

LARVAL MOSQUITO USE OF AGRICULTURAL AND REFERENCE WETLANDS WITHIN SOUTHWEST GEORGIA

Chelsea Smith, Nathalie D. Smith, and Stephen W. Golladay

AFFILIATION: J.W. Jones Ecological Research Center

REFERENCE: *Proceedings of the 2017 Georgia Water Resources Conference*, held April 19-20, 2007, at the University of Georgia

The southeastern Coastal Plain contains many geographically isolated wetlands that contribute greatly to regional biodiversity. Because they lack any connection to a permanent water body, geographically isolated wetlands are often not recognized under federal or state statutes. In southwestern Georgia, disturbance of these systems has often occurred as a result of agriculture, altering habitat availability and water quality. We examined mosquito larval abundance and water quality among 10 reference wetlands (5 grass-sedge marsh and 5 cypress-gum swamp) and 10 agricultural wetlands (4 pasture, 3 adjacent to fields and 3 within fields) in southwestern Georgia monthly from September 2009 to May 2016, to assess the suitability of these habitats for mosquito breeding. Across these wetland types, 35 mosquito species were identified, with nine of those species being unique to reference wetlands. Agricultural wetlands had no unique species, though indicator species analysis revealed that *Psorophora columbiae* was indicative of pasture wetlands, and sites adjacent to fields were indicated by *Anopheles quadrimaculatus*. Indicators of cypress-gum swamps included 4 species (*Culiseta melanura*, *Ochlerotatus canadensis*, *Culex territans*, *Ps. ferox*), as did grass-sedge marshes (*Uranotaenia sapphirina*, *An. crucians*, *An. spp.*, *Cx. pilosus*). The most abundant species across all wetlands types was *Aedes vexans*, comprising 33% of mosquitoes identified during the study, followed by *Cx. territans* (24%). The majority of *Ae. vexans* sampled were within the first three months of wetland inundation following a drying event, and none were observed if wetlands contained water for more than 7 months. This species is an important vector for many arboviruses in the area including West Nile encephalitis and eastern equine encephalitis. *Ae. vexans* also transmits the nematode that causes heartworms. Because many of the species within this system are known vectors of arboviruses, understanding factors that influence habitat suitability and reproductive success will be important as climate change and land use continue to alter the hydrology of wetlands and available habitat.

Program reference: 3.6.4