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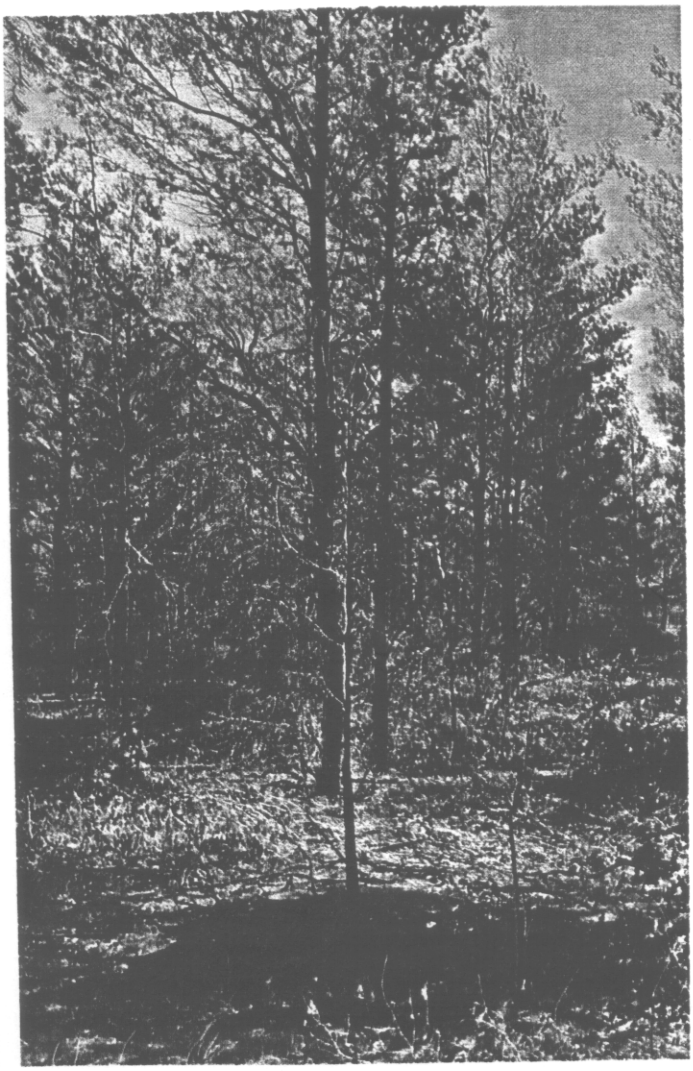

SAND PINE IN GEORGIA

A Look At A Tri-County Demonstration Program

BY DRUID N. PRESTON
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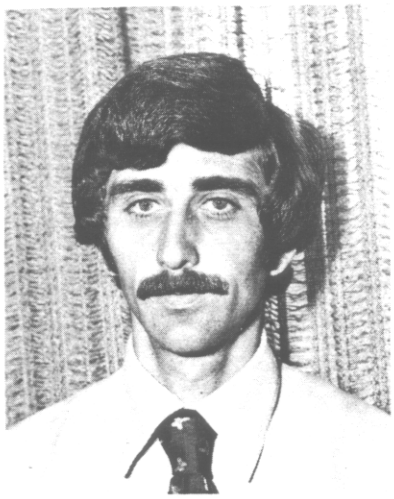

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A LOOK AT A TRI-COUNTY DEMONSTRATION PROGRAM

BY

DRUID N. PRESTON AND TERRY S. PRICE

INTRODUCTION

Georgia has approximately 24 million acres of privately owned forest land producing about one cord of wood per acre per year.

Unfortunately, there are areas in Georgia that are considered unproductive forest lands. These areas are the dry sand sites (usually Lakeland, Eustis and Kershaw sands 80" or more in depth) covered with scrub hardwoods, wiregrass, or other unmerchantable vegetation. Landowners have tried to establish slash and loblolly pines on open fields and site-prepared areas, but growth has been very poor.

During the early 1970's, Marion, Taylor and Webster counties were reported to have an unusually high percentage of non-stocked and poorly stocked forest land.[1] In 1972, the Coastal Plains Regional Commission stepped in to assist by making a $60,000 grant to the Georgia Forestry Commission to demonstrate to landowners the benefits of planting and growing sand pine on these poor, deep sandy sites. This demonstration program has assisted in converting unproductive sites into sand pine plantations.

