

Kudzu: A Threat to Texas' Forests

Seventh of the "Dirty Dozen"

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Editor's Note: An introductory article discussing exotic invasive pests that could threaten forest resources in Texas was included in the June 2005 issue of *Texas Forestry*. As a follow-up to that article, a series of 12 short articles about specific exotic pests that are either present in Texas or are at our doorstep is being presented in *Texas Forestry*. The authors (Joe Pase, Ron Billings, and Kim Camilli) are calling this series the "Dirty Dozen." Last month, Kim described nonnative privet, the sixth invasive pest in the series. Kudzu is the seventh invasive pest and the fourth plant to be presented. Next in the series: giant reed.

"Mile-a-minute vine," "foot-a-night vine," and "the vine that ate the South" are just some of the common names that kudzu has earned as an invasive plant. As its common names imply, kudzu is a fast growing vine. It was introduced into the United States at Philadelphia, Pennsylvania, in 1876, and due to its showy leaves and sweet-smelling, lavender blooms, kudzu captured the attention of American gardeners who used the plant for ornamental purposes.

In the 1920s it was discovered that some animals would graze kudzu resulting in its promotion and sale as a forage plant. Then during the 1930s and 1940s, the Soil Conservation Service endorsed kudzu for erosion control, and the agency offered farmers as much as \$8 an acre to plant the vines. By 1946, kudzu had been established on some three million acres of erodible land across the South.

But, it wasn't long before a problem began to develop – because of the ideal climate in the southern United States, the vine simply grew too fast! Kudzu has been documented to grow a foot or more in a day during the summer and as much as 60 feet in a year, climbing over everything in its path including houses, trees, and power poles. A poem by James Dickey contains the lines: "In Georgia, the legend says that you must close your windows at night to keep it out of the house."

Even though kudzu had some positive traits, it soon became evident that it would outgrow all other plants by shading them from sunlight. Kudzu was even destroying valuable forests. Finally, in 1953, the U.S. government stopped advocating the use of kudzu and the USDA declared it a weed in 1972. Kudzu is on the official 2005 Texas list of noxious terrestrial plants.

Kudzu, scientifically known as *Pueraria montana* var. *lobata*, occurs all across the southeastern United States and currently infests an estimated seven million acres. Some of the worst areas occur in Mississippi, Georgia, and Alabama. Although kudzu now occurs in Texas, fortunately it has not spread here like it has in other southern states. Localized areas of kudzu do occur, mostly in the eastern part of Texas. In response to a recent questionnaire that Texas Forest Service Forest Pest Management distributed to land managers in East Texas, kudzu was listed as present in the following counties: Cass, Cherokee, Collins, Gregg, Harrison, Jasper, Marion, Newton, Orange, Red River, Sabine, San Augustine, Smith, Upshur, Wood, and Van Zandt. It also was reported on the Angelina National Forest and the Big Thicket National Preserve (multiple counties). At least one population has been observed in Austin (Travis County). In addition, the author knows of a location within Lufkin in Angelina County.

Kudzu is a deciduous, twining, leguminous, woody vine with pubescent, alternate, compound leaves composed of three leaflets (somewhat like poison ivy). It has a large semiwoody, tuberous root system that may reach more than three feet into the ground. The woody vines have been reported to reach 10" in diameter, and the vine will produce new roots when it is in contact with the soil. The plant will also reproduce from seeds which occur in flat, brown, pubescent pods (about 1"-3" long and about 0.5" wide). Seeds are commonly dispersed by water, birds, and other animals.

The aerial portion of kudzu is not cold hardy and will die back from freezing winter temperatures. However, this freeze-killed material will form matted dead leaves that persist through the winter and add to the smothering characteristics of the plant. The roots usually survive the winter and produce vigorous new shoots in the spring. The attractive reddish-purple flowers occur in late summer or early fall and have a strong scent similar to grape Kool-Aid.

