restoration Project)**

#### **1. Project Summary**

The Alachua County Environmental Protection Department (ACEPD) wanted to alert citizens to the consequences of shoreline habitat destruction and raise awareness to the important role played by riparian zones vegetated with native species in healthy aquatic ecosystems. ACEPD also found itself in need of citizen assistance to preserve and restore riparian zones in order to ensure our waterways and their accompanying riparian corridors remain healthy, functioning ecosystems. Due to a lack of public understanding of the issue, the citizens were in need of education to assist in restoration activities. To highlight these concerns and demonstrate shoreline restoration techniques, ACEPD had wanted to restore selected sections of the waterfront at Poe Springs Park on the Santa Fe River. Restoration of this site has provided a number of direct ecological benefits, but it has also provided an example of environmentally responsible shoreline management along riparian corridors, common in the surrounding communities and the entire North Central Florida region. The goal of the restoration and workshop was to combine on-the-ground restoration work with classroom time in a workshop targeting a variety of groups as well as the general public. The intent of the project was to foster future restoration in other locations around the region, raise awareness among our citizens about the need for healthy riparian ecosystems, and provide the education and hands-on experience of restoration methods for others to use in their professional and personal endeavors. By using the methods stated, the ACEPD hopes the trend of natural shoreline destruction has begun to reverse.

**II. Project Partners and Funding**  
*Partners and Partner Contribution*

<u><b>Project Partner and Description</b></u>	<u><b>Project Contribution</b></u>	<u><b>In-kind or cash Contributions</b></u>
1. Alachua County, Environmental Protection Department	Planning and coordination of the restorations and workshops; Materials needed for restoration and workshops; and Lunches and snacks for attendees	\$ 7,949 in-kind <u>3,242 cash</u> \$ 11,191 total contribution
2. University of Florida Institute of Food & Agricultural Sciences, Cooperative Extension Service (UF/IFAS)	Curriculum development and presentation; direction of the hands-on restoration activity	\$ 2,250 in-kind
3. Current Problems, Inc A nonprofit environmental stewardship organization	Aquatic plants Photo documentation Shovels, hose Staff time	\$ 2,330 in-kind
4. Alachua County Public Works Department	Plants, mulch, and Staff time	\$ 3,620 in-kind
5. North Central Florida YMCA	Staff time to assist conducting of the Workshops; Facility rent; and Admission waivers	\$ 5,700 in-kind
6. Florida Department of Environmental Protection (FDEP), Bureau of Invasive Plant Management	Permitting fees; Fact sheets	\$ 200 in-kind
7. FDEP, Florida Springs Initiative	Bank Stabilization; Access stairway to main spring run and plants around stairway	\$ 16,695 cash
8. Workshop Participants -- state and local agency staff, engineers, park personnel, landscapers, business owners, contractors, extension agents, waterfront property owners, and interested citizens	Restoration labor	\$ 7,036 in-kind
<b>TOTAL IN-KIND AND CASH CONTRIBUTIONS</b>	<b>In-kind:       \$ 29,085.00</b> <b>Cash:           \$ 19,927.00</b>	<b>\$ 49,022.00</b>

**Partner Roles**

Alachua County Environmental Protection Department

The Alachua County Environmental Protection Department served as the lead agency in the planning of all aspects of the restoration project and approved the final plan. The expertise of staff biologists and environmental scientists assisted with plant selection/location and soil stabilization and with invasive pest plant identification and recommendations for best methods of removal. ACEPD provided lunch for workshop attendees as well. ACEPD shared in the cost of signage and plans to fund development of a brochure explaining the restoration.

University of Florida Institute of Food & Agricultural Sciences Cooperative Extension Service (UF/IFAS)

UF/IFAS Extension Specialist for Wetlands and Water Quality, Dr. Mark Clark, conducted the workshops and provided expertise for on-the-ground restoration work and continues to be a conduit for information dissemination throughout the state.

Current Problems, Inc

Current Problems, Inc. served as the project coordinator and was actively involved in the planning. Tasks such as registration, publicity, assembly of informational packet, necessary arrangements with park staff and county Public Works, sign design and production, and various other tasks were handled by the organization. Current Problems, Inc. also provided littoral plants, photo documentation of the Poe Springs Project, and assisted with the writing of this report.

Alachua County Public Works Department

Public Works provided the project with plants for the restoration project along with the site to be restored. The department also provided facilities for training purposes and waived admission to the park for all workshop attendees. In addition, Public Works will be providing management of the restored areas (removal of exotics, maintenance of the native plants, and protection for the planted areas) and will be responsible for the upkeep of interpretive signs.

North Central Florida YMCA

The YMCA is contracted by Public Works for the operation of Poe Springs Park, which includes program work along with the day to day upkeep of the park. The YMCA provided training facilities at no charge and waived admission fees for participants. Throughout the project, staff assisted with many aspects of preparing for and conducting the workshops. Upon completion of the project, the staff will remain responsible for tasks such as manual invasive plant control, watering of plants as needed, and prevention of damage from visitor activities. The YMCA also contributes to the long-term education value of the project by conducting or hosting many environmental education programs and activities in the park throughout the year.

Bureau of Invasive Plant Management, Florida Department of Environmental Protection

The Bureau of Invasive Plant Management contributed fact sheets regarding invasive plant species with which we are concerned in this project and other pest plants in the state. The Bureau permitted the invasive exotic aquatic plant removal needed and aquatic planting. The Bureau also provided advice regarding invasive plant removal techniques and plant species choice.

Florida Springs Initiative, Florida Department of Environmental Protection

The Florida Springs Initiative provided funding for the construction of an access stairway along the main spring run that was seriously needed to stem erosion from visitors entering and exiting the run along the bank. The Springs Initiative did not provide funds for signage or a brochure explaining the restoration project and its benefits to the Santa Fe River and its many springs, as was originally hoped. Both of these items were funded or are being funded by ACEPD.

Workshop Participants

Labor for the restoration was provided by participants through the experiential component of the workshop.

### **Funding and Resources**

1. Florida Springs Initiative – provided funding for the construction of a much needed access stairway and bank stabilization along the main spring run to stem erosion caused by visitor traffic up and down the bank.
2. Southwest Florida Water Management District – publication for packet
3. FDEP – publication for packet
4. United States Department of Agriculture – invasive plant CD for packet
5. IFAS – technical material and CD's

Comments: The Springs Initiative funds were formally applied for with a proposal. The educational items were obtained simply by request.

