

Chinese Tallow Control on the Greens Bayou Wetlands Mitigation Bank

Brian P. Blades¹, Jeremy Stovall¹, Hans M. Williams¹, Brian P. Oswald¹

¹Arthur Temple College of Forestry and Agriculture,
Stephen F. Austin State University, Nacogdoches, Texas.

Description

This study examines re-parameterizing the HGMI model on the Greens Bayou Wetlands Mitigation Bank in North Houston to account for Chinese tallow control efforts. Currently managers are penalized for removing Chinese tallow due to reduced stem density, as no distinction is made between native and invasive stand structure.

Abstract

Chinese tallow is a nonnative invasive tree species that has aggressively invaded forestlands in the southeastern United States and has become the most prevalent invasive tree species in east Texas. The Greens Bayou Wetlands Mitigation Bank (GBWMB) in Houston is managed by the Harris County Flood Control District. GBWMB is required to control Chinese tallow so that is below a 5 percent threshold based on the hydrogeomorphic wetland assessment interval model (HGMI), but the 5 percent threshold is poorly defined by the HGMI model. Additionally, when treating Chinese tallow, GBWMB's functional lift is penalized due to decreasing stem count under the current HGMI. The objectives of this study are to 1) design and install a continuous forest inventory system to assess Chinese tallow control efforts via multiple stand structural metrics and 2) reparameterize the existing HGMI model to better account for Chinese tallow control efforts improving ecosystem structure and function. Herbicide treatments currently appear effective, as Chinese tallow currently makes up 10.8% of the trees per acre (TPA), but only 2.6% of the basal area when averaged across the GBWMB. Tallow was present in only 11 of 36 plots, but in those plots it accounted for 37.5% of the TPA, and 10.7% of the basal area. These areas also appear to have slightly lower stocking than the GBWMB average. Further efforts will use these data to reparameterize the HGMI, and re-assess ongoing herbicidal control strategies on the GBWMB to inform the actions of land managers.