In spite of many negative qualities, kudzu does have some benefits. Because it is a legume, it will fix nitrogen in the soil; it is grazed by some animals and one North Carolina entrepreneur bales and

sells kudzu hay. Also, the vines have been used to make crafts like baskets, the flowers are said to produce good honey, and researchers are looking at the use of kudzu for medicinal purposes. Every part of the kudzu plant is edible and in its native China and Japan it finds many uses for food and medicine. Interestingly, kudzu's closest relative in the United States is soybean – and guess what, soybean is not a native plant to the US, either!

When no action is taken to contain kudzu, it can overtop native trees and other vegetation. What can be done if kudzu becomes a problem and control is needed? Unfortunately, there is no easy control for kudzu; however, success can be achieved with repeated treatments. Controlling well-established areas of kudzu to regain land for growing trees might not be economically attractive, as it could cost more to control an extensive growth of kudzu than the trees are worth. Because of kudzu's extensive tuberous root system which stores enormous amounts of carbohydrate reserves, the plant can survive repeated mowing and/or herbicide applications.

The following recommended control procedures are taken from James Miller's 2003 publication *Nonnative Invasive Plants of Southern Forests: A field guide for identification and control* (General Technical Report SRS-62. Asheville, NC. U. S. Department of Agriculture, Forest Service, Southern Research Station. 93 p.) This publication can be accessed on the internet at the following URL: <http://www.invasive.org/eastern/srs/index.html>

Recommended control procedures for kudzu:

Thoroughly wet all leaves (until runoff) with one of the following herbicides in water with a surfactant: July to October for successive years when regrowth appears—Tordon 101* ‡ as a 3-percent solution (12 ounces per 3-gallon mix) or Tordon K* ‡ as a 2-percent solution (8 ounces per 3-gallon mix), either by broadcast or spot spray—spraying climbing vines as high as possible. July to September for successive years—Escort* at 3 to 4 ounces per acre in water (0.8 to 1.2 dry ounces per 3-gallon mix)—or when safety to surrounding vegetation is desired, Transline† as a 0.5-percent solution in water (2 ounces per 3-gallon mix); spray climbing vines as high as possible or cut vines that are not controlled after herbicide treatment.

For partial control, repeatedly apply Garlon 4 or a glyphosate herbicide as a 2-percent solution in water (8 ounces per 3-gallon mix) with a surfactant during the growing season. Cut large vines and immediately apply these herbicides to the cut surfaces. Or, apply Garlon 4 as a 20-percent solution in commercially available basal oil, diesel fuel, or kerosene (2.5 quarts per 3-gallon mix) with a penetrant (check with herbicide distributor) to large vines as a basal spray (January to April), which controls vines less than 2 inches in diameter.

* Nontarget plants may be killed or injured by root uptake.

† Transline controls a narrow spectrum of plant species.

‡ When using Tordon herbicides, rainfall must occur within 6 days after application for needed soil activation. Tordon herbicides are Restricted Use Pesticides.

If you know kudzu occurs on your property in a county not listed above, please contact Joe Pase at the Texas Forest Service, by e-mail (jpase@tfs.tamu.edu) or by phone (936-639-8170) so a more comprehensive distribution list can be developed. Ideally, please include a specific location and a photo of the kudzu (especially the leaves) so a positive identification can be made. Once verified, new records will be added to a county distribution list and posted on the Texas invasive pests website at <http://www.texasinvasives.org>.

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**Kudzu
Flower**

UGA2307164



**Kudzu
Leaves**

UGA2307160

**Kudzu
Range
Map**



Species Reported



**Kudzu
Out of
Control**



**Kudzu
Seeds**

UGA2307165

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Flower, Seeds, and Leaves – Ted Bodner,
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Kudzu Vine Around Branch

Map – <https://www.denix.osd.mil/denix/Public/ES-Programs/Conservation/Invasive/forests.html#kudzu>