

DIATOM BIODIVERSITY COMPARISON AMONG DIFFERENT AQUATIC ENVIRONMENTS AT ANDALUSIA FARM, BALDWIN COUNTY, GA

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Andalusia Farm in Middle Georgia has been listed on the National Register of Historic Places for many years and is renowned by descriptions in the letters of Flannery O'Connor. Cultural centers of this importance can serve as reference sites in ecological research. A comprehensive study on diatom biodiversity among the aquatic environments on the property has never been performed. Data on diatom assemblages in ecosystems with minimum human alterations can provide insights on diatom species characteristics, population and community interactions under low nutrient conditions. This research compares diatom biodiversity, species richness, abundance and biomass between the different aquatic habitats at Andalusia Farm. This site is distinct since it contains three different aquatic environments that are affected by the same stimuli (rain, temperature, light, etc.) for the same duration and frequency. Monthly composite samples and physicochemical characteristics of a pond, wetland and a stream continued for a year. Live and cleaned diatoms were assessed with an attempt to predict physiological activities of diatoms in different habitats based on chloroplast's shape and size for the same species found in the different habitats. For live communities, a minimum of 100 algal units were enumerated and for live diatoms, morphometric data together with number and type of chloroplasts present were recorded and used for biovolume calculations and assessment of photosynthetic activity. All live counts were done within 2 hours of collection. Diatoms dominated algal communities in all three habitats. Species richness and diversity in clean diatom analyses were high for the wetland and pond, several species are presented with revised descriptions. Representative species of *Eunotia*, *Pinnularia* and *Navicula* were the most common diatoms among the habitats. Seasonal changes are reported also, as the wetland and stream varied in water levels significantly. The results of this research serve as a comparison to other aquatic environments in Middle Georgia that have been affected by anthropogenic factors.

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