

Wormsloe Fellow Report

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March 21, 2013

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Work this spring has both field and analytical components, both of which build on previous work.

Tidal Influence and Salinity of Seasonal Ponds

Seasonal ponds on Wormsloe are connected to tidal marsh by drainage ditches. In May 2012, I discovered that the water in ponds was brackish, even though at the time the surface water was not contiguous along drainage ditches with tidal marsh. Subsequent field observations suggested that tidal influence does not occur during every high tide, but seems to be limited to biannual high tides. Even though tidal intrusion occurs only a few times per year, not all of the salt water

recedes as the tide ebbs. Instead, the tidal water evaporates and salts are deposited in the soil. Therefore, when rains are sufficient to result in surface water, the residual salt on the soil surface leaches out so that the water becomes slightly brackish. Monitoring of salinity of surface water or of the soil (dry) of seasonal ponds will continue.



Figure 2 Seasonal pond inundated in late February by heavy rains. Water salinity was 4 ppt on March 7 (photo taken also taken March 7).



Figure 1 Tidal flow along a drainage ditch in November 2012. Notice ripples within the circles.

More importantly, no egg masses or tadpoles have yet been seen this spring even though heavy rains flooded most ponds in late February and they have remained flooded. Salinity of Wormsloe ponds in mid-March was 2 ppt to 5 ppt (slightly brackish). This low salinity may inhibit amphibian reproduction.

Trapping Toads

Trapping for toads (Southern toad and Eastern spadefoot) will occur at Wormsloe and on other islands for comparison of body size between islands. In mid-March, I established additional pit fall trap sites on Marine Extension property and at Skidaway Island State Park, both on Skidaway Island. I will soon be establishing



Figure 3 Pitfall traps (2-gallon white buckets) for toads

sites on Rose Dhu island (e.g. site of Girl Scout's Camp Low). I also have plans for trapping on Ossabaw Island, which reportedly has some of the largest Southern toads (John Crawford, UGA Marine Extension). Rather than trapping on a regular schedule, trapping is planned to coincide with rain, since traps rates are significantly higher when it rains. The next trapping period is March 22 – 24.

Bird Point Counts and Forest Metrics

Lidar-derived forest metrics have been correlated with bird abundances and species diversity. Forest metrics from lidar include canopy height, canopy closure, and vertical structural diversity. Lidar data for Wormsloe were acquired in February 2009. Ten minute point counts for birds were made at 69 points in Jun 2011, Sep 2011, Jan 2012, and May 2012. A cumulative total of 1,297 individuals of 43 species were noted.

Workflow for clipping lidar data has been figured out. The appropriate spatial extent (e.g. 10 m, 25 m, 50 m) around each point is being analyzed. Moreover, the influence of variation in point density on forest metrics needs to be considered.

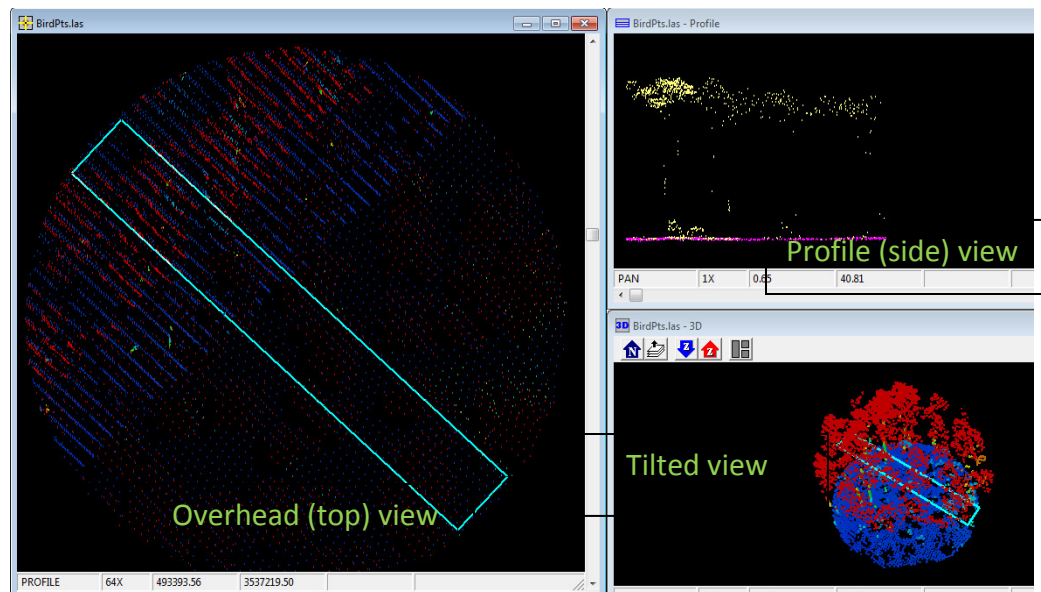


Figure 4 Three perspectives of the same lidar point cloud. Note higher point density on left side of each perspective.