

Aerial Treatment of European Buckthorn (*Rhamnus cathartica*) in Floodplain Forest of the Shiawassee NWR

European buckthorn predominates within the understory of the two forested tracts in the Green Point Area, the Hickey Tract and the Learning Center Tract. This species displaces native plants and may affect species such as ground-nesting birds, small mammals, reptiles, and amphibians that may use these habitats. In addition, common buckthorn produces compounds that may inhibit the reproduction of reptiles and amphibians that may breed in ephemeral wetlands or moist soil areas of the forested tracts. The 140-acre forested area is inaccessible by vehicle and the density of common buckthorn makes initial treatment by backpack sprayer impractical. Therefore, the Refuge has proposed to use aerial application of the herbicide Trycera® (Triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid) in the fall after overstory trees have entered dormancy. Buckthorn retains its leaves at this time and this provides a window of opportunity to treat this non-native shrub while minimizing damage to native tree species.

In addition to complying with applicable regulations and herbicide label requirements, the Refuge is required to develop a Pesticide Use Proposal (PUP) and Integrated Pest Management Strategy. These must be reviewed and approved by the Service's Regional Integrated Pest Management Coordinator. In addition, the Refuge must prepare a National Environmental Policy Act review and Endangered Species Act Section 7 consultation as necessary. The Service's regional reviews of the Pesticide Use Proposal and the Integrated Pest Management Strategy provide independent, review of the use of pesticides to ensure that associated risks are minimized.

Adherence to criteria such as those regarding wind direction and velocity will ensure that residential areas are not affected by the aerial application of herbicides. Application of herbicides will, however, result in temporary restriction of access to the forested tracts within the Green Point Area, though other trails within the Refuge are likely to remain open for use. Application of herbicides in the fall, when native overstory trees have entered dormancy, is likely to reduce the risk of injury to native plants. Depending on efficacy, treatments may be repeated or may be followed by conventional backpack spraying of individual plants. The use of best management practices will minimize the likelihood of impact to resources.

The outcomes of the Refuge's proposed use of herbicides to treat common buckthorn are likely to be an improved native understory plant community, improved riparian forest habitat for native wildlife species, and, in particular, improved habitat for native reptiles and amphibians. Consequently, recreational opportunities related to wildlife viewing and native plant communities may be improved. If outcomes demonstrate control of buckthorn, the Refuge believes this technique may be applicable throughout the Saginaw River and Bay watershed where buckthorn predominates the understory of forested tracts.

The Refuge plans an initial application in year one of the project, a follow-up aerial application in year two of the project, and ground-based backpack application in years three and four of the project, as necessary. Existing data of buckthorn density within the project area will be used as a baseline with which to determine the efficacy of the planned treatment protocol. The Refuge plans to annually monitor the density of buckthorn in response to treatment. This data will form the core of an annual report the Refuge will prepare for the Trustees.

The Refuge will prepare all planning and compliance documentation, and, in addition, provide staff time to conduct herbicide application and monitor implementation and outcomes of the project. The Refuge values this contribution to the project at a minimum of \$20,000 per year over a minimum project lifespan of three years (\$60,000). The Refuge is requesting \$80,000 over the same three year period. A detailed budget is available upon request.

Figure 1. Project Area for the aerial treatment of common buckthorn within the Green Point Area of the Shiawassee National Wildlife Refuge. Treatment would occur within the forested tracts of the area. On the map below, these tracts are labeled as the Hickey Tract and the Learning Center Tract.



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