

FLORIDA NATIVE TURFGRASS INVESTIGATION

PROBLEM STATEMENT

Florida's transportation industry has utilized non-native forage grasses to vegetatively stabilize the roadside rights-of-way. The Florida Department of Transportation (FDOT) frequently uses the non-native Pensacola and Argentine bahiagrasses and common Bermuda grass along roadsides. However, many non-native species are invasive, and state and federal agencies are increasingly interested in reducing the use of non-native species when native species are available and have similar effectiveness for landscaping and soil stabilization. For example, the U.S. Forest Service has recently requested that FDOT not plant any non-native species, especially varieties within the Phlox genus, within Ocala National Forest. In 1983, the FDOT committed to increasing their use of native species along rights-of-way. Little research has focused on the potential use of native grasses that form turf for soil stabilization along roadside rights-of-way.

OBJECTIVES

The purpose of this research project was to investigate the potential of several native grasses for use in both coastal and inland regions. The primary objectives included:

- Determining which native grass species might form turf under roadside conditions.
- Examining the potential for use of native salt tolerant turfgrasses.
- Examining the potential for use of native salt intolerant turfgrasses.
- Developing recommendations from this research for the use of native turfgrasses in roadside revegetation and for future research needs.

FINDINGS

Several concerns are pertinent to the utilization of any given native grass for roadside use, including method of propagation and issues of maintenance. The testing sites were the Blowing Rocks Preserve (BPR) for the investigation of salt tolerant grasses and the Disney Wilderness Preserve for the testing of inland flatwoods grasses. The following chart lists the species included in the investigation.

Species (Salt tolerant species)	Growth Habit and Characteristics	Commercial Availability
<i>Paspalum vaginatum</i> Seashore paspalum	<ul style="list-style-type: none"> • spreads by rhizome, fairly rapidly • drought tolerant • studied for use on golf courses • bright green color 	<ul style="list-style-type: none"> • available by sprig/plug in many locations around the Florida coast • available as sod in Tampa and Port Orange, FL
<i>Sporobolus virginicus</i> Seashore dropseed	<ul style="list-style-type: none"> • spreads by stolon • low growing, very fine bladed • bright bluish-green color 	<ul style="list-style-type: none"> • available by sprig/plug in many locations around the Florida coast • soon to be available as sod in Tampa
<i>Distichlis spicata</i> Saltgrass	<ul style="list-style-type: none"> • spreads by stolons • light green color 	<ul style="list-style-type: none"> • available by plug in many locations around the Florida coast
(Salt intolerant species)		
<i>Panicum anceps</i> Beaked panicum	<ul style="list-style-type: none"> • clumping grass, low growing • drought tolerant • bright green color 	<ul style="list-style-type: none"> • can be contract-grown if seed are provided (The Natives, Davenport, FL)
<i>Panicum portoricense</i> = <i>Dicanthelium portoricense</i> Hemlock witchgrass	<ul style="list-style-type: none"> • clumping grass, low growing • found in the wild in dense mats 	<ul style="list-style-type: none"> • can be contract-grown if seed are provided (The Natives, Davenport, FL)
<i>Eragrostis refracta</i> Coastal lovegrass	<ul style="list-style-type: none"> • clumping grass • attractive flowering stalk 	<ul style="list-style-type: none"> • can be contract-grown if seed are provided (The Natives, Davenport, FL)
<i>Axonopus furcatus</i> Big carpetgrass	<ul style="list-style-type: none"> • spreads by rhizome • found in the wild in dense mats • found on roadsides around DWP 	<ul style="list-style-type: none"> • not commercially available at this time
<i>Paspalum distichum</i> Knotgrass	<ul style="list-style-type: none"> • spreads by rhizome, fairly rapidly • forms dense mats • bright green color 	<ul style="list-style-type: none"> • available as plugs or sprigs in the central Florida area (Horticultural Systems Inc., Parish, FL)
<i>Paspalum setaceum</i> Thin paspalum	<ul style="list-style-type: none"> • low-growing, clumping grass • found on roadsides around DWP 	<ul style="list-style-type: none"> • not commercially available at this time
<i>Eustachys petraea</i> Pinewoods fingergrass	<ul style="list-style-type: none"> • spreads by rhizome, fairly rapidly • found on roadside in large quantities all over Central and S. Florida, including I-95 and The Florida Turnpike • light bluish-green color 	<ul style="list-style-type: none"> • not commercially available at this time

The following are among the observations made during the project:

- Currently, the most promising approach for using native grasses for turf appears to be use of commercially available sod. However, if site preparation were sufficient to preclude immediate recolonization by native and non-native weedy species, sprigging would likely be successful.
- *Distichlis spicata* is not likely to be a hardy roadside species, but *Sporobolus virginicus* and *Paspalum vaginatum* may be appropriate for coastal conditions.
- Site preparation to reduce the seedbank of undesirable, weedy species is imperative for successful establishment of native turfgrasses.
- Species directly sowed into plots saw limited establishment, regardless of the cultural treatment involved.
- In the shadehouse, Roundup® negatively impacted germination of sown species to a greater

extent than did Plateau[®].

- In the pasture plots, there appeared to be no consistent effects of the herbicide treatment on either target or non-target species.
- In the flatwoods study, the establishment of sprigs of *P. distichum* was more successful than that of seeded other species, even in a year of record drought.
- High variation in the establishment and growth of native grasses among blocks or sites in all experiments coupled with positive responses to irrigation and season suggest that cultural practices that alleviate water and/or heat stress in germinating seedlings and sprigs will enhance turfgrass development.

CONCLUSIONS

This project has investigated the potential benefits and drawbacks for the use of several salt tolerant and salt intolerant grass species in both inland and coastal regions of Florida, which are under intense development pressure. Turfgrasses are desirable for many situations, including roadside clear zones, retention ponds, golf courses, and lawns. Using native sod adjacent to natural areas would meet more of the management objectives for these areas than does the current practice of using non-native, often invasive grasses.

This research project was conducted by Doria R. Gordon and David A. Jones at the University of Florida. For more information, contact Gary Henry, Project Manager, at (850) 488-2911, gary.henry@dot.state.fl.us

NOTICE:

Since we completed this research and report, we have learned that some researchers suspect that *Paspalum vaginatum* is not native to Florida. The genetic research needed to evaluate this hypothesis has not yet been conducted. However, we wish to caution readers that we do not know whether the coarse-leaved *P. vaginatum* ecotype is indeed a native substitute for non-native turfgrasses. We suggest that this species be used only experimentally until the origin can be identified. We apologize for the confusion that this clarification causes.

Doria Gordon, Amy Miller, and Michael Renda, The Nature Conservancy 2002