



## NOAA FISHERIES SERVICE



Kudzu (*Pueraria lobata*) was intentionally introduced to control soil erosion. The plant now occupies 7 million acres and is often referred to as “the plant that ate the South.” Growing an average of 12 inches per day, Kudzu literally swallows forests, preventing other plants and trees from getting proper sunlight.



Roadways create an opening for opportunistic invasive species to establish. Vehicles facilitate the problem by carrying seeds and plant materials deep into a previously inaccessible wilderness (Photo credit: Wildlands League).

## Preventing Invasive Species: Replanting and Maintenance of Native Communities

### Background

Once established, an invasive species is very difficult to eradicate. Prevention is the most cost effective and environmentally sound practice to limit invasive species introduction and expansion. Most invasive plants are opportunistic and become established following a disturbance or opening in the canopy. Therefore, following such disturbances, revegetation and maintenance of healthy communities composed of native plants becomes crucial to suppress invasive weed seedlings and prevent future infestation. Although restoration efforts have certain elements in common, each invasion and area is unique. Revegetation and restoration projects need to be based both on general principles and site-specific considerations and analysis. Finally, monitoring programs are necessary to track the success of control and restoration efforts and to detect any newly established invasive species.

### Recommendations:

#### **Actions that should be considered during restoration planning:**

- Before beginning any ground-disturbing activities, existing invasive plant populations within the project site should be controlled or removed.
- All restoration actions should begin in uninfested areas. The movement of vehicles and equipment from infested areas to non-infested areas should be restricted.
- All project staging areas should be free of invasive weeds. Travel through weed-infested areas should be avoided or restricted to those periods when the dispersal of seed or other invasive material is least likely.
- Vehicles, equipment, and personal gear should be cleaned and inspected before entering and exiting the project site.
- To prevent contained plant and soil matter from being redeposited, matter removed from the cleaning process should be bagged and incinerated or disposed of in a sanitary landfill.

#### **Actions that should be considered during construction:**

- Minimize soil disturbance or sequence soil disturbances areas to allow for rapid establishment of a healthy native plant cover.
- When working in relatively closed canopies, retain shade to the extent possible to suppress weeds and prevent growth.
- Preserve native vegetation in and around the project site as much as possible.



**Considerations for materials used for restoration:**

- All materials should be inspected on site to ensure that they are free of invasive species prior to use.
- If landscaping or fill materials (e.g., soil, sand, gravel, mulch) are found to be a source of invasive plants or seeds, immediately eradicate the weeds. Afterward, strip and stockpile the contaminated material for several years, if possible, and check regularly for weed re-emergence.
- Maintain all stockpiled, un-invaded material in a weed-free area.



Common reed (*Phragmites australis*) is an invasive wetland grass which produces an abundance of seed and also spreads through an extensive system of roots and rhizomes. (Photo credit: John M. Randall, The Nature Conservancy)

**Replanting following habitat restoration:**

- Eradicate all invasive plants from the project site before beginning replanting efforts.
- When revegetation may involve topsoil replacement, use native or certified weed-free material where appropriate and feasible.
- Revegetate using native seed mixes specific to the hydrologic and other conditions at the project site. For example, mesic soil conditions may be present on forest edges and hydric soil conditions in ditches, requiring different or adjusted mixes in these areas. Use state or regional seeding guidelines for a particular region to guide procedures and appropriate seed mixes.
- Use seed and other plant material that has been checked and certified as noxious weed-free and that has a weed content of 0.05 percent or less. If seed is not certified, a certified seed laboratory is needed to test each lot according to Association of Seed Technologists and Analysts (AOSTA) standards (which include an all-state noxious weed list) and provide documentation of the seed inspection test. Check state and federal lists to see if any local weeds need to be added prior to testing.
- Following project completion, regularly monitor all seeded sites for newly established invasive species. Invasive species are easiest to control when they first arise in an area, thus newly established non-indigenous species should be eradicated immediately following detection.



Once established, invasive plants can be difficult to eradicate. Control measures often involve time-consuming manual removal. (Photo credits: Above: Valley Coast Construction, Inc, Below: US Forest Service).





## **Suggested Resources:**

### **[Lady Bird Wildflower Center Native Plants Database](#)**

Lady Bird Wildflower Center. Available online at: <http://www.wildflower.org/plants>

*This site provides a searchable database for thousands of native plants by scientific or common name or family.*

### **[Manager's Guide to Roadside Revegetation Using Native Plants](#)**

Steinfeld DE., Riley SA., Wilkinson KM., Landis TD., Riley LE. 2007. U.S. Department of Transportation. Report # FHWA-WFL/TD-07-006. 28 pp.

Available online at: <http://www.nativerevegetation.org/learn>

*This guide summarizes an approach to effectively revegetate roadsides and other disturbance areas associated with road construction, modification, or obliteration.*

### **[Propagation Protocol Database](#)**

Native Plants Network. Available online at <http://nativeplants.for.uidaho.edu>

*This site provides a searchable propagation protocol database.*

### **[Native Seed Network](#)**

Native Seed Network. Available online at: <http://www.nativeseednetwork.org>

*This site provides powerful search tools and information on all aspects of native seed.*

### **[Roadside Revegetation: An Integrated Approach to Establishing Native Plants](#)**

Steinfeld DE., Riley SA., Wilkinson KM., Landis TD., Riley LE. 2007. U.S. Department of Transportation. Report # FHWA-WFL/TD-07-005. 423 pp.

Available online at: <http://www.nativerevegetation.org/learn>

*This report offers an integrated approach to facilitate the successful establishment of native plants along roadsides and other areas of disturbance associated with road modifications.*

### **[Seeds of Success](#)**

The Bureau of Land Management and Royal Botanic Gardens, Kew

Available online at: <http://www.nps.gov/plants/sos>

*This document coordinates seed collection of native plant populations to increase the number of species and the amount of native seed that is available for use in stabilizing, rehabilitating, and restoring lands in the United States*

### **[VegSpec](#)**

U.S. Department of Agriculture. Available online at: [vegspec.sc.egov.usda.gov](http://vegspec.sc.egov.usda.gov)

*This site provides a tool for developing seed mixes and selecting plant species appropriate to the climate, soils, and location of revegetation projects.*