### **III. Project Implementation and Results**

#### **Restoration Work and Ecological Benefits**

- Restoration work hours completed: 603 hours
- Improved wildlife habitat – especially for beaver, who found the new trees to his liking during the spring flooding; shade, cover, future nesting spots, invasives removed and will be controlled, cooler water temperature in small spring run, fish nursery habitat, etc
- Erosion control – erosion problem areas along the river bank and main spring run were brought under control, preventing further erosion as well as allowing sediment accretion to rebuild the eroded areas
- Wetland acres restored  
site #1 = .59 acre, site #2 = 1.21 acre, site #3 = .31 acre;  
total = 1.21 acres restored
- Stream channel feet improved  
site #1 = 430 ft, site #2 = 385 ft, site #3 = 574 ft  
total = 1389 linear feet of stream channel improved
- 1465 plants were planted at the three sites.  
site #1 = 378 plants, site #2 = 665 plants, Site #3 = 422  
total plants – 1465 (900 herbaceous aquatic, 343 shrubs, 300 trees, 100 cuttings)

Note: Not enough time has gone by to evaluate erosion control efforts or determine accretion of sediments in eroding locations. The same is true for the invasive plant control hoped for after the addition of plants that will help to shade them out. The spring flooding has changed the picture in several ways and slowed the growth of many plants. Waters have receded, and extensive new growth can be observed on most shrubs and trees. Herbaceous species are also beginning to take hold and grow.

#### **Educational Benefits**

Roughly half of each workshop's day was devoted to classroom work to train the participants in restoration techniques. Dr. Mark Clark gave the PowerPoint presentation at each of these. His lectures included in-depth discussions on the morphology, processes, and functions of undisturbed shorelines, the typical shoreline disturbances and resulting loss of function, assessing and addressing the problem (not just the symptom), restoration techniques, a discussion of the coming afternoon restoration work, a walk through all three sites to discuss what was to be or had been done at each, and also the thought behind the plan for each site. Questions and dialogue were encouraged throughout.

The afternoon hands-on activity session offered each participant the opportunity to actually experience the implementation of different techniques. The rationale behind choosing each technique was pointed out as well as reasons others were not. For some, even the proper method of planting a tree or shrub was something new, while much more technical skills were taught, too. These skills will be useful to many of the participants in their daily work; for others, the restoration of their property.

Because we had separate workshops targeting professional and lay people, both groups were able to gain much needed knowledge on the issue of shoreline revegetation and restoration. The workshops educated ninety-three persons from regulatory agencies, parks and public works staff and other professionals such as engineers and scientists, three extension agents, and thirty-four waterfront property owners or interested citizens. People throughout the state benefited, with seventeen counties represented in attendance, coming from as far away as West Palm Beach and Sarasota.

All attendees were given an informational packet containing printed copies of the lecture presentations, a couple of publications (*On the Waterfront, When Shoreline Beauty Becomes a Beast to Maintain* and *Waterfront Property Owners Guide*), a CD containing information on invasive exotic plant species in the Southeast, and a CD that included many kinds of material pertaining to the shoreline restoration and preservation issue – restoration manuals, the classroom presentations, educational outreach materials, fact sheets, and maps of the restoration sites.

At Poe Springs Park, the staff is now trained to understand the importance of riparian zones and will change many maintenance practices within the park as a result. It is hoped that many practices of the public works departments will also change whenever waterways are involved.

Everyone benefited from the project, and we were all quite gratified that the workshops were already influencing minds and activities in other locations.

### **Community Outreach**

Outreach was inherent to the nature of the workshops in that attendees took what they learned back to their home areas and districts, influencing their work and passing on information to others. The packets included many outreach materials, too, that can be used as is or adapted to other similar situations and locales.

The project garnered attention from the local media with television coverage, radio interviews, a wonderful article in the local newspaper and some of the surrounding small town newspapers. Articles in a few non-profit organization newsletters raised the awareness level of the general public on this topic in our area. A web page created by the county also helped reach the citizenry.

A member of the ACEPD staff gave the Santa Fe Springs Working Group a tour highlighting the restoration work done at the park. The two canoe outfitters upstream of the project make it a practice to point out to customers that the restoration project has been completed. They do this both to draw attention to the restoration and to warn visitors about canoe landing practice changes implemented by the park as a result of the project.

## **IV. Project Evaluation**

### **1. What Worked Well?**

Onsite planning meetings with some of the major stakeholders (Parks Department, Poe Springs Park staff, Suwannee River Water Management District, Alachua County Environmental Protection Department, etc.) involved fostered smooth progress and prevented unwanted surprises as plans developed.

Assignment of specific tasks – such as registration, food, site plans, and purchasing – distributed the work load among several people quite well according to their skills and time constraints.

As for the workshops themselves, the format of classroom work in the morning followed by an afternoon of hands-on restoration work proved to be quite successful. Setting out the plants beforehand ensured they were planted where wanted and helped the session get started quickly. A walk-through the site thoroughly explaining the work to be done allowed everyone to be aware of the various tasks involved,

which was good since most were only able to work at one aspect of each site. It was found that the amount of work planned for each site was adequate to keep everyone busy.

## 2. What Didn't Work Well?

At the first workshop, it became apparent that adequate planting instruction had not been given. The mistake was in assuming those in attendance would have had some knowledge about proper planting techniques. As a result, some of the plants had to be re-set. This problem was corrected at the remaining two workshops, although we still found it sometimes necessary to reset plants.

The weather for each workshop happened to be quite chilly. Consideration of this likelihood might have produced better plans for registration and lunch. Having some hot food to offer would have been beneficial.

Not everyone stayed for the entire afternoon work session. However, this was not serious enough to cause a problem with completing work. Leaving early was mostly a result of a long drive home (4-6 hours for some) rather than lack of interest. A few simply got too cold.

## 3. What Were The Greatest Challenges?

The classroom was a bit crowded, though adequate, so it was a challenge to set up the space to accommodate everyone in a manner conducive to classroom work. The logistics of delivering and securing all materials at the site required extra thought. Communication was sometimes a problem, as those playing major roles in the planning of the workshops were not always easily available because of other work demands. Still, all were able to work around the problems to effectively accomplish their tasks.

