

Southern Indiana Purdue Agricultural Center Forestry Research

Title: Invasive brush control in a hardwood forest understory

Date Initiated: 2012

Location: SIPAC, Archives

Background

Asian bush honeysuckles, autumn olive, multiflora rose, and Japanese honeysuckle have proved extremely invasive in eastern hardwood forests. We do not know when Japanese honeysuckle was established in the area. Multiflora rose was likely established in the area in the early to mid-1950s. Amur honeysuckle and autumn olive were planted at SIPAC beginning in 1974 for wildlife habitat around farm ponds. They since spread to forest edges and continue to infiltrate forest interiors.

Objectives

Gain experience in integrated vegetation management methods for controlling non-native invasive brush in a forest environment.

Site: Eroded livestock lot prior to 1953. Poor forest growth, low site index.

Stands: Escaped, well-established Amur honeysuckle (BHS), autumn olive (AO), multiflora rose (MFR), and Japanese honeysuckle (JHS) growing on forest edge and in the interior.

Treatment Area: 5.2 acres

Treatments

Equipment

- 50 gal., 3-point hitch mounted sprayer with PTO-driven 6-roller pump with 22 gal/min. flow rate all attached to a JD850 4x4 24 hp tractor. Herbicide was sprayed by the tractor operator using a gunjet type hand wand at ~50 psi pressure. The tractor was operated at ~ avg. 25'/min or 0.28 mile/hr.
- 5 ft, 2-blade BrushMonster rotary cutter mounted on 67 hp, steel-tracked, New Holland LS180 skid steer retrofitted with a 35 gpm (hi-flow) hydraulic pump.
- Husqvarna clearing saw
- Stihl 260 chainsaw
- Solo diaphragm pump backpack sprayer
- Kiko, Boer, Savannah, Spanish cross goats, non-lactating does.

November 1-5, 2011

- Foliar sprayed target vegetation with 2.1% glyphosate (41% a.i.) + 0.53% non-ionic surfactant, along forest edge on east, south, and north edges using JD855 tractor and 50 gal. sprayer.

Results – Good kill of BHS and JHS. Spotty, inconsistent control of AO and MFR.

December 14–19, 2012

- BrushMonster worked interior and edges where accessible.
- 22% Garlon 4 + 78% AXIT basal oil applied to cut/shattered stumps. Most stumps treated within 20 minutes of being cut.

Results - ~50% or more resprouting occurred

December 19-28, 2012

- Husqvarna clearing saw and Stihl 260 chainsaw used to cut all remaining target shrubs. No herbicide applied.

Results – Almost all resprouted vigorously
October 1- , 2013
- Goats put in to graze and browse target vegetation regrowth.
Results – TBD

Results

Late season foliar application of glyphosate consistently provides excellent control of BHS and JHS, but poor to moderate control of AO and MFR.

Skidsteer brush cutting equipment is very effective in reducing medium to large (excluding old, mature BHS and AO) brush in a relatively short amount of time to the ground level. Follow-up treatments using herbicides, alone or in combination with prescribed grazing, can then more easily control regrowth. Such equipment also opens up forest interiors and provides access for follow-up treatments, whether motorized equipment-based or foot-based.

Spraying a basal-bark type herbicide on shattered stumps did not provide consistent control of sprouting. It is not certain whether this was due to lack of effectiveness of the herbicide or due to difficulty in finding and treating all stumps.

The Husqvarna clearing saw has sufficient power to easily cut through stems up to 3-4 inches in diameter when proper technique is used. Where tree spacing, down logs, and/or adverse terrain preclude the use of the Brush Monster, hand power cutting equipment is necessary to complete the reduction of larger brush to a more easily managed level.

Planned Management

Goats will be used to reduce and weaken target vegetation in multiple short-duration grazing periods in the 2014 growing season, starting in May. Conditions will be assessed following the 2014 grazing season to determine whether grazing will continue in subsequent years or whether to proceed with herbicide treatments.