The Coastal Plains Regional Commission became active in Regional Development in 1967. Since this time, it has focused on a mission to accelerate economic development in all Coastal Plains counties in Georgia and the Carolinas. The effort to improve productivity of this large, non-producing area of land could have far-reaching effects on the area's economy, including pulpwood production, an essential factor in the Region's paper industry.

[1] USDA, Forest Service Resource Bulletin SE-22, June 1972.

THE DEMONSTRATION PROGRAM

Objectives

The U.S. Forest Service Survey, completed in January 1973, listed 564,200 acres in the Georgia Coastal Plains Region as "non-stocked" in timber. The term "non-stocked" relates to commercial forest land having less than 16.7 percent of live trees of desirable species. Marion County had 51 percent of its woodlands in this "non-stocked" category; Taylor had 53 percent; Webster had 32 percent (Tables 1 and 2).

The objective of the program was to demonstrate an economically feasible method of converting these "non-stocked" or undesirably stocked lands throughout this tri-county area into commercial productivity. Also expansion of the program throughout the Coastal Plains Region was considered.

Background

Preliminary investigations had found after extensive experiments with various pine species including loblolly and slash pine, that a sand pine receiving increasing attention in Florida and the Carolinas could be an answer to the Georgia sand hills' problem. (Fig. 1) Further research showed that two distinct varieties of sand pine—Choctawhatchee (*Pinus clausa* var. *immuginata* Ward) and the Ocala (*P. clausa* var. *clausa* Ward)—should grow well in the tri-county area of Marion, Taylor and Webster. (Figure 2)

Sand pine has been planted as early as the 1950's in Georgia by private industry and the U.S. Forest Service. Research data collected from these plantings pointed to the Choctawhatchee variety as the species to plant in Georgia. (Fig. 3) Consequently, it was selected by the Georgia Forestry Commission as the species to use in the demonstration program.

Table 1.—*Non-Stocked and Poorly Stocked Forest Land in Marion, Taylor and Webster Counties as of 1972*[1]

County	Non-Stocked	Poorly Stocked	County Forest Land
	---------- Acres ----------		(Percent)
Marion	43,600	49,900	50.7
Taylor	53,000	48,000	53.2
Webster	--	30,600	32.4
Total	96,600	128,500	
	225,100		

Table 2.—Forest Management Needs Regarding Non-Stocked and Poorly Stocked Land by County[2]

County	Needing Preparation and Planting	Open Land Needing Planting	Landowners of This Acreage*
	(acres)	(acres)	(No.)
Marion	93,400	16,500	1,696
Taylor	101,100	21,000	1,722
Webster	30,600	9,400	716
Total	225,100	46,900	4,134

*Of the 4,134 landowners, 2,417 own 500 or fewer acres.

[1]Ibid.
[2]Ibid.