## 4. What Were The Greatest Rewards?

The enthusiasm with which the project was met by people throughout Florida was heartening. An announcement emailed to a limited area of the state quickly found its way to the length of the state, and people came from as far as West Palm and Sarasota. People attending each session were enthusiastic throughout the day, and the emails that came in the few days following each workshop were very complimentary. Given the backgrounds of those who wrote, these compliments meant a great deal. Perhaps the best described an employee who was sent "kicking and screaming" but returned with glowing reports to his boss, thanking him for having been sent. We were most pleased to see so many parks and public works personnel attending because of their position to have a real effect on waterways and water quality in the course of their daily work.

## 5. Project Highlights

While much needed, this was one of the first ventures, as far as can be determined, into shoreline restoration education in North Central Florida. When all was said and done, those of us involved seemed to feel that something truly important had happened at Poe Springs that would benefit our entire state.

There has been increasing interest in the subject of revegetating the vital riparian zones around the state of Florida. In a state having so much surface water and their accompanying shorelines, more attention needed to be drawn to the serious problem of shoreline destruction and the resulting need for restoration in this state rife with rampant development. It was hoped from the original conception of the workshop series that our efforts would launch an interest in the importance of natural, undisturbed shorelines and generate other activities around the state both in restoration itself or the education of the citizenry and public employees. Indeed, this began happening before the first workshop was ever conducted. A number of information packets were mailed to people who were unable to attend but were most interested in the topic at hand. Similar workshops have been planned in Orange County to address the serious problem and consequences of lakeshore destruction that exists on the urban lakes of the Orlando area.

These, too, target both property owners and agency and related business personnel. In Marion County, Dr. Clark is assisting with a wetland mitigation project that is underway. Not long after the workshops, the banks of Fanning Springs at the state park were planted. In Gainesville, three or four pond-oriented workshop are planned for the fall. It also appears that the project may have an influence on decisions being made that concern retention pond regulations in *Alachua County's Comprehensive Land Use Plan*. The cooperation of so many partners made the restoration project a special effort, for all wanted to see it be successful. All county personnel involved were extremely helpful. Jim Myles of ACEPD played a very important and key role in his efforts to select, obtain, and set up materials for the on-the-ground restoration work, being responsible for plants, stabilization materials, tools and other needed supplies. Fritzi Olson of Current Problems, Inc. was invaluable in coordinating all aspects of workshop implementation. One person in particular needs to be especially singled out, and that would be Dr. Mark Clark, who conducted the classroom work and directed the restoration activities. His superior level of knowledge along with his skill of interaction with participants sets him apart. The Santa Fe River and Poe Springs Park Riparian Restoration Project was extremely fortunate to have him participate as a key partner.

In May, a dedication was held for the installation of a bronze plaque commemorating the project. The plaque was installed in front of the park lodge, facing the river and beside a native wild plum tree.

## **V. Recommendation/Lessons Learned**

### **1. What Would You Change If You Did The Project Again?**

A stronger attempt to reach the waterfront property owners and other interested citizens would be good. Our targeted audience approach was successful. We also wanted to succeed at attracting agency staff and personnel, ultimately it proved to be more difficult to bring in the lay person than those working at jobs that related to the subject matter.

Earlier planning of details and more clearly defined roles at the outset would also be helpful.

Another suggestion was to add a small section into the lecture on the actual site and the issues/constraints that came up with design- maybe have the designer give this section of the talk. This could also give the main presenter a break, and bring the audience a new face.

### **2. What Advice would you give To Other Counties/Organizations Developing Similar Programs/Projects?**

Early planning is essential to allow more than ample time for permits, IFAS approval for in-service training, thoughtful planning, and the myriad of details that must be done.

Distribute distinct roles and understanding of responsibilities, including the planning of certain aspects, among a core of several leaders. These need to be determined early to avoid working in emergency mode or confusion about one's role. This is especially true when all involved are very busy and sometimes overwhelmed. Good and open communication between these people, regularly reporting their progress and/or problems can be most helpful.

In some situations, it might be beneficial to have a short session about permitting requirements that one needs to be aware of before beginning any restoration project. This is especially important for the lay person, since many are unaware of restrictions or regulations that may be in force. There are typically several agencies that must be contacted for approval or a permit.

## **VI. Future Work**

### 1. Are You Planning to Continue This Project Over The Long-Term?

In the future, both the education aspect and the restoration efforts of this project will continue. Three to four pond-oriented workshops are being planned for the coming fall in an attempt to reach out to urban residents about the need for shoreline vegetation to improve water quality. Current Problems plans to launch an “adopt a pond” program in conjunction with this workshop, using the workshop pond as its pilot project. Finding from experience that maintenance is a problem needing to be addressed at fledgling buffer strip projects, the Watershed Action Volunteers (WAV) will help recruit and train volunteers for these tasks. ACEPD has also begun to partner with AmeriCorps to ensure survival and growth of these projects as well as the Poe Springs work sites.

Smaller presentations to community groups such as garden clubs, neighborhood associations, and the like are planned by Current Problems, Inc. to raise citizen awareness about the importance of undisturbed riparian zones. Walks led through “buffer-strips-in-progress” are another thought. Workshops or presentations for different types of waterways are needed to attract various groups; e.g., lake dwellers or creekside residents. ACEPD would like to see workshops combined with restoration at two Lake Alto sites (one has been planted this past winter), two at Newnans Lake, Orange Lake and Watermelon Pond. There is a good possibility that similar workshops could be held at the new nature park or one of the other parks owned by the Nature Operations Department in Gainesville. Current Problems has completed a simple single-panel flyer about waterfront Best Management Practices (BMP’s) and is currently finishing up a flyer about the value of buffer zones for ACEPD to distribute to area citizens.

ACEPD intends to replace plants if and when needed at Poe Springs. The department does not intend to walk away from the project. ACEPD also has several other plans for the park that tie in with the restoration work. The Department is also applying for funding to upgrade the septic systems for enhanced nutrient removal to improve water quality at Poe Springs Park. ACEPD is working with state agencies and experts in the field to define the springshed for Poe Springs and other springs along the Santa Fe River. The restoration of the longleaf forest on the upland area is also being planned. Lastly, spring protection language has been inserted in the county’s comprehensive land use plan, thereby offering more protection for Poe springs as well as other springs throughout the county.

ACEPD will pursue better coordination with other government entities, such as the City of Gainesville and other municipalities, as well as with other county agencies to improve project design and maintenance practices affecting waterways throughout the county.

Mark Clark has assisted with a lake shoreline workshop in Orange County and a wetland construction project in Marion County as a result of the workshops held at Poe Springs. ACEPD and IFAS will continue to assist other areas to increase their knowledge about shoreline practices.

