

## Critic's Choice

### Invasive Plants Versus Oklahoma's Biodiversity

Chadwick A. Cox

ONPS Conservation Chair and Board Member, Oklahoma Invasive Plants Council

E. O. Wilson stated that invasive species are second only to habitat loss for reducing biodiversity, and that threat to biodiversity by invasive plants is the subject of this report. For that purpose, the standard definition of invasive species as one that causes harm to humans or other species when introduced to an ecosystem is too broad to be helpful. Under that definition, several native species are classified as invasive because they grow in cultivated fields, but biodiversity does not exist there. Even so, for this purpose, control of invasive plants in agriculture and less so at recreational sites, consumes an estimated \$34.5 billion per year in the United States; whereas in natural systems only about \$160 million is spent (Pimentel 2002). Herein, we are concerned with the displacement of the species in natural ecosystems.

Invasive plants are not native to the ecosystems that they alter. Their predators are left behind so they are at a competitive advantage in the new setting. Seldom are invasive species naturally introduced. Most are the result of human manipulation. Although most are from other continents, an invasive plant can be a native in one part of the continent but exotic (non-native) in another. Whether from aquatic, riparian, or terrestrial habitats, these plants usually invade only that type of habitat from which they come.

The following story illustrates several points about invasive plants. *Spartina alterniflora* (smooth cordgrass) from the east coast was transported to Willapa Bay, Washington where it proved very invasive and threatened a variety of species by virtue of converting mudflats into grassy

meadows. It was thoughtlessly transported along with oyster "spat" to seed Willapa Bay with a replacement for the depleted native oysters. This is an example of the unwitting introduction of an invasive species (*S. alterniflora*) which thrived and the purposeful introduction of a non-native species of oyster that, had it thrived, would have prevented the recovery of the native oyster variety. This story, told so poetically by Florence Caplow (2009), should be read by those wanting a concise, yet thorough education about invasive plants.

Most of our worst invasive plants were introduced either as hitchhikers, like *S. alterniflora*, or purposely transported but with unforeseen consequences. Many are now naturalized and would require enormous funds for eradication and vast amounts of herbicides, possibly with even more unwanted consequences.

In the past, a knowledgeable group of biologists would develop a list of known problem species as well as those species "to watch" in a given area. This often led to watched species being allowed to become naturalized in areas where removal would have been prohibitively expensive for even the more aggressive ones. Now that we recognize that invasive plants cannot be just watched, we are struggling with what controlling them would require. So the emphasis now is to control the spread of those already here and to prevent infestations of new invasive species. This will require monitoring all vulnerable areas and having the mechanism to quickly remove new introductions. This policy is now called early detection/rapid response or simply "ED/RR".

Cox, C.A.

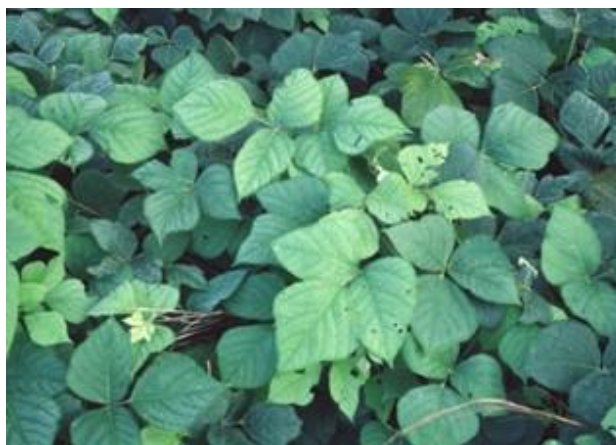
<https://doi.org/10.22488/okstate.17.100071>



(Article facing page.) Introduced to the U.S. in 1876 and widely cultivated after that as an ornamental, kudzu, *Pueraria montana* var. *lobata*, is a vine from Japan that has gained the title of “Scourge of the South”. Government agencies promoted kudzu for forage and erosion control for about 30 years, but it easily escaped cultivation. Growing rapidly, about a foot a day, and rooting at nodes, kudzu spreads quickly. Although dying back to the ground during Oklahoma winters, it completely re-covers shrubs and even mature trees the next season. Its invasiveness finally recognized, kudzu was designated first by the USDA as a noxious weed and then listed as a federal noxious weed in 1997. Photo by author.



Kudzu’s inflorescence is an axillary raceme in which the pea type flowers are whorled about the stem. It has a grape-leaf-like fragrance which adds to its appeal as an ornamental. Photo by author.



The leaves with 3 leaflets are arranged and often shaped similarly to those of a large poison ivy. However, the vine and leaf stalks are covered with stiff hairs. Photo by Bruce Hoagland.

Furthermore, since non-native species are not all equally invasive, we will first need to develop a ranking system of invasiveness; the inherent ability of the species to spread and displace native species. Such a ranking would provide a rational approach for control so that funds are spent for the most aggressive species first.

However, the threat of reducing biodiversity does not register significant attention at the state level in much of the U.S. For that reason, concerned citizens have established organizations to attempt to control invasive plants in their states. Here, the Oklahoma Invasive Plant Council (OkIPC) was established in 2008. Oklahoma is one of 35 states with an organization composed of interested stakeholders in biodiversity. In affiliation with the Oklahoma Native Plant Society, OkIPC educates Oklahomans about invasive plants and advocates for the efficient and effective management of invasive plants for the

protection of the economic and natural resources of Oklahoma's private and public land and water.

To learn more about solutions to the problems of invasive species, visit us at [www.ok-invasive-plant-council.org](http://www.ok-invasive-plant-council.org).

Caplow, ZF. (2009, May 16). Of Resurrection, *Slipping Glimpser*. [http://zenshin-edz.blogspot.com/2009\\_05\\_01\\_archive.html](http://zenshin-edz.blogspot.com/2009_05_01_archive.html) (accessed 20 Dec. 2009).

Pimentel, D. 2002. *Biological Invasions*. Boca Raton, FL: CRC Press.