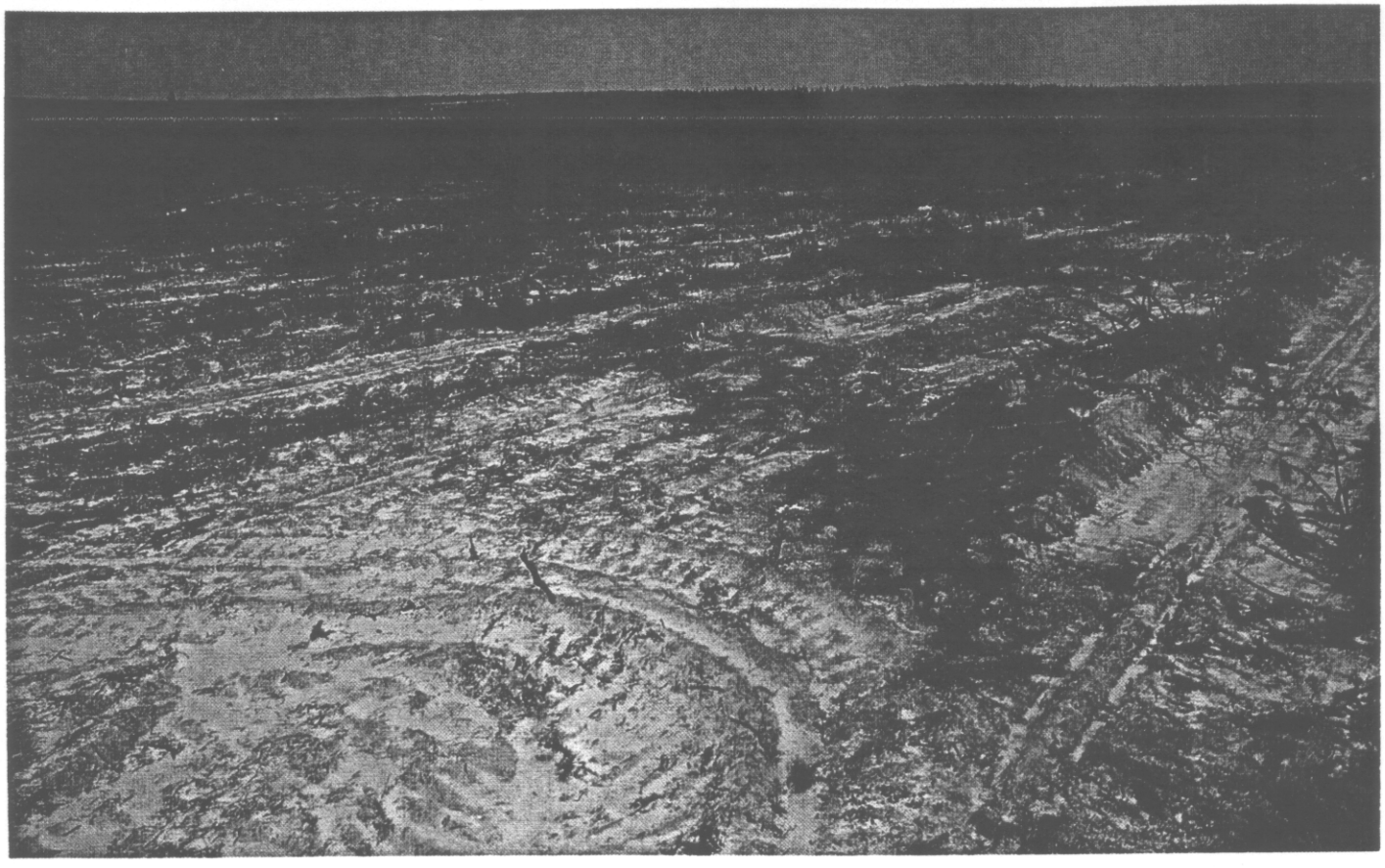

Fig. 1. The Sandhills along the Fall Line area of Georgia are predominantly Lakeland, Eustis, and Kershaw sands. These soils are low in natural fertility and organic matter. Ongoing U.S. Forest Service research and other demonstration programs throughout Georgia and Florida have shown that sand pine can well adapt to the adverse conditions of these deep sandy soils.

METHODS

Site Preparation

Site preparation and tree planting in the study area met with cooperation throughout the initial stages. Landowners who were not able to obtain reforestation services from a private contractual source, called on the Georgia Forestry Commission to assist in site preparation, tree planting and when necessary prescribed burning. This ongoing GFC service is performed within a contract agreement with landowners. The per-acre fees go toward equipment replacement and maintenance as well as operation.

Furthermore, landowners have access to the Forest Incentive program. This federally-funded program was started in 1974 to encourage forestry by providing financial assistance to private landowners in reforestation projects. FIP will allow site work to be carried out by approved vendors and will provide payments toward site preparation and planting costs.

In the tri-county areas where there was a medium growth of scrub hardwood and other unmerchantable vegetation, the land was chopped with a rolling drum chopper, burned off and planted (Fig. 4). When growth was heavy, however, the area was thoroughly chopped, root-raked and the residue piled into windrows. Debris was usually eliminated about three weeks after it was chopped.

Tree Planting

In tree planting, a V-blade was used on the tractor front to push litter aside (Fig. 5). The tractor pulled a tree planter, and seedlings were planted in the cleared paths. Foresters have since found, that although the young trees had to compete with scrub hardwood that survived the site preparation, the sand pine grew faster than the competing vegetation.

It was essential for the seedlings to be planted deeply with soil covering the lower live needles and branches. Optimal planting conditions included spacing seedlings on a 6 x 10-foot spacing (Fig. 6).

Handling Seedlings

Those working in the program made sure the seedlings were kept off concrete floors and not allowed to heat up. Seedlings could not be kept out of the ground for more than one week, therefore research foresters used guidelines of planting only dormant 1-0 stock between December 15 to February 28 for maximum success of the immature trees. Bales had to be stored in a shaded area, and could not be stacked unless proper ventilation was assured.

