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### **Field-based comparison of herbicides for control of parrotfeather (*Myriophyllum aquaticum*)**

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Nonnative parrotfeather (*Myriophyllum aquaticum*) is an aquatic nuisance species of concern in many regions worldwide where it has become established, and a frequent target for management and control. In a field study, effectiveness of three chemical treatments (imazapyr, imazapyr þ carfentrazone, and 2,4-D þ carfentrazone) to control parrotfeather was tested in four locations along the Chehalis River (Washington State), and the range of natural conditions encountered was used to test differences in treatment efficacy across varying depths and plant densities. When evaluated 6 wk after treatment, parrotfeather cover was reduced by 67 to 69% in plots treated with imazapyr and imazapyr þ carfentrazone compared with nontreated controls. Plots treated with 2,4-D þ carfentrazone exhibited signs of substantial regrowth within the same time period, however, resulting in a net effectiveness of only 23% control when regrowth was accounted for. Evaluation of plot cover 1 yr after treatment corresponded with the observed trends in effectiveness at 6 wk posttreatment. There was no evidence for interactions of water depth or plant density with effectiveness of any treatment; however, accounting for variability within and between sites did help explain total variance in response. Field-based experiments such as these can help reduce uncertainty and facilitate development of realistic treatment plans for aquatic nuisance weeds.

Key words: carfentrazone, 2, 4-D, habitat variability, imazapyr, parrotfeather, random effects.