Feature Story

Tree planting – forests made by hand

By Jim Barnett

The typical tree-planting scene hasn't changed much in 50 years. Workers armed with tree bags on their backs and hoedads or dibbles will line up on a frosty morning to begin the process of putting seedlings in the ground one by one.

What is different is the whole philosophy that has made planting the recommended and accepted way of regenerating pine trees and has lead both to monumental forest production, but also for shortages in nursery stock. Seedling needs this season—and for the past few years—could not be met by state nurseries, but that fact is a testament to Louisiana's place in the forefront of reforestation.

The 13 million acres of forests in Louisiana are due to efforts such as these -- planted forests that swallowed up the vast expanses of cut-over lands and transformed the state into one that is 48% forests. Planting has become the preferred method of regenerating trees. (Photo courtesy Jim Barnett)

The Past

Louisiana has led in the development of reforestation technology in the South, largely due to the harvesting methods of the virgin forests which left few, if any, seed trees. Much of the cut-over land did not have sufficient seed source for natural regeneration and large areas reverted to open range or grassland. Henry Hardtner, organizer of the Urania Lumber Company in 1898, was considered an oddity because he believed in the potential of second growth timber and began to purchase cut-over land with the idea that reforestation could be profitable. In 1913, he placed a portion of his forest lands under a reforestation contract with the State of Louisiana and because of his vision and commitment of forest management became known as the "Father of Forestry in the South."

During the 1920s, the Great Southern Lumber Company of Bogalusa adopted some of Hardtner's ideas and began a bold tree planting program by transplanting wild seedlings to some 30,000 acres of cut-over lands. The establishment of the Southern Forest Experiment Station of the USDA Forest Service in New Orleans and assignment of pioneer scientists such as Philip Wakeley to the reforestation effort paid great dividends.

Much of the basic seed and seedling technology for the nursery production of Southern pines was developed in cooperation with the Great Southern Lumber Company. In 1929, nursery production of the Great Southern, Industrial Lumber, Brown Paper, Krause-Managan Lumber and Long-Bell Lumber companies reached 5 million seedlings.

As the Depression hit the state nursery production and tree planting were at a low ebb, except on the Kisatchie National Forest. It was during this period that the national forest was created largely from cut-over forest land. Reforestation of this land was enhanced by the use of the Civilian Conservation Corps crews. The Stuart Nursery was developed near Pollock in 1935 with help of the CCC and they planted 100,000 acres of Kisatchie National Forest land to Southern pines before the outbreak of World War II.

After World War II an intensive effort in tree planting began. The Southern Forest Experiment Station established a research program at Alexandria with a special emphasis on improving reforestation techniques. Hundreds of thousands of acres of cut-over land remained as open range and needed to be planted. From 1947 through 1958, a total of 572 million seedlings were produced in the State. In an effort to further speed the reforestation effort, the Southern Station developed aerial direct seeding techniques, and in 1958 more that 50,000 acres were reforested by direct seeding.

Reforestation efforts peaked during 1959-1961 when as many as 200,000 acres per year of cut-over land were planted and seeded to pine forests. Planting and seeding declined markedly in the mid-1960s, largely because most of the cut-over land had been reforested, and these young stands had to mature before major harvesting again occurred. It was in the late 1970s before tree planting again averaged over 100,000 acres per year, but since the 1970s about 130,000 to 150,000 acres have been planted annually. The emphasis has been on pine plantings with hardwood naturally regenerating, but recently hardwood plantings have increased also.

The Present

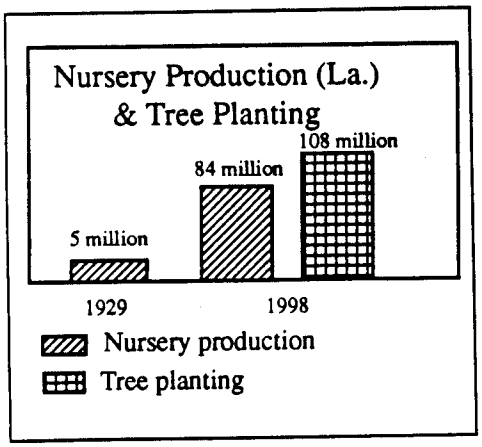
The past reforestation successes have resulted in a forest resource that now drives the state's economy. The forests of Louisiana produce more than just wood fiber and timber. They also supply wildlife habitat, a wide diversity of plants, recreational opportunities, clean water, and fresh air. Currently about 84 million seedlings are produced annually for reforestation in state and private nurseries in Louisiana. However, in recent years the demand for seedlings has been greater than the capacities of the nurseries, and procurement of another 25 to 30 million seedlings from outside the state has been a necessity.