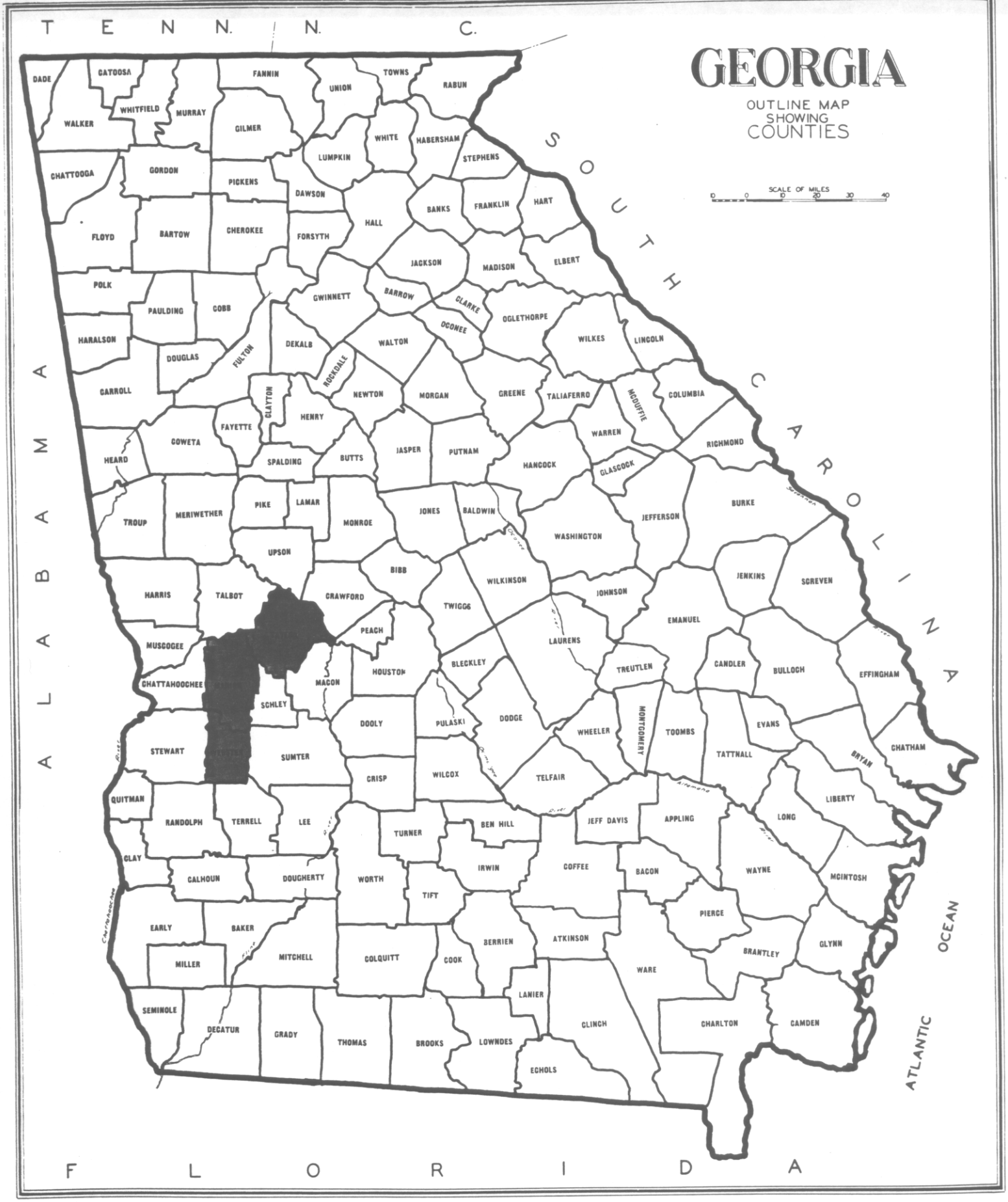

Fig. 2. The tri-county area of Marion, Taylor and Webster Counties is located within the Sandhills Province along the Fall Line. There are several other counties and areas within Georgia that have ideal sand pine sites. This demonstration program has played a key role in stimulating interests among private landowners to plant sand pine.

Fig. 3. The Choctawhatchee variety of sand pine is less susceptible to mushroom root rot than the Ocala variety. It also has a better growth form. These Choctawhatchee sand pine were underplanted and then released from the over topping hardwoods. Height growth has averaged two feet per year.

