

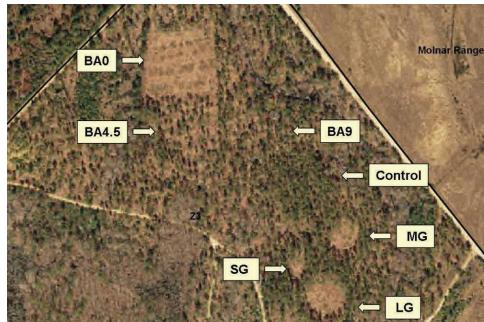
RECENT AND ONGOING RESEARCH

- ♦ *Does the local fuel complex affect fire behavior in xeric sandhills?* Fire behavior differed among LLP, wiregrass, and turkey oak fuel complexes. Such variation may be important for maintaining biodiversity.



- ♦ *How can LLP dominance be restored to loblolly stands without clear-cutting?* We set up a field experiment at Camp Lejeune, NC and Fort Benning, GA to evaluate alternative approaches for gradual conversion to LLP. Groundcover and LLP seedling responses are being measured.
- ♦ *Is there a seed bank of desirable species in LLP habitats?* Some species have seed that remain viable in the soil for some time. We are studying seed banks to determine their potential value to restoration.

Below: Aerial view of thinning and gap experimental treatments at Fort Benning, GA.



- ♦ *Does the seed source affect restoration success?* A general rule for restoration is to plant seeds collected nearby. This helps conserve local genetic information. But, a seed producer would like to sell seed that can be used over a large geographic area. Along with partners in SC, we have started a common garden study to find out how species vary with seed source. The results will support the developing native seed industry.

Below: Partners inspecting wiregrass plugs at the Taylor Nursery in South Carolina.



For More Information Scan Here!
Website: <http://www.srs.fs.usda.gov/longleaf>



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NATIVE GROUNDCOVER RESTORATION



**RESTORING AND
MANAGING
LONGLEAF PINE
ECOSYSTEMS**

WHY RESTORE THE GROUNDCOVER?

The longleaf pine (LLP) ecosystem includes some of the most species-rich plant communities outside the tropics, and most of that diversity is in the groundcover vegetation. The groundcover harbors many rare plant species, enhances the habitat for resident fauna, and produces fuel needed to carry surface fires that perpetuate the system. A vigorous and continuous groundcover facilitates the use of prescribed fire, one of the most effective and economical methods for achieving landowner objectives. Restoring the groundcover is increasingly cited as a management objective.

WHY IS GROUNDCOVER RESTORATION SO CHALLENGING?

- ◆ Groundcover composition varies with geography and local site conditions.
- ◆ Starting conditions vary considerably and are a function of previous land uses.
- ◆ It involves many tasks such as seed collection and storage; site selection and preparation; canopy management and post planting treatments. Actions must be coordinated.
- ◆ We do not understand how to create new and persistent populations of many desirable native species.



Right: Seeds of one of the many wildflowers found in the groundcover of LLP communities.



Left: Greenhouse grown wiregrass seedlings.

Right: Mixed grass seed collection.

LESSONS FROM ADAPTIVE MANAGEMENT RESTORATION PROJECTS

- ◆ Restoration is site specific.
- ◆ Historical land use contributed to current conditions that drive restoration protocols.
- ◆ Protocols almost always include controlling undesirable species, adding desirable species, and burning.
- ◆ Many native species can be grown from seed. Use good seed; control competition.
- ◆ Seed collection and sowing can be done by hand or machine.
- ◆ Weather events affect success; expect to repeat the process.
- ◆ Restoration requires long-term commitment.



Left: Hand-collected seed bagged for transport.

Right: Wiregrass seedling found at a restoration site where seed was broadcast by hand.

SRS-4158 GROUNDCOVER RESTORATION RESEARCH—examples

- ◆ *What factors control seed production and seedling establishment of wiregrass (*Aristida stricta*), a dominant bunchgrass in the Carolinas?* Unexpectedly, flowering stem (culm) production was stimulated by late winter (February) burns conducted on warm days. The temporal burn window for wiregrass seed production may include late winter for some locations.
- ◆ *How do plantations differ from reference conditions?* Surprisingly LLP regeneration with mechanical site preparation in dry sandhills resulted in the significant reduction of only two species, dwarf huckleberry and wiregrass. But these species are the dominant species on reference sites. The result was similar on intermediate and wet sites.



Above: Established restoration site in Florida.