One reason that nursery production is not meeting the current needs is due to changes in nursery culture. To improve seedling quality and resulting planting success, fewer seedlings are now grown per square foot of the nursery bed. Compounding the problem has been high timber prices that have encouraged increased harvesting that requires greater amounts of reforestation. Thus, nursery production is less than current needs. Just maintaining the current levels of production requires a tremendous commitment of manpower and resources, as well as a high level of technical skill.

New technology to improve planting success continues to be developed. For example, techniques to produce tree seedlings in small containers have been developed that can significantly improve establishment success, especially when planting is on difficult sites, or with a species like longleaf pine which is difficult to regenerate.

Although container grown material is more expensive, most land owners prefer to use container stock when planting longleaf pines because seedling establishment is markedly better than for bare-root stock. There is increasing interest in planting longleaf pine because it is a highly desirable tree that resists fire, insects and disease and produces high quality wood products.

Clyde Gehron and his daughter Elizabeth pictured in 1968 inspect seedlings at the Beauregard Parish Nursery. The first state nursery was begun in 1925. (Photo from Forests & People files)



Critical to maintaining a productive forest resource is knowledge, capability and commitment to manage all the elements of the reforestation process. Aspects of forest regeneration that must be considered include: species selection, production of high quality, genetically improved seeds, production of quality bare-root or container nursery stock, adequate site preparation for seedling establishment, proper supervision of tree planting or seeding, and post-planting care of seedlings. Technology to manage these aspects of forest regeneration continues to improve.

The Future

Great strides have been made in the last 60-70 years to develop the capability to restore the productivity of our forest lands. Harvesting of the original forests left unproductive cut-over land, much of which was not reforested until the 1950s and 1960s. These forests are now the mainstay of the Louisiana's economy. In addition to being an $5.4 billion industry, these forested lands support a vast recreation business, contribute to clean air, supply abundant water for domestic, agricultural, and industrial use, and provide diverse habitats for plants and animals.

But we have now reached the point where harvests exceed the growth in our pine forests. It is essential, then, to put additional effort into sustaining and enhancing the productivity of our forests. This will require: (1) an increasing number of the state's small landowners to replant and manage their forest land; (2) forest industry to further enhance the productivity of their land; (3) public lands to be managed so that long-term productivity is maintained; and (4) development by research of site-specific recommendations for improving reforestation techniques and stand growth on forest lands.

Concern about sustaining the productivity of Louisiana's forests lead the legislature to establish in 1997 the Louisiana Forestry Productivity Program. This act directs that 75% of the state's share from the timber severance tax be placed in a special fund to be used by the Louisiana Department of Agriculture and Forestry. Small landowners can receive cost sharing to implement site preparation, planting or seeding and control of competing vegetation. A portion of the funds may be expended to support research to ensure that the best available technology is applied under the Act.

The advent of this program, which made more than $3 million available in the first year, has been hailed by forestry officials as the most important piece of

forestry legislation in 50 years.

The challenge to Louisiana's forest landowners, managers, and researchers is to work together to develop and apply the information needed to enhance the productivity of our forests. To ensure cost effective use of Forestry Productivity Act funds and optimize long-term benefits, it is essential to use available scientific knowledge and to continue monitoring new findings and evolving theory.

A significant research need is to develop and provide to landowners more site-specific guidelines for reforesting and managing their forests. This will continue the tradition of excellence in forest management within the state. Effective tree planting still remains the key to maintaining the types of forests that are essential to the economic well being of people of Louisiana.

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