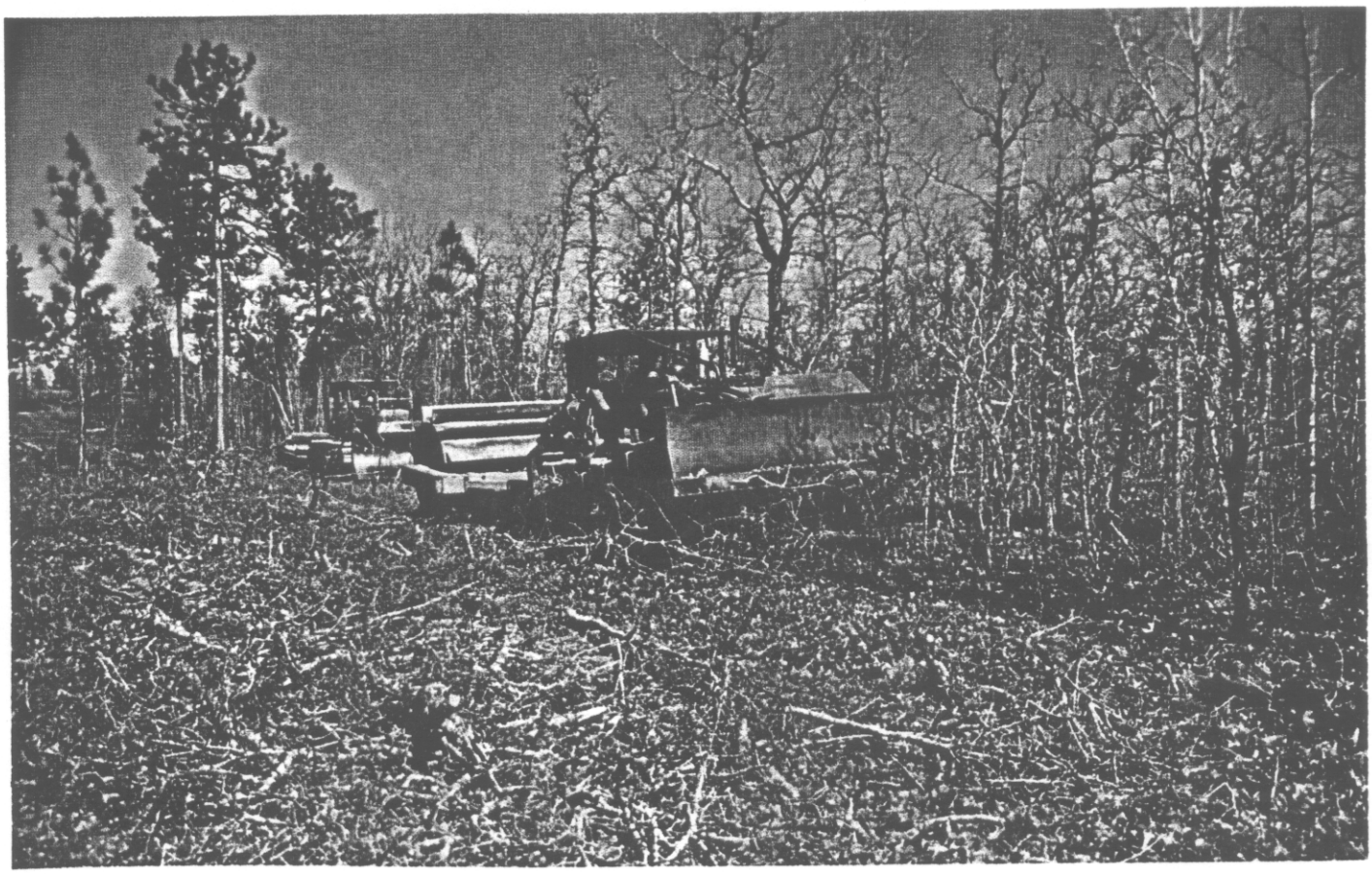

Fig. 4. This eight foot rolling drum chopper is being drawn by a crawler tractor.

