

## RCRP 2008 ANNUAL REPORT

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### **Directing Succession through Adaptive Management in National Wildlife Refuges: Reed Canary Grass Control & Transition to Wetland Forests & Meadows**

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#### **Progress in FY 2008**

Meetings: Annual coordination meeting was held March 2008 (Squaw Creek NWR) to introduce the model, finalize plans for field season, and assess participant satisfaction with project communication. Science team met in June (Univ Georgia) to develop the landscape-level model for refuges. Science team members met individually with FWS participants during field season refuge visits.

Data collection: Vegetation data (RCG shoot density, vegetation cover, site photographs) were collected by FWS participants at the ten refuges. Hydrology data were collected by refuge staff during the spring, summer and fall.

Treatments: RCG control herbicide treatments were implemented for most management units in 2008, but were delayed until 2009 at a few units due to severe flooding.

Laboratory work: Seed bank species composition was determined via greenhouse assay at UF. Seed trap sample contents were analyzed by UF graduate student, Julie Sorenson. Nutrient and soil texture samples were analyzed by groups at Univ Florida.

Knowledge gained: The competitive relationship between RCG and Swamp White Oak is better understood as a result of Sorenson's greenhouse experiment. The practical limits of the fluazifop herbicide are now known.

Modeling: GIS-based soil and landform information was incorporated into the spatially-explicit decision support tool for refuges. We refined the spatially explicit wet meadow model and incorporated management actions with a non-spatial stochastic dynamic program.

#### **Expected Accomplishments in FY 2009**

- Development of a spatially-explicit forest model and further refinement of the GIS decision tool for the meadow model.
- Annual coordination meeting (February 2009, La Crosse, WI) to discuss details of the revegetation efforts and plan for 2010 efforts, review data collected during 2008, and demonstrate model prototypes.
- FWS personnel will continue to collect vegetation response data during 2009 field season.
- Following spring 2009 data collection and analysis, we will adaptively update and refine the model.
- Science Team visits to participating refuges during 2009 field season to observe results of treatments.

#### **Highlights and Concerns**

- Dense RCG seed banks discovered at most sites will complicate re-vegetation efforts if RCG is not further reduced beyond one season of control. Re-vegetation efforts will therefore be postponed until spring 2010, to allow for more complete control of RCG and increase the chances of successful seed establishment. Project extension to study longer-term effects of the re-vegetation efforts is supported by FWS and USGS, additional funding has been secured by FWS but not USGS.
- Flooding during the 2008 field season necessitated considerable modifications to the study plan. Empirical insights gained from the experiments will be limited by loss of replication, but our monitoring results from 2008 will nevertheless inform our models, despite the change in management course caused by the floods.
- A request to adjust the modeling subcontract was submitted in order to provide more detailed expectations for the modeling work, facilitate timely modeling product delivery, and ensure that modeling proceeds at a pace that allows collaboration with the field efforts without altering the scope of the work or changing the budget.
- Due to Univ Florida budget cuts and no partial support for salary, we expect to lose a key position in 2009 that has facilitated important aspects of project management. As a result, participants (science team and FWS) will be expected to do more in order to sustain current operations. Certainly, this loss will influence the ease of project transition to full implementation by FWS following the project's administrative deadline.
- In conversations with the FWS Biological Monitoring Team Leader, we have suggested that lack of a designated FWS manager for this project threatens the smooth hand-off of this project to FWS and its long-term viability beyond the tenure of the USGS-UF science team.