\*\*Note: While the date of execution of this grant was 8-26-04, the approvals and account codes needed to process expenditures was not available until 10-12-2004. Thus, we have used the start date of 10-12-2004 as the project could not begin until the funding was available.

**Appendix: Project Proposal**

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## POE SPRINGS PARK RIVERFRONT RESTORATION PROJECT PROPOSAL

### A. Project summary and Objectives

The Alachua County Environmental Protection Department (ACEPD) wants to alert citizens to the consequences of shoreline habitat destruction and raise awareness to the important role played by riparian zones vegetated with native species in healthy aquatic ecosystems. To highlight these concerns and demonstrate shoreline restoration techniques, ACEPD would like to restore selected sections of the waterfront at Poe Springs Park on the Santa Fe River [located in Alachua County, Florida (Attachment A, Figure 1)]. Restoration of this site (Attachment B, Photographs) will provide a number of direct ecological benefits, but also provide an example of environmentally responsible shoreline management along riparian corridors common in the surrounding communities and the entire North Central Florida region. The goal of the restoration and workshop is to combine on-the-ground restoration work with classroom time in a workshop targeting a variety of groups as well as the general public. The intent of the project is to foster future restoration in other locations around the region, raise awareness among our citizens about the need for healthy riparian ecosystems, and provide the education and hands-on experience of restoration methods for others to use in their professional and personal endeavors. By using the methods stated, our hope is to begin to reverse the trend of natural shoreline destruction.

### B. Project Description and Need

Lying in the heart of North Central Florida where wetlands should border most every waterway, Alachua County finds itself in need of citizen assistance to preserve and restore riparian zones in order to ensure our waterways and their accompanying riparian corridors remain healthy, functioning ecosystems. Due to a lack of public understanding of the issue, the citizens are in need of education to assist in restoration activities. Healthy shorelines are especially important in Alachua County because the karst features allow for direct connections between surface and ground waters, the latter being our primary source of drinking water. Riparian zones are also critical to wildlife populations and diversity. From the viewpoint of local economic and cultural needs, the continued health of the waterways is essential to the area's thriving and growing eco-tourism industry. Area residents rely and have relied on the many water resources in the region for their recreation and enjoyment throughout history, and future generations must be allowed these same opportunities.

Among the sites in need of restoration along the Santa Fe River is one found within the county-owned portion of Poe Springs Park, which is operated by YMCA. The site is actually made up of three shoreline segments or areas that have been degraded (Attachment A, Figure 1). The first area proposed for restoration is a segment (area 1) situated at the waterfront near the lodge, which now consists of a grass lawn mowed to the waterline (Attachment B1). This site needs revegetation and bank stabilization. The second area (2) is a small spring run infested with several exotic species (Attachment B2), and dominated by water lettuce (*Pistia stratiotes*). Eradication of the exotics would allow native aquatic vegetation to become re-established, providing valuable habitat for fish and other aquatic organisms. A permit from the Florida Department of Environmental Protection (FDEP) Bureau of Invasive Plant Management will be required for the removal of the invasive exotic vegetation, this agency is also a project partner. The third segment (area 3) occurs along the river and main spring run further upstream (Attachment B3). This much used area near the spring and river needs to be revegetated with natives, especially the understory.

The solution to the above-stated needs lies in restoration of the degraded shorelines. However, we would like to use this restoration effort to highlight the issues of shoreline impacts and provide restoration guidance to a wider audience. We propose to implement this objective using three one-day workshops to be conducted at Poe Springs Park sometime in late winter (Jan. – Mar.) of 2005. These workshops would combine lecture material and hands on experience. Lectures would identify common impacts occurring along shorelines, ways to identify these impacts, and how to implement restoration and best management techniques to minimize degradation. Hands on activities will also be a significant component of the workshop, offering valuable experience to learn restoration concepts and methods. Three workshops are planned, one for each restoration segment. The target audience for the workshop will vary, but would include statewide county extension agents, staff members from government agencies such as parks, urban forestry, and public works departments, the YMCA's park staff, and interested citizens from the North Central Florida community and especially those owning waterfront properties. Expertise for the workshops and restoration will be provided by highly qualified staff from the ACEPD and the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Extension Service. The project's success will be measured by the number of plants put in the ground; the area of riverbank revegetated and restored; the amount of the invasive exotic species removed; and workshop attendance.

There are many benefits to riparian restoration of the waterfront ecosystem at Poe Springs Park (Attachment B4). Such systems are important to both surface and ground water quality in this region of karst topography and to the welfare of its wildlife. Revegetation will help slow the onslaught of litter and sediment from stormwater run-off; retain organic contaminants and reduce nutrient input from poor landscaping practices; and prevent riverbank erosion from flood waters and boat wakes. Habitat will be created and improved for juvenile fish, reptiles, and amphibians; alligators (young alligators for hiding and larger alligators for shade and cool water during summer); birds such as songbirds, ducks, and

wading birds; and countless insects and benthic macroinvertebrate organisms. The clearing of invasive exotic plants from the spring run will improve fish habitat in the run by allowing beneficial vegetation to again thrive, and it will also rid a continual source of new plants to the river. The main spring, its spring run, and the river will be aesthetically improved, too, helping to further convince others to manage their own waterfronts similarly. Because the river is full of swallets, siphons, and springs, improved surface water quality positively affects the quality of the groundwater.

The completed restoration would serve to provide the community with a stellar example of outstanding shoreline management and/or restoration efforts, and is consistent with and supported by the Poe Springs Park management plan and the county's Comprehensive Land Use Plan. Every effort to improve the ecological integrity and to thus ensure the natural beauty of this magnificent, fascinating river and its adjacent wetlands, springs and tributaries will directly contribute to the local economy, as eco-tourism is a substantial contributor to the area's financial well-being, affecting many aspects of the business community. The river and its accompanying springs and karst features have important cultural and historical connections to the area's development over the years, and are truly treasured by the local populace.

Those participating in the workshop would not only complete the restoration work that is so needed at Poe Springs Park, but would then take what they learned to continue restoration projects in their home counties, communities, and individual private properties. Poe Springs is the site of many meetings, special events, school programs, summer camps, and adult education programs. Appropriate signage will be included as part of this restoration project for the purpose of increasing park visitor awareness levels to the important role riparian ecosystems play and the important ecological benefits to everyone provided by properly managed shorelines. The many casual visitors (over 26,000 last year) would also learn of the value of healthy, riparian ecosystems from the signage and a brochure to be published about the restoration and its benefits. Outreach will include articles in the Gainesville Sun and the small town newspapers of the region. Fact sheets, which are a principal means of information dissemination in UF/IFAS and ACEPD, will be developed around the topics of the three workshops. We will also be using the ACEPD, UF/IFAS Extension Service, and Current Problems, Inc. websites to spread the word by featuring the restoration project and its accompanying issues.

