

Executive Summary
Establishment and Management of Native Grasses and Forbs in Highway Corridors
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This project was designed to characterize soil fertility and pH of roadsides in South Carolina. A second objective was to characterize vegetation on the managed ROW of highways. The I-26 corridor was selected to provide a sampling transect across the landscapes and environments in our state. Sample sites were selected in a stratified manner, to assure representation of each of the State's soil regions in the study. Recently amended sites were avoided to focus on the native state of road corridor soils. We report data on P, K, Ca, Mg, and pH. At each site the plant species occurring in the vicinity of the sample point were recorded. Each sample point is identified by GPS latitude and longitude coordinates.

The soils along the roadside are highly variable in fertility and pH. Available P is low throughout the state except for a few isolated sites on the Piedmont, and the remarkably high P in soils near Charleston. Soil K displays a clear trend for medium to high K in the Piedmont declining to lower values on the Coastal Plains soils. This mirrors the lower clay content in surface layers as you move toward the coast. Soil pH was mostly moderately acid, with a significant number of very acid sites. A few sites near the coast had alkaline (pH=7.0 +). Soil P, K and pH were marked by high variability within and among sample sites. Sample sites with values 2 to 4 times higher or lower than adjacent sites were very common. Within site variability (median vs. margin) was likewise high and, in some instances, extreme. This suggests that soil samples from roadsides may represent a limited area close to the actual sample point.

The vegetation data displayed several interesting trends. Number of species per site declined from the Piedmont to the Coastal Plain. There were more species on the road margins, which include the backslopes, than on the medians. Medians are mowed much more frequently, which probably weeded out less hardy species. Tall fescue had largely disappeared from the roadside by Columbia, except for a few very wet sites near the Coast. The most clear-cut finding was the strong dominance of bahiagrass throughout the state. Native grasses and wildflowers were more common on the Piedmont, and then particularly on the less frequently mowed backslopes.

The vegetation appears to be relatively healthy, in spite of low P and acid pH. It is likely that a fairly efficient nutrient cycling system is operating in roadside sods, which is able to provide adequate nutrient flow to the plants in spite of low soil supply of nutrients. Many native species are well adapted to low fertility, acid soil sites. Except for the frequent mowing over much of the interstate corridor, native grasses forbs and shrubs might be much more common. They are much more common on secondary roads. The most limiting sites, such as the perennially bare areas, currently support only natives. Native species offer an opportunity to move toward lower maintenance roadsides. More research is needed to develop rapid establishment techniques for natives, and to determine mowing tolerance of the common native species on roadsides. Mowing guidelines may need to be re-examined to encourage a more natural, historically significant roadside vegetation look.

This report provides a rigorous basis for planning the future of roadside vegetation management in our State. All of the data are available in an electronic spreadsheet format for future application. The design of the study and sampling method expand the applicability of the results beyond the I-26 corridor to the entire state. With some qualification, and buttressed by satellite studies in other areas of the state, we will have a nutritional basis for roadside vegetation management.