

### Problem Statement

Bryce-Davis Wetland is a local ecological treasure for the community as it provides an essential habitat for many species. The wetland has become overrun with Japanese honeysuckle and tall fescue. These species out-compete others that should naturally occur in the wetland. The CSES Club adopted the wetland and restored it to its natural condition. However, continual management and interest in the wetland has dwindled

# Objective

With the knowledge and experience we have gained in a Scotland study aboard program, we propose a management plan for the Wetland so that conservation may be revitalized.

## Methods





- Attended two courses in Scotland in summer 2012: Conservation Skills and Habitat Management
- 2. Conducted a Phase 1 Habitat Survey.
- 3. Attended a meeting over the progress made with the Woolsey Wet Prairie in order to evaluate the success of their project and determine if our team could apply any of the used tactics to our restoration work.
- 4. Developed guidelines for the restoration efforts for the Bryce-Davis Wetland for a more organized approach.
- Presented the guidelines to the CSES club and establish workdays.
- 6. Performed soil sampling with a Trimble AG 132 unit, with an attached Trimble Nomad for GPS positioning. Then, sent samples off to the Marianna Soil Test Lab for nutrient analysis.



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# **Restoration of Bryce-Davis Wetland through Concepts Derived in Scotland**

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### Results

1. Habitat Management focused on assessing the accomplishments or failures of the current management of the different ecosystems visited. Conservation Skills focused on proposal and interpersonal skills and how to implement a Phase 1 Habitat Survey. This knowledge helped guide the rest our project.



2. Phase 1 Habitat Survey of Bryce Davis Wetland:



This illustrates the classification of the habitats around the project location. The target note is location of observation deck.

- 4. We devised a plan for the CSES club to follow during their involvement:
- Remove invasive plants and garbage on assigned workdays in the fall
- Native plants such as Asclepias incarnata (swamp milkweed) and Verbena hastata (swamp vervain) will be planted.
- Educational signs with QR codes will be installed along the path and observation deck to promote the awareness of the wetland. This can get the community involved in and excited about the wetland, and educate why wetlands are an important habitat to maintain.
- 6. Soil Sampling was conducted in February and March of 2013. The nutrients were analyzed across the Bryce Davis Park using the Krigning technique in ArcGIS software. We leaned that reduction was occurring in the wetland based on the concentrations of hydric soil indicators and fertilizers from the golf courses were influencing levels of nutrients in Bryce-Davis Park. Based off the elevation map, flow of fertilizers and waste flow into the wetland. Better management practices in the wetland to increase reduction in sulfur and less fertilizer usage in the golf course should be applied.









3. In August 2012, attended a talk with Bruce Schackelford (Woolsey Wet Prairie restoration project) and learned about prescribed burn management practices but concluded this would not work for the Bryce Davis Wetland given its location.



5. Once back from Scotland, we presented the applications of restorative and educational tactics to the CSES club to reignite their involvement in the restoration of the Bryce-Davis Wetland. They scheduled to enact. Beginning in the fall of 2013.





# Sustainability Systems

**Natural:** Conservation skills taught us what is necessary to make a conservation project thrive with its limited natural systems and Habitat Management gave us the ability to refine conservation efforts. The wetland ecosystems have specific soil contents, plant life, water reservoirs and animal life that are part of the flow of natural resources in the natural system. This project aims to sustain that. **Social:** Within Bryce Davis Wetland, barbecue pits and dog feces are conflicts of interests. Educating the public about the importance of managing habitats is essential so the public and conservation efforts work together. When managing a habitat, experts with wide ranges of knowledge and skills are needed to help properly manage a site. Communication is a key factor in accomplishing a project and can hinder the outcome.

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**Managed:** This project is human intervention to manage the ecosystems in place. This has an effect on consumers in indirect ways by preserving the species and the landscape. Economics play a huge role in managing Bryce-Davis wetland. If there is not funding for the work, it will most likely not get done. To apply these management efforts, some backing by the CSES club will be needed.

### **Reflections/Future Work**

Habitat management is an extensive process, through our Scotland coursework and Fayetteville experiences we learned a lot.

• Future work can bring our management plan to fruition. The CSES club will be able to put the plan into action and restore Bryce-Davis Wetland.

• We hope to see the wetland prosper under this new management. It is close to our homes and has an important ecological value. This wetland can be another great natural asset to the Fayetteville community.

### Important Literature

Dillenburg, L.R. et al. "Effects of below- and aboveground competition from the vines Lonicera japonica and Parthenocissus quinquefolia on the growth of the tree host Liquidambar styraciflua." Oecologica. 93.1 (1993): 48-54. Print.

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