Observations of a submersed field application of florpyrauxifen-benzyl suppressing hydrilla in a small lake in central Florida

Benjamin P. Sperry, James K. Leary, K. Dean Jones, and Jason A. Ferrell

In August 2018, a submersed injection of florpyrauxifen-benzyl (FPB) was administered at 48 µg L^{-1} to suppress a dominant infestation of dioecious hydrilla [*Hydrilla verticillata* (L.f.) Royle] in a 20-ha littoral section of Fish Lake (92 ha) in Osceola County, FL. This treatment was extensively monitored out to 289 d after treatment (DAT; May 2019) to evaluate suppression efficacy on hydrilla and selectivity to common nontarget plant species. Prior to treatment, hydrilla was the most frequent and abundant species throughout the entire littoral zone, with an average biovolume (BV) of all submersed aquatic vegetation (SAV) of 64%. Dissipation of FPB in the treatment area was rapid and concentrations were nondetectable by 168 h after treatment. However, concentrations of its parent acid, florpyrauxifen, were detected out to 336 h after treatment. Regardless, BV in some treated areas was near zero for up 133 d. By 289 DAT, average BV in treated areas increased to 52%. Conversely, BV in the nontreated littoral area steadily increased to 99% with monotypic hydrilla niches advancing from moderate to dense over 289 DAT. American eelgrass (*Vallisneria americana* Michx.), and spatterdock [*Nuphar advena* (Aiton) W. T. Aiton] were the most frequent SAV and emergent species, respectively, but still minor representatives of the plant community compared to hydrilla. While typical auxin-like symptoms were observed on spatterdock, there was no apparent herbicide suppression in relative abundance for either of these species compared to the nontreated littoral area. American lotus (*Nelumbo lutea* Willd.), and fragrant waterlily (*Nymphaea odorata* Ait.) were also observed with similar acute symptoms but again were only present in low frequencies and not distinguishable otherwise between treated and nontreated areas. The reduction in hydrilla abundance showed a positive response in aquatic plant community balance promoting diversity. This study supports further evaluation of FPB for selective management of hydrilla in aquatic plant community restoration.