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Control of False Indigo (*Amorpha fruticosa*), a Non-native Plant, in Riparian Areas in Connecticut

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False indigo (*Amorpha fruticosa*), a member of the legume family, is a low shrub that grows up to 5 m high. This species is native to the southeastern and midwestern United States, occurring naturally from Pennsylvania south to Florida and west to Ohio, Michigan, Wisconsin, and Kansas. Varieties are known from throughout the Southwest. In addition, it has been cultivated and has escaped to New England and New York (Fernald 1950). False indigo has an impermeable seed coat, and a high percentage of seed is dormant; both of these features result in delayed natural germination. Softwood cuttings appear to root well under horticultural conditions (Dirr 1975, Vogel 1981).

In Connecticut, false indigo often is found just above the high tide line of freshwater tidal areas and associated beaches along the Connecticut River and can become dominant in certain riparian areas. Growth

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occurs clonally, resulting in clumps of stems, and colonization may occur when stems and roots are washed up following spring floods. This has occurred on a site managed by The Nature Conservancy that provides important habitat for Puritan tiger beetle (*Cicindela puritana*), an insect on the federal list of endangered and threatened species. We observed that Puritan tiger beetles were present on portions of the beach that were open (i.e., no vegetation) but absent from contiguous, otherwise similar habitat that was shaded by dense clumps of false indigo. Therefore, we decided to remove false indigo from sections of the beach to see if beetles moved into those areas.

Searches of the literature and contacts with knowledgeable individuals did not yield information about the control of false indigo. Observation at a nearby site indicated that cut plants produced multiple stem resprouts. Therefore we tested a cut stem application of 18% glyphosate (in the Roundup® formulation because we were working outside of wetlands).

On June 15, 1993, we cut and removed all woody vegetation in a 160-m stretch of shore and applied 18% Roundup with a 1-inch sponge brush to the cut stems that were above the high tide line. Application occurred on a sunny, calm, and dry day with no rain predicted for at least 24 h. Two months after treatment, 22% of the 41 cut and treated false indigo stems were dead. Although an explicit control was not available, the 27 cut but not treated stems below the high tide line showed only 8% mortality.

Because limited control was achieved through herbicide treatment of cut stems, further treatments were carried out on June

20, 1994. Three 5-m-wide belt transects ranging from 7 to 10 m in length were established perpendicular to the shoreline in the area cut the previous year, in a portion of the habitat that had no stems below the high tide line. All sprouts from previously cut stems were counted, and each transect received one of the following management treatments: (1) cut-stem application of 18% Roundup, (2) cutting with no herbicide treatment, (3) foliar spray application of 18% Roundup without cutting. Herbicide application occurred on June 20, 1994, under appropriate weather conditions. Three and a half weeks later, there was 67.4% mortality of the 92 false indigo stems treated with cut-stem application of herbicide (treatment 1). There was no mortality of the 393 untreated cut stems (treatment 2). The 213 stems that were treated with a foliar spray application showed 99.1% mortality.

Based on these results, foliar spray of false indigo resprouts in mid-June with 18% glyphosate is a successful control method for this species. The response of the Puritan tiger beetles to the decrease of shade in the study area will be observed over the next few years.

Literature Cited

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