The project will be a part of several larger efforts. An issue of great importance to the state of Florida is springs protection. The restoration and education aspects of the Poe Springs Park project will contribute to the Florida Springs Initiative. Alachua County has a surface water and wetlands code to protect wetlands and shorelines, and is currently funding the planting of several buffer strips along county waterways. Current Problems, Inc. is in the first stages of implementing its new Restore A Shore program. This restoration effort along the Santa Fe River also dovetails with the objectives of this new program.

Long-term promotion, management and protection of this effort will be assured since the restoration lies within a county park. Continued management and protection will be the responsibility of the Alachua County Public Works Department and the private contractor hired to operate the park, currently the North Central Florida YMCA (staff to be trained through the workshop). ACEPD will periodically survey bird population and species diversity plus monitor plant growth and survival as part of the park management plan. Alachua County and the contractor operating Poe Springs Park will continue to promote the importance of the completed restoration activities with signage and a brochure.

### **C. Final products**

Benefits of the restoration promise to bring ecological, educational, economic and cultural benefits to the Poe Springs site as well as the broader region. As part of this project three workshops will be conducted targeting environmental professionals, county extension agents and interested citizens of the region. Approximately 450 feet of shoreline will be restored and used as a demonstration site within a highly visited location representative of many shoreline habitats of the region. Permanent interpretative signage will be provided at the restoration site to promote the goals of this project well beyond the duration of immediate funding. Information fact sheets, brochures and website to be developed as part of this effort will be utilized in other larger efforts underway in the region to address similar water quality and environmental conservation issues.

Through these specific products we expect to improve the ecological integrity of the river and its adjacent wetlands, springs and tributaries and aid the local eco-tourism industry to continue attracting visitors, bringing dollars to many local businesses, and thereby lending security and stability to the community economy. The finished restoration will offer a shining example of responsible shoreline management for the community to see. Along with the park and its amenities, the restoration sites will be ideal for environmental education programs. The workshops held for the restoration itself will provide county extension agents and other agencies' environmental education staff an excellent in-service, hands-on training opportunity to learn about riparian restoration. Citizens of the local community who attend will learn about the methods and plants used for restoring shorelines and the significant value of healthy riparian ecosystems, along with responsible shoreline management practices – all of which will be useful for them to live in harmony with the waterway on which they live.

#### **D. Partner Justification**

Well established working relationships among the various agencies will provide the necessary synergy of expertise for planning and execution of the restoration effort, workshops and for development of outreach materials. Agencies that will be partners in this project include:

##### Alachua County Environmental Protection Department

The Alachua County Environmental Protection Department will serve as the lead agency in the planning of all aspects of the restoration project and approve the final plan. The expertise of staff biologists and environmental scientists will be used to assist with plant selection and soil stabilization and to help with invasive pest plant identification and recommendations for best methods of removal. ACEPD will be providing lunch for workshop attendees as well.

##### University of Florida Institute of Food & Agricultural Sciences Cooperative Extension Service (UF/IFAS)

UF/IFAS Extension Specialist for Wetlands and Water Quality, Dr. Mark Clark, will conduct the workshops and provide expertise for on-the-ground restoration work and be a conduit for information dissemination throughout the state. Dr. Clark's accomplishments make an impressive list of research and restoration efforts (see Attachment C). He is currently involved in Lake Okeechobee and Florida Everglades restoration and research work.

##### Current Problems, Inc

Current Problems, Inc., locally known as Adopt A River, will serve as the project coordinator. Many years of waterway cleanups, buffer strip planting, invasive plant removal, and other projects illustrate the organization's ability to successfully plan and coordinate projects and programs. Current Problems will also provide littoral plants and photo documentation of the workshop activities.

##### Alachua County Public Works Department

Public Works is providing the project with plants for the restoration project along with the site to be restored. The department also provides facilities for training purposes and will waive admission to the park for all workshop attendees. In addition, Public Works will manage the restored areas upon completion (remove exotics, maintain the native plants, protect the planted areas) and be responsible for the upkeep of interpretive signs.

##### North Central Florida YMCA

The YMCA is contracted by Public Works for the operation of Poe Springs Park, which includes program work along with the day to day upkeep of the park. The staff is responsible for tasks such as manual invasive plant control, watering of plants as needed, and prevention of damage from visitor activities. The YMCA also contributes to long-term education value of the project by conducting or hosting many environmental education programs and activities in the park throughout the year.

##### Bureau of Invasive Plant Management, Florida Department of Environmental Protection

The Bureau of Invasive Plant Management will contribute informational materials regarding invasive plant species with which we are concerned in this project and other pest plants in the state. The Bureau is the permitting agency for any invasive exotic aquatic plant removal and aquatic planting. The Bureau will also provide advice regarding invasive plant removal techniques.

##### Florida Springs Initiative, Florida Department of Environmental Protection

The Florida Springs Initiative may provide funds for signage and a brochure explaining the restoration project and its benefits to the Santa Fe River and its many springs. Therefore, even the casual visitor will learn about the value of Florida's riparian zones, and especially in our land of karst topography where the springs are so cherished by citizens of the local community and state. ACEPD is currently requesting funding from the FDEP (Florida Springs Initiative) for educational signage related to water quality enhancement and protection of springs and adjacent riverside aquatic ecosystems.

##### Workshop Participants

Labor for the restoration will be provided by participants through the experiential component of the workshop.

