

Wavyleaf Basketgrass in Maryland: An Early Detection Rapid Response Program in Progress

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Introduction:

A recently introduced grass species has the potential to become an aggressive invader of mid-Atlantic forests. Wavyleaf basketgrass, *Oplismenus hirtellus* ssp. *undulatifolius* (Ard.) U. Scholz, was first detected in central Maryland in 1996 (Peterson et al. 1999). It was found in 2005 at two sites approximately 2 and 22 miles from the original location (Marose, Imlay, pers. comm.). Visits to the original locations in September 2007 revealed it had spread from several small patches (<15m across) to densely cover 150 acres and be scattered throughout as much as 1000 acres. Scattered, small patches were reported from two additional Maryland watersheds in 2007 (Imlay, Farfaras pers. comm.).



Description:

Oplismenus hirtellus ssp. *undulatifolius* is a stoloniferous perennial, 20-30 cm tall, with alternate leaves 1.5-2 cm wide and 4-8 cm long (Fig 1). Scattered 1-2 mm hairs are present on the upper and lower leaf surfaces and the leaves are horizontally rippled or undulating (Fig. 2). The sheaths and culm axis are noticeably pilose with hairs 1-4 mm long (Fig. 3 and 4). Delicate stolons, 1-3 mm in diameter, creep beneath leaf litter, rooting and branching from nodes (Fig 5 and 6).

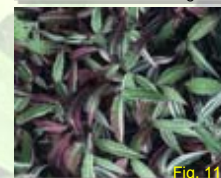
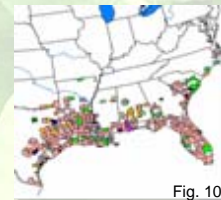


Wavyleaf basketgrass produces racemes with 3-7 spikelets from September through November (Fig. 7). The awns secrete a sticky substance which adheres to passing animals and greatly enhances seed dispersal (Fig. 8). It tolerates dense shade and leaves remain green into late fall after most trees have senesced and light frost has killed annual species (Fig. 12 and 14).



Taxonomy:

Although taxonomic questions exist concerning related *Oplismenus hirtellus* ssp. the Maryland populations (Fig. 9) have been positively identified as ssp. *undulatifolius* and are the ONLY reported populations in North America (Peterson et al. 1999). *Oplismenus hirtellus* is native in tropical and subtropical areas in the Old and New World (Weakley, 2007) and the subspecies *setarius* is naturally occurring from NC south through FL and west to TX and AR and south into Central America and the Caribbean (Fig. 10). An ornamental variegated pink, green and white form, sold as *O. hirtellus* 'Variegatus' for hanging baskets (Fig 11), has spontaneously reverted to an all-green, wavy-leaved, very aggressive form under greenhouse conditions (Pohl, 1981). Genetic work on US populations of the related taxa is necessary to elucidate their differences.



Potential Threat:

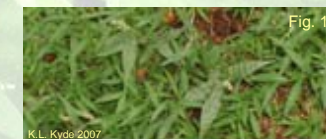
O. hirtellus ssp. *undulatifolius* occurs in the same habitats as Japanese stiltgrass, *Microstegium vimineum*, to which it can seem confusingly similar. *M. vimineum* differs from *O. hirtellus* ssp. *undulatifolius* in having smooth (glabrous) culms, smooth unrippled leaf blades, a single stripe of silver hairs along the midribs and blunt pointed leaf tips (Fig. 13). The two grasses can be observed growing side by side, but little to no intermingling has been observed. Because *O. hirtellus* ssp. *undulatifolius* is perennial, remains green later in the season, has a highly effective seed dispersal mechanism, and appears to be more competitive than *Microstegium*, the invasive potential is of great concern.

EDRR Efforts:

Maryland state agencies, the research community and regional organizations are currently designing an Early Detection Rapid Response protocol. In the absence of a formalized process of response to new invasive species infestations, we initiated a public education campaign, contacted adjacent state agency and university personnel, and shared observations and field locations with others in the invasive plant community.

Control efforts have begun on public land belonging to the Maryland National Capital Park and Planning Commission and USDA at the Beltsville Agricultural Research Campus, through a combination of volunteer hand-weeding and herbicide application during the 2007 field season. The results of these efforts will be assessed in Spring 2008. Mapping of all known locations of the infestation is planned for Spring 2008 and limited genetic studies are planned.

The Maryland Department of Natural Resources website provides current information and has been widely publicized by linked sites including Maryland Extension's Home and Garden Information Center and the Maryland Invasive Species Council which featured wavyleaf basketgrass as the 'Invader of the Month' in August 2007. For more information or to report detections, visit http://www.dnr.state.md.us/wildlife/wl_basketgrass.asp



Citations:

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Pohl, R.W. 1981. Reversion from variegated to green leaf glades in *Oplismenus hirtellus* (L.) Beauv. (Gramineae: Paniceae). *Iowa State Journal of Research*. Vol.56, No.2. pp. 177-179.
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