

## Selective control of flowering rush in mesocosms and field sites

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Flowering rush is an invasive aquatic plant species that is spreading across the northern United States and southern Canada. Flowering rush can displace many native aquatic plant species such as hardstem bulrush, an emergent aquatic plant that is used as spawning habitat by many native fish species. Previous studies show that repeated applications of contact herbicides can control flowering rush; however, it is unknown if these herbicides can be used to selectively control flowering rush co-occurring with hardstem bulrush. The purpose of this study was to determine if selective control of flowering rush was possible with repeat contact herbicide applications in field and mesocosms trials. In field trials, flowering rush leaf density was reduced 99% and 92% at 8 wk after initial treatment (WAIT) in years one and two, respectively, whereas hardstem bulrush leaf density was not affected. In mesocosms, flowering rush and hardstem bulrush were exposed to repeat submersed injections of the contact herbicides diquat, endothall, copper, carfentrazone-ethyl, and flumioxazin. Endothall reduced above-ground biomass of flowering rush by 69% compared to reference plants at 8 WAIT; no other herbicides affected aboveground biomass of flowering rush. Diquat reduced belowground biomass by 77% compared to reference plants at 8 WAIT, but the other herbicides had no effect. None of the herbicides tested in mesocosms affected above- or belowground biomass of hardstem bulrush when compared to nontreated reference plants at 8 WAIT. Future studies should investigate concentration exposure time requirements of endothall and diquat for flowering rush control.