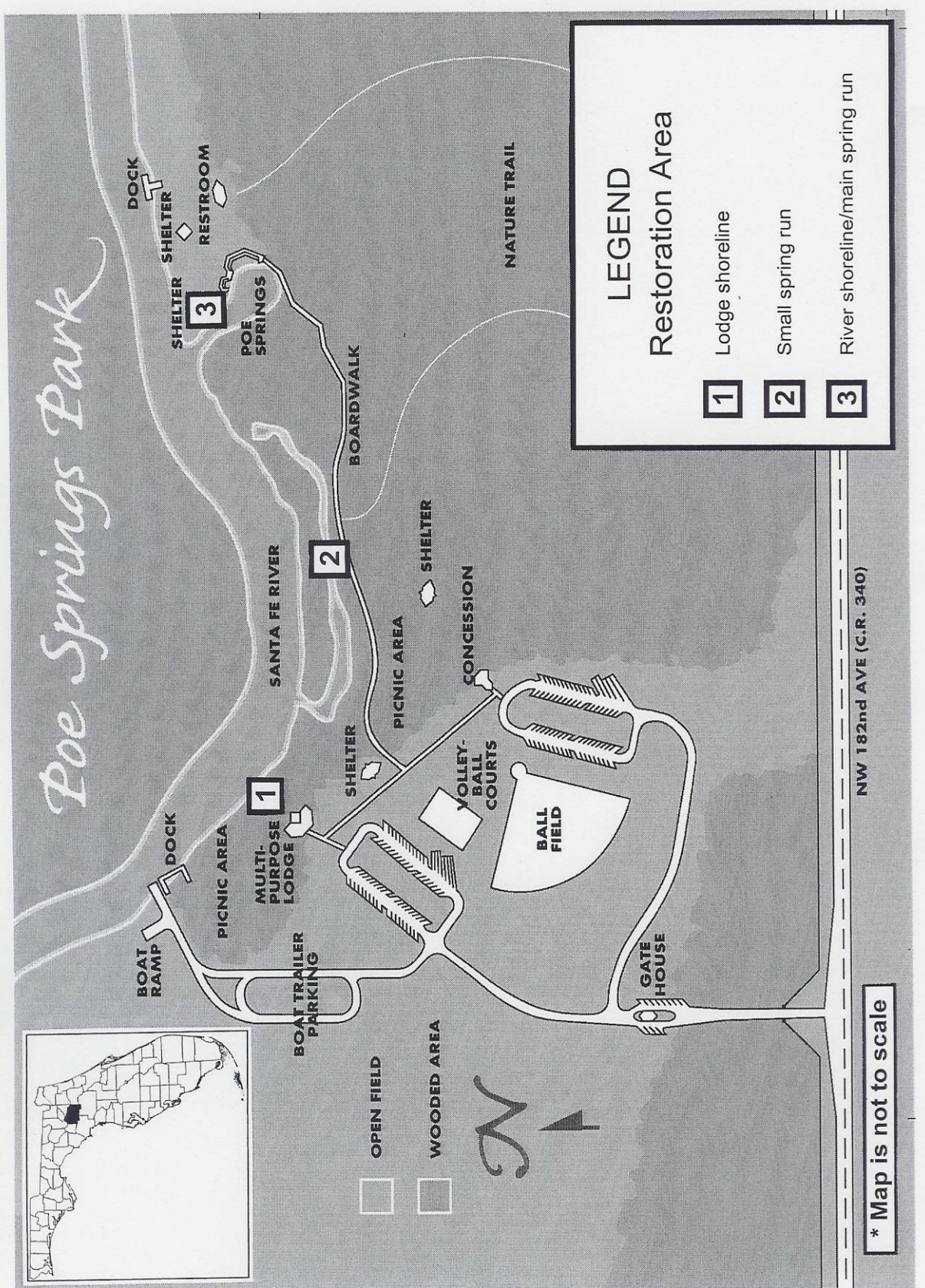
**E. Project Budget\***

**PROJECT BUDGET BY EXPENSE CATEGORY**

<b>Category</b>	<b>Type of expense</b>	<b>In-kind service</b>	<b>Cash</b>
Salaries	ACEPD assistance and services (planning, plant choice, workshop assistance, and web page development)	<b>\$4,614</b>	\$0
Benefits	7.65% payroll taxes insurance	<b>\$1,083</b>	\$0
Travel	6 trips @ 35 miles each, 2 travelers, car/truck, \$ .29 per mile	<b>\$61</b>	\$0
Equipment	None	\$0	\$0
Supplies/Materials	Plants, bank stabilization material Food & drinks Educational Materials Signage	\$4,100 \$600 \$100 <u>\$1,500</u> <b>\$6,300</b>	\$2,000  <u>\$1,500</u> <b>\$3,500</b>
Contractual Services	Project coordination	\$0	<b>\$7,800</b>
Printing		\$0	\$0
Other	Rent of lodge (for workshop) Park admissions (for participants) Participant labor UF/IFAS (develop and conduct workshop, direct on-ground restoration work) Permits & approval Ongoing environmental education and maintenance of the project Photo documentation	\$225 \$500 \$5,000 \$2,250  \$200 \$3,000 <u>\$300</u> <b>\$11,475</b>	\$0 \$0 \$0 \$0  \$0 \$0 <u>\$0</u> \$0
Totals		<b>\$23,533</b>	<b>\$11,300</b>
<b>Grand Total</b>			<b>\$34,833</b>

**\*Detailed Project by partner contribution is provided on page 12 as Attachment D.**

Attachment A - Figure 1. Proposed Restoration Areas of Poe Springs Park



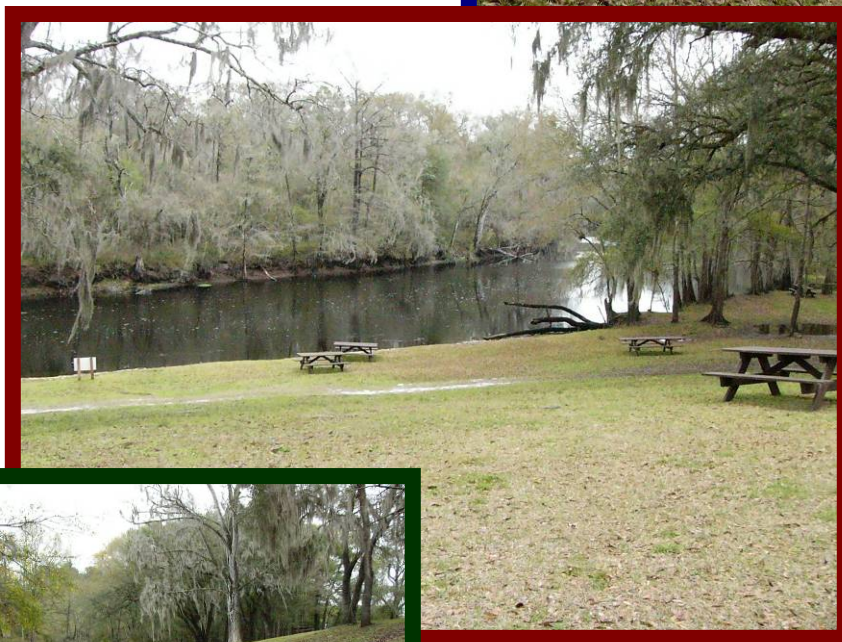
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## Attachment B1 - Segment of Barren and Eroded River Bank in Front of Lodge

