A champ comes back

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Return of Longleaf to the Sandhills

Now that this valuable species can be planted successfully in the Carolina-Georgia Sandhills, three million acres in scrub oak and old field cover have a fighting chance to become productive again

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Can the "champ" come back?

The answer is yes, providing the results of early trials in the Carolina Sandhills are indicative of the ex-champ's ability to win over tough odds.

Who is this "champ"? It is none other than the former king of the Southern trees, longleaf pine.

What are the tough odds? They consist of three million acres of droughty, deep sand soil in the Carolina-Georgia Sandhill region now largely in scrub oak or old-field cover.

What are the early trials? These are planting experiments carried on during the past three years under a multi-agency sponsorship. Results show that longleaf pine can be planted successfully even where plant competition for available moisture and nutrition is most critical.

How did this all come about? The vast Sandhills once supported good stands of longleaf pine. For many years they yielded an uninterrupted flow of naval stores, millions of board feet of fine lumber, dense-grained timbers, and innumerable poles and pilings. With the depletion of the longleaf pine, a brushland of scrub oak developed, yielding some fuelwood and a mere trickle of more valuable products as a sorry reminder of the past. The need for a merchantable tree cover was critical.

Efforts to plant longleaf pine generally failed. Many foresters and landowners gave up in favor of the more easily established slash pine. On the better soils, slash pine grew well. But in many locations it did not. This, coupled with the fact that the species was being planted out of its native habitat, invited future trouble to large-scale planting programs dedicated to slash pine.

With the establishment of the Savannah River Project of the Atomic Energy Commission in the South Carolina Sandhills, the problem became of primary concern. Almost a hundred thousand acres of old fields were designated for planting in this area. Furthermore, since World War II a greatly increased private interest in the forest production potential of the Sandhills pointed to large-scale industrial planting programs. For such reasons, the writers, who work out of the Southeastern Forest Experiment Station's Santee Research Center, Charleston, S. C., began in 1952 to look into the possibilities of planting longleaf pine, the native Sandhills species of proven merit. We also nurtured the thought that in learning to plant longleaf — the recognized "toughy" — many problems associated with planting other species could also be solved.

We found a two-pronged challenge. One was to develop economical and practical means of controlling the scrub oak and other plants competing for soil moisture and nutrients, especially during the critical first years after planting. In addition to better first-year survival we needed a vigorous seedling growth to bring the longleaf out of the grass in as short a time as possible. The second challenge was to develop basically drought-hardy and vigorous longleaf pine planting stock through proper culture in the nursery.

Fortunately the research and experience of many others were available to help orient our Sandhills investigations. On a Southwide basis considerable research has been done on the problem of planting longleaf pine. Even when early failure was

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Now research has found a way of restoring the pine. Results here were obtained by furrowing for planting, poisoning residual oak a year later

the immediate reward, learning what not to do paved the way for later successes which could be tested or applied in the Carolina-Georgia Sandhills. Locally we were guided by the planting experience of state agencies and others dating back to the early thirties.

Good cooperation helped offset limited research funds. Experimental areas, labor, equipment and technical assistance were furnished by Project Forester John B. Hatcher, Savannah River Project, and South Carolina State Forester Charles H. Flory, who also provided nursery facilities. Professor T. Ewald Maki, North Carolina State College School of Forestry, tackled the problem of growing drought-hardy nursery stock with the cooperation and assistance of North Carolina State Forester Fred H. Claridge and his staff at the Clayton Nursery and Bladen Lakes State Forest. Dr. R. D. Shipman, Santee Research Center, assumed technical responsibility for conducting the field investigations. Three years of this effort resulted in a multitude of experimental plantings, including large pilot-plant areas. To name a few, tests included season of planting, grade of nursery stock, foliage clipping, root pruning, seedling age, seed source, and site preparation on various soils and locations.

Final results won't be available for several years. In the meantime, sufficient evidence is on hand to allow the development of an interim guide for planting longleaf in the Sandhills:

Item	*General Treatment*
A. Planting stock	1. Use 1-0 longleaf pine from local seed source grown at low seedbed densities, not more than 20-25 per square foot. Always cull out morphological grade 3 stock.[1] 2. Clip foliage to about one-third needle length if naturally longer than 6 to 8 inches. 3. Prune long roots to about 8 inches.
B. Site preparation in scrub oak.	1. Clear, plow, and drag using heavy, tractor-drawn equipment. Allow a minimum of 6 months for stabilization before planting. 2. Or, plow single furrows 6 to 8 feet apart with heavy equipment. Allow 30 days for stabilization; if less, plant seedlings about one-half inch higher than usual.
C. Site preparation in old fields	1. Plow single furrows 6 to 8 feet apart. Allow 30 days for stabilization; if less, plant seedlings about one-half inch higher than usual.
D. Planting	1. Machine plant whenever possible.
E. Release	1. Not later than the second or third growing season, poison sprout growth or residual scrub oaks in close competition with planted pine. Effective methods include: (1) Ammate crystals applied in notches, and (2) a mixture of one part 2,4,5-T (4 lbs. acid equivalent) to 20 parts of fuel oil, applied as a basal spray or to stumps. All chemicals work best if applied during the growing season.

[1]Needles less than 8 inches long, often scanty; stem less than 3/16 inches thick, and no winter buds present.

Project Forester Hatcher is among the most confident that longleaf pine can come back. During the 1955-56 planting season almost 2 million longleaf pine seedlings (2400 acres) were planted on old fields of the Savannah River Project, utilizing essentially the techniques as outlined above. Next year, providing seedlings are available, even more longleaf will be planted.

Prospects for the restoration of a merchantable timber cover over most of the Sandhills sites are good now that we know longleaf pine can be planted successfully. But there is still much to be done researchwise. Established studies need to be followed through. New studies should be initiated, not the least of which is one evaluating various planting sites to determine yields by products and species. A continuing challenge is the improvement of nursery and planting techniques aiming at decreased costs and better survival.