

ECOLOGICAL STUDIES OF WILLOW (*SALIX CAROLINIANA*):  
MONTHLY STATUS REPORT #5



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Ecological Studies of Willow (*Salix caroliniana*): Monthly Status Report #5  
Covering the time period from May 1-31, 2009

This status report summarizes progress made on the Ecological Studies of Willow project through May 31, 2009, with reference to the tasks and timeline outlined in the Scope of Work and presented in Table 1 below.

**Table 1.** Timeline of tasks to be accomplished in Year 1 and later. Tasks initiated and underway in this reporting month are highlighted in blue, completed tasks in red.

YEAR 1

Quarter	Months	Tasks accomplished
1 <sup>st</sup>	Oct – Dec, 2008	Initiate and complete Task 1 ( <i>Finalize research plan</i> )
2 <sup>nd</sup>	Jan – Mar, 2009	Initiate Task 2.1 ( <i>Germination &amp; early survival and growth experiments</i> ) Initiate Task 2.4 ( <i>Life history</i> )
3 <sup>rd</sup>	Apr – Jun, 2009	Continue Task 2.1 ( <i>Germination experiment</i> ) Initiate Task 2.2 ( <i>Willow transplantation</i> ) Initiate Task 2.3 ( <i>Fire response</i> ) Continue Task 2.4 ( <i>Life history</i> )
4 <sup>th</sup>	Jul – Sep, 2009	Continue Task 2.4 ( <i>Life history</i> ) Complete Tasks 2.1 & 2.2 ( <i>Germination experiment &amp; Willow transplantation</i> ) Complete Task 3.1 ( <i>Data analysis and final report, Year1</i> )

YEAR 2

Quarter	Months	Tasks accomplished
1 <sup>st</sup>	Oct – Dec, 2009	Continue Task 2.3 ( <i>Fire response</i> ) Continue Task 2.4 ( <i>Life history</i> )
2 <sup>nd</sup>	Jan – Mar, 2010	Continue Task 2.3 ( <i>Fire response</i> ) Continue Task 2.4 ( <i>Life history</i> ) Initiate Task 2.5 ( <i>Spatial analysis of willow distribution</i> )
3 <sup>rd</sup>	Apr – Jun, 2010	Initiate Task 2.2 (2nd iteration, <i>Willow transplantation</i> ) Continue Task 2.3 ( <i>Fire response</i> ) Continue Task 2.4 ( <i>Life history</i> ) Continue Task 2.5 ( <i>Spatial analysis of willow distribution</i> )
4 <sup>th</sup>	Jul – Sep, 2010	Complete Task 2.2 (2nd iteration, <i>Willow transplantation</i> ) Continue Task 2.3 ( <i>Fire response</i> ) Continue Task 2.4 ( <i>Life history</i> ) Continue Task 2.5 ( <i>Spatial analysis of willow distribution</i> ) Complete Task 3.2 ( <i>Data analysis and final report, Year2</i> )

### **Progress on Task 1 – Finalizing the Research Plan**

The UCF team revised and submitted the final research plan for approval.

### **Progress on Task 2.1 – Germination and Early Survival and Growth Experiments**

The UCF team completed data entry for the two germination experiments that concluded in late April. Preliminary results will be available shortly.

Greenhouse experiments on willow seedlings and cuttings began during this month. We also performed the first re-randomization of plants to new positions within the greenhouse. This procedure minimizes potential effects of location on willow responses. The cover photo shows both experiments underway, with cuttings on tables in the foreground and seedlings in the background.

### **Progress on Task 2.2 – Willow Transplantation**

**A. Competition Experiment** – On May 28, we monitored the southernmost block of the field experiment to evaluate responses of willow seedlings and cuttings to competition. Survival of seedlings and cuttings was very good, with only two cuttings and one set of seedlings dead. All three instances of mortality were in transplants distant from the airboat trail, at locations where plants were above water. The two remaining blocks were monitored on June 3 and data on the entire experiment will be compiled in the next report.

**B. Hydrology Experiment** – On May 27, we monitored the willow island experiment, which tests the ability of seedlings and cuttings to survive at different elevations in the marsh (Fig. 1). As in the southernmost block of the competition experiment, which is located nearby, survival of seedlings and cuttings was high. Almost all cuttings survived, even those atop the islands (Fig. 2). Most seedlings also survived, with the limited mortality higher on those at the lowest elevation (presumably due to erosion) and atop the islands, which were very dry.

**Fig. 1.** UCF graduate students Jennifer Navarro (foreground), Elizabeth Stephens (center) and Lisa McCauley collecting data on willow island experiment.





Notice that the water is almost even with the white island frames (Figs. 1, 2); the water level was virtually the same as at the beginning of the experiment.



**Fig. 2.** Willow cuttings and seedlings on the southernmost of the four experimental islands. Note the vigorous group of seedlings near the water line at lower left and the healthy cuttings at all levels, including atop the island. Very few other plants have recruited onto the islands.

#### **Progress on Task 2.4 - Life History**

Our attention during this period was focused on entering data from the germination experiments, monitoring the two field experiments and beginning the two greenhouse experiments. We expect to begin gathering life history data again next month, from sites near the field experiments.

#### **Progress on Task 2.5 – Spatial Analysis of Willow Distribution.**

We concentrated on other activities and therefore did not modify the spatial model.

#### **Summary of Activity**

During this reporting period, the UCF team logged more than 22 person-days initiating the greenhouse experiments and monitoring the hydrology and competition experiments (Table 1). Twenty person-days is equivalent to a full-time position. Copies of our data notebooks and spreadsheets will be sent via U.S. Postal Service.

**Table 1.** Dates of field trips and other major activities during this reporting period. Not included in this list are routine activities such as watering plants, monitoring those in the greenhouse, and entering and proofreading data.

Date	Work performed	Purpose
14 May	UCF personnel	Began greenhouse experiment with seedlings
15 May	UCF personnel	Began greenhouse experiment with cuttings
21 May	Dr. Fauth	Checked river levels near willow competition experiment
27 May	UCF personnel	Recorded survival and measured willows on island experiment
28 May	UCF personnel	Recorded survival and measured willows in southernmost block of competition experiment
29 May	UCF personnel	Re-randomized positions of seedlings and cuttings within the greenhouse, to minimize spatial effects on these two experiments.