Looking from river to lodge



Looking downstream in front of lodge



Looking upstream from lodge



A dirt road along river in front of lodge

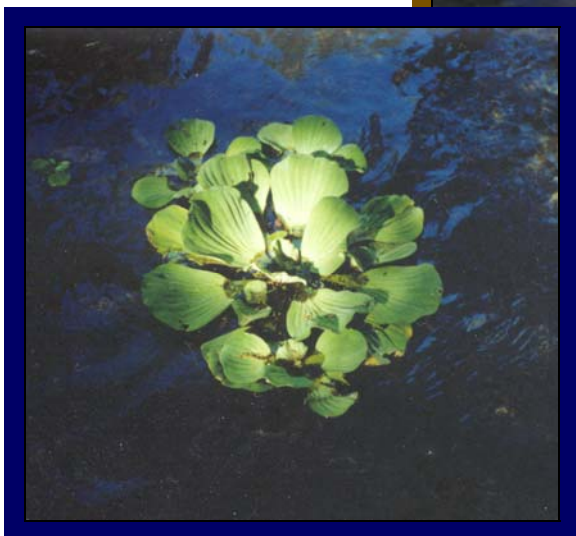
**Attachment B2 - Segment with Small Spring Run Infested with Exotic Plants**



A small spring run is infested with several exotics



Water Lettuce is a serious problem in the small spring run and Santa Fe River



**Attachment B3 - Upstream Segment Consisting of River, Main Spring Run, and Poe Spring**



Examples of bank erosion along main spring run



Barren river bank area & erosion; note contrast with heavy natural vegetation on opposite bank

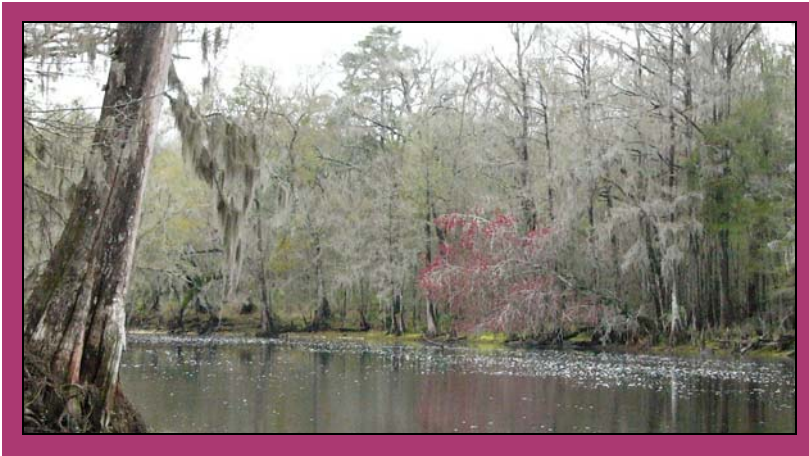


Bank erosion at Poe Spring



A need for understory plants exists at spring area

**Attachment B4 - The River Bank as Nature Wants it**



## **Attachment C**

### Principal Research and Extension Activities being conducted by Dr. Mark Clark

Mark Clark, PhD, Research Assistant Professor and Extension Specialist, Wetlands and Water Quality  
Wetland Biogeochemistry Laboratory, University of Florida Department of Soil and Water Science  
106 Newell Hall (PO Box 110510) Gainesville, FL 32611-0510 (352) 392-1804 ex 319

#### ***Tumblin Creek Wetland Impacts Assessment and Conceptual Restoration Plan***

##### ***Funding Agency: City of Gainesville FL.***

The Tumblin Creek floodplain lies at the bottom of a highly urbanized watershed in Gainesville Florida and has been impacted by accumulations of sediment, trash, channelized flow, and both metal and nutrient contaminants. This research project will identify and quantify environmental impacts that have resulted from anthropogenic activity and provide a conceptual restoration plan for the improvement of this condition.

#### ***Spatial Variability and Modeling of Soil Accretion in Shark River Slough***

##### ***Funding Agency: US Department of Interior***

A three year study is underway in the Florida Everglades to investigate soil accretion processes and their influence on the vegetative mosaic of Shark River Slough. To determine sediment accretion rates the study will develop a carbon budget for ridge and slough communities at four sites within the Everglades.

The study is also investigating the persistence of ridge and slough communities through time. Soil cores to the depth of limestone bedrock are being collected in Ridge and Sloughs communities within Everglades National Park and Water Conservation Area 3A. Soil horizon characteristics, plant fragment analysis and carbon isotopic fractionation will be used to determine historic plant communities. Findings will be used in the development of performance measures and management of hydrology in the Everglades.

#### ***National Wetlands Biogeochemical Database and Survey of Southeastern Wetlands Biogeochemical Condition***

##### ***Funding Agency: US Environmental Protection Agency***

Establishing numeric criteria for the nation's water bodies is a major focus of the USEPA Office of Water. In the case of lakes, rivers and estuarine systems, significant information exists to establish numeric nutrient criteria for many areas of the nation. In the case of wetlands, however, specific stimulus and response relationships have not been as well established. Two studies funded by EPA are underway to address this shortfall; 1) to develop a database of available information from the literature and 2) to survey wetlands within the southeastern US to determine appropriate numeric nutrient criteria that will be protective of wetland functions.

#### ***Education Component of Phase II NPDES permit for University of Florida Campus***

##### ***Funding Agency: University of Florida***

As part of a new USEPA regulatory program to address nonpoint source pollution, implementation of stormwater best management practices and public education and outreach programs are being required of medium and small urban areas around the county. The University of Florida campus is one such regulated facility. As outlined by this program a public education component is required and UF/IFAS Extension is taking the lead in developing outreach materials, storm drain markers, awareness events and water quality monitoring.

