

Mulcher Reduces Invasive Shrubs With Minimal Soil Surface Disturbance (Wisconsin)

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Common and glossy buckthorn (*Rhamnus cathartica* and *R. frangula*) and bush honeysuckles (*Lonicera tatarica*, *L. morrowii*, and *L. x bella*) are tenacious invaders of woodlands, savannas, and prairies throughout the midwestern United States. In Wisconsin, recommended control strategies include hand-cutting followed by an application of herbicide, basal-bark herbicide applications and, in fire adapted communities, prescribed burns during early spring and/or fall (Hoffman and Kearns 1997). Although these methods can be effective, they have their drawbacks. For example, both hand-cutting and manual herbicide treatments are time consuming and labor intensive, while burning may not be an option in areas where dense stands of invasive shrubs prevent growth of an understory fuel source. As existing buckthorn and honeysuckle stands rapidly expand, mechanical methods are increasingly becoming a primary means of quickly reducing largescale infestations.

Since April 2001, we have used a Fecon Bull Hog® BH80 Mulcher (\$32,000; www.fecon.com) to cut buckthorn, honeysuckle, and other invasive woody species up to 8 inches (20.3 cm) in diameter. Unlike other mulchers, such as the MERI Crusher, the BH80 Mulcher can cut stems flush to the ground with relatively little disturbance to the soil surface—an important consideration in many of my restoration projects. This mulcher can best be described as a flail mower with strength-enhancing modifications including fixed, carbide teeth and an exceptionally heavy rotor. It is also equipped with a thrashing chamber that acts as a chipper to process the cut woody material.

We sever the invasive shrubs by opening the thrashing chamber of the mulcher to expose the spinning rotor. We then drive over the severed shrubs to reduce them to smaller pieces and to cut the stumps flush with the ground surface. I mulch cut pieces by closing the front plate of the thrashing chamber, tilting the unit slightly away from the primary mover, and backing over the remaining material.

We power the mulcher using a \$75,000 tractor equipped with articulated steering, which, unlike skid steers, allows for easy maneuvering around non-target vegetation. Inline wheel tracking also minimizes compaction of the soil surface. In addition, we complete most of our clearing work while the ground is frozen to minimize the amount of compaction to the ground layer and subsequent damage to native species.

The amount of time required to remove buckthorn and other invasives with the mulcher varies. During a three-day period on a densely vegetated, 1.5-acre (0.6-ha) site in northern Illinois, we averaged 0.25 acre (0.1 ha) per eight-hour day clearing 40-year-old, multitrunk buckthorn that ranged from 35- to 40-feet (10.7- 12.2 m) tall and between 12 and 18 inches (30.5-45.7 cm) in diameter. At the other extreme, we cleared 3 acres (1.2

ha) of widely spaced, 10-year-old invasive shrubs averaging 5 feet (1.5 m) tall during one eight-hour day on a site near Barneveld, Wisconsin.

Follow-up management is critical to prevent resurgence of the invasive shrubs. Once we remove the initial biomass, we apply a mix of one-third Garlon 4™ to two-thirds diesel fuel (as a surfactant) to between 60 percent and 70 percent of the cut stumps within eight hours of cutting in order to prevent resprouting (the remaining stumps are obscured by the mulched material). We treat resprouts on stumps that were missed during the initial herbicide application, as well as any new seedlings, with a 1- to 2-percent solution of glyphosate herbicide for up to two full growing seasons.

The Bull Hog® BH80 is not for the faint-hearted. Replacement parts are exceedingly expensive since they are all unique to this unit. For example, one rock broke six teeth on my mulcher—a \$480 repair. Moreover, the tractor consumes 40 gallons of diesel fuel in an eight-hour day under a normal load and rugged conditions can result in frequent tire punctures and other damage. In general, however, repairs are minimal compared to the staggering amount of material that this mulcher processes.

REFERENCES

Hoffman, R. and K. Kearns, editors. 1997. Wisconsin manual of control recommendations for ecologically invasive plants. Wisconsin Department of Natural Resources. Madison, Wisconsin. 102 pp.