# Southern Indiana Purdue Agricultural Center
# Forestry Research

**Title**: Managing Japanese stiltgrass

**Date Initiated**: 2018

**Location**: SIPAC and beyond

**Background**
Japanese stiltgrass (JSG) is an annual grass that is capable of producing large crops of small seeds that are readily transported and spread via vehicular and foot traffic, animals, and moving water. It is capable of spreading rapidly once established. Early establishment at SIPAC likely went unnoticed until 2008 when it was observed in small patches on interior forest trails in widely separated locations on the property. The most recent logging occurred in 2002. ATV or farm equipment traffic may also have been responsible for introducing it to these sites. In 2010 it was observed along county roads on and surrounding Purdue property.

**Objectives**
Suppress current populations of JSG on SIPAC and surrounding buffer area to reduce and eliminate new seed production. Conduct yearly monitoring to locate and eradicate new infestations. Educate neighboring landowners and coordinate monitoring and suppression activities with them.

**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.
- Solo piston pump backpack sprayer

August 2008

- First recognition of JSG infestation on interior forest trails. Mowed close to the ground

July 7-13, 2009

- Sprayed with 1.1% Poast + surfactant using JD850 and sprayer to spot spray w/ handgun and boom for larger patches.

Results – Excellent control

July 19-August 17, 2010

- Sprayed with 1.5% Poast + surfactant using JD850 and sprayer.

Results – Excellent control. Expanded control to county roads

August 17-18, 2010

- Sprayed with 0.25 oz./gal. Fusion + surfactant using JD850 and sprayer.

Results – Excellent control.

August 1 – September 12, 2011

- Sprayed with 0.45 oz./gal. Fusion + surfactant using JD850 and sprayer.
- First mowed two new patches found followed later by spraying.

Results – Excellent control. Found two new significant patches.

June 15, 2012

- Mowed trails and large patches in prep for later spraying.

July 16-23, 2012

- Sprayed with 0.45 oz./gal. Fusion + surfactant using JD850 and sprayer.

Results – excellent kill

July 24-August 24, 2012

- Sprayed with 0.64-0.75 oz./gal Fusilade + 0.7% MSO using JD850 and sprayer and backpack
- Continued expanding treatment area to create a JSG-free buffer zone around SIPAC

Results – excellent kill

August 2013, early

- Mowed trails and patches in prep for later spraying

August 30 – September 26, 2013

- Sprayed with 0.64 oz./gal Fusilade + 0.7% MSO using JD850 and sprayer and backpack

Results – ? Because of travel and other pressing business, got late start. JSG not previously mowed in various stages of development from boot to mature seed. Only sprayed on SIPAC and only patches not already nearly ripe. Marking patches not sprayed for possible spraying with pre-emergent next spring. It seems many shrinking patches expanded this year.

**Cost**

2008 – 1 hr (mowing)
2009 – 1.25 hr. (spraying), 13 gal. spray
2010 – 26.5 hr. (spraying), 186 gal. spray
2011 – 28.5 hr. (spraying) 111 gal. spray
2012 - 32.7 hr. (spraying), 160 gal. spray
2013 – 9.2 hr. (spraying), 40 gal. spray

**Results**

JSG requires at least 5 - 6 years of control to exhaust the soil seed bank. Consistent annual efforts have greatly reduced the abundance of JSG along roadsides and in patches located in forest and riparian areas. Where dense infestations once occurred, only small clumps now appear. Even these scattered individuals must be located and killed to prevent new seed production and gradual increases in JSG. This is time consuming. Even the most committed managers are human and will not be able sustain 100% control year-in and year-out.

**Planned Management**

Successfully managing JSG requires accurately assessing current populations and the factors contributing to JSG establishment and spread. A plan focused on preventing or reducing new seed production and early detection and rapid control of small remote populations needs to be consistently applied over a sustained number of years. Finally, coordinating management efforts with neighboring landowners and with highway departments to prevent the spread of seed is needed. In larger watersheds, upstream populations of JSG need to be assessed and, working with landowners, controlled, beginning at the head and working downstream. With reasonable and sustained effort, JSG populations can be reduced and native plant populations can be restored in high priority habitats.