#### **Additional Extension Activities include**

- Develop public outreach information regarding land use and groundwater nitrate contamination in the Santa Fe River Watershed.
- Develop decision making tools for Ranchers and Dairymen in the Lake Okeechobee Watershed to determine most viable and effective Best Management Practice to select and implement.
- Provide In-Service training for Stormwater BMP's, Watersheds, Water quality and Wetland restoration.
- Develop fact sheets on wetlands and water quality for use by County Extension agents and citizens of Florida.
- Maintain web site on Florida Wetlands with current information on research activities, wetland resources in the state, wetlands to visit, wetland education material, and general information about wetlands.  
(<http://wetlandextension.ifas.ufl.edu>)

**Attachment D**

**DETAILED PROJECT BUDGET BY PARTNER CONTRIBUTION**

Alachua County Environmental Protection Department (ACEPD)	Assistance with planning, plant choice, workshop, web page and brochure Food and drinks for participants Project approval Travel (\$0.29 per mile)  Bank stabilization material, small plants for stabilization and signage	\$5,697  \$600 \$100 <u>\$61</u> <b>\$6,458</b> (requesting Five-Star funds in the amount of <b>\$3,500</b> )
University of Florida Institute of Food and Agricultural Sciences (UF/IFAS)	Conduct the workshop and direct restoration design and provide technical support	<b>\$2,250</b> (5 work days, 3 workshops, two days for planning, preparation and design)
Current Problems, Inc.	Littoral plants Photo documentation  Project coordination	\$600 <u>\$300</u> <b>\$900</b> (requesting Five-Star funds in the amount of <b>\$7,800</b> )
Alachua County Department of Public Works	Provide plants for the restoration Provide restoration site and facilities for workshop Admission to park for all participants in the restoration and workshop Ongoing care and maintenance of the project	\$3,500  \$225 (lodge rental) \$500 admission (\$4 per person, for total of 125 people)  <u>\$2,000</u> <b>\$6,225</b>
Workshop Participants	Labor for the restoration work	<b>\$5,000</b> (\$10/hr. 4 hours each for an estimate 125 people)
North Central Florida YMCA	Ongoing care of the project and ongoing environmental education programs using completed restoration site	<b>\$1,000</b>
FDEP, Florida Springs Initiative	Likely possibility of funding for signage and possibly an educational brochure	<b>\$1,500</b> (intend to apply for FY 2005 funds)
FDEP Bureau of Invasive Plant Management	Permits for exotic plant removal Advise exotic removal and educational materials	\$100 <u>\$100</u> <b>\$200</b>
<b>Total partner contribution</b>		<b>\$23,533</b>
Five-Star funds requested	Project coordinator bank stabilization material, small plants for stabilization, signs	<b>\$11,300</b>
<b>Total project budget</b>		<b>\$34,833</b>

**POE SPRINGS PARK RIVERFRONT RESTORATION PROJECT PROPOSAL**  
**Supplemental Information on Restoration Activities 5-7-04**

The Alachua County Environmental Protection Department (ACEPD) plans to restore selected sections of the waterfront at Poe Springs Park on the Santa Fe River located in Alachua County, Florida. The original submittal Attachment A – Figure 1, shows three areas that are proposed for restoration, and Attachments B1 through B3 show photographs of the areas proposed for restoration. The following text briefly describes the restoration activities that are proposed for each of the three areas.

**Area 1 – Santa Fe River Shoreline at the Multi-Purpose Lodge**

The existing shoreline in this area consists of a mowed lawn to the water's edge. ACEPD proposes to restore a native vegetative buffer along the river shoreline. The restoration activities in this area will include planting trees and understory species. The focus will be on restoration of the shoreline with species that will grow well in full sun, since there is limited existing tree canopy. Plant species proposed for use may include (but are not limited to) the following: arrowhead (*Sagittaria* spp.), pickerel weed (*Pontederia cordata*), rushes (*Juncus*, spp.), bulrushes (*Scirpus* spp.), redroot (*Lacnantes caroliniana*), St. Johns Wort (*Hypericum* spp.), spider lily (*Hymenocallis* spp.), canna (*Canna flaccida*), lizard's tail (*Saururus cernuus*), ti-ti (*Cyrilla racemiflora*), fetterbush (*Lyonia lucida*), virginia willow (*Itea virginica*), dahoon holly (*Ilex cassine*), wax myrtle (*Myrica cerifera*), red maple (*Acer rubrum*), sweet bay magnolia (*Magnolia virginiana*), water hickory (*Carya aquatica*), swamp red bay (*Persea palustris*), spruce pine (*Pinus glabra*), green ash (*Fraxinus pennsylvanica*), black gum (*Nyssa sylvatica biflora*), and cypress (*Taxodium ditichum*). In areas where there is some existing tree canopy, bluestem palmetto (*Sabal minor*), wild azalea (*Rhododendron canescens*), button bush (*Cephalanthus occidentalis*), dog hobble (*Leucothoe racemosa*) and swamp dogwood (*Cornus foemina*), among others may be used.

**Area 2 – Small Spring Run Infested with Exotic Plants**

In this area, exotic species such as water lettuce (*Pistia stratiotes*) and water hyacinth (*Eichhornia crassipes*) will be removed. Physical (manual) removal of the exotic species will be conducted followed by planting appropriate native species. Since much of this area has some tree canopy, mostly understory plants are proposed for installation. Plant species proposed for use may include (but are not limited to) the following: arrowhead, pickerel weed, rushes, spider lily, canna, lizard's tail, cardinal flower (*Lobelia cardinalis*), golden club (*Orontium aquaticum*), green arum (*Peltandra virginica*), southern blue flag or angle pod iris (*Iris virginica* or *hexagona*), ti-ti, button bush, swamp dogwood, and dog hobble. Trees, such as red maple, water hickory, green ash, and cypress will be planted where existing canopy is sparse. Continued maintenance of this area will include physical removal or selective spraying of the exotic species.

**Area 3 – Upstream Segment Consisting of River, Main Spring Run, and Poe Spring**

These areas receive moderate to heavy pedestrian traffic and bank erosion is common. There is an open tree canopy with little understory vegetation; restoration in these areas will include revegetation of the understory. Shoreline planting will help stabilize soils and reduce erosion. Along the river bank, the focus of restoration activities will be to increase tree canopy as well as understory tree and shrub density. In degraded areas of the main spring run, restoration activities will target areas in need of stabilization with herbaceous species and woody small trees and shrubs. Restoration activities at Poe Spring will likely include some soil stabilization (i.e. natural or synthetic material to hold bare soil) and plant installation of relatively fast growing canopy species (i.e. red maple) and herbaceous vegetation (i.e. rushes). Signage will be installed to direct pedestrians away from restored areas of the shoreline, which will also help reduce erosion. The plants proposed for use in this entire general area will be the same species proposed for use in Area 1. Area 3 will likely be the most challenging to restore, as it receives the heaviest pedestrian traffic. This will be taken into consideration when plants are selected for installation.