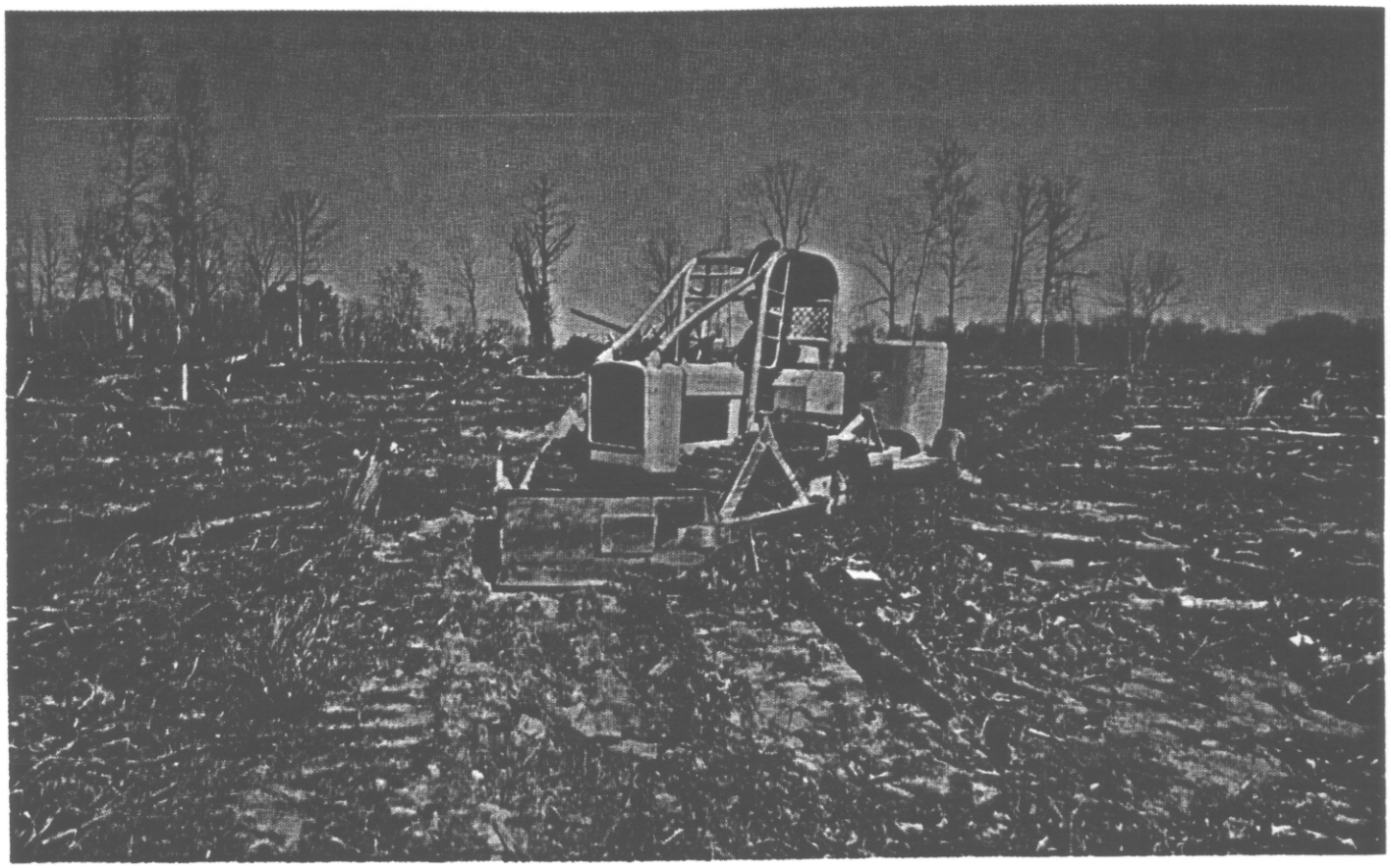

Fig. 5. A V-blade, mounted on a crawler tractor, was used during the planting operation to push litter aside.

Fig. 6. A Whitfield tree planter is being drawn by a crawler tractor.

RESULTS AND DISCUSSION

Although the sand pines planted under this program are only in their first decade of growth, foresters have found that the Choctawhatchee variety has been successful in adapting to the soils and climate in the tri-county area. Older plantings of sand pine by industry and Forest Service foresters in these same counties have proven to be relatively problem free.[1]

On small acreage in the tri-county program, foresters found it best to underplant and release immediately from overtopping hardwoods, or use prescribed chemicals to reduce scrub hardwoods prior to planting. Survival was usually good when planted among scrub oaks and not released, but growth would be slower until the sand pine overtopped the oaks.

[1]Personal Communications with industry foresters have indicated problems with pine tip moths in localized areas.

Satisfactory seedling care before and during planting was found to be necessary for maximum positive results, and adequate site preparation, when needed, was part of the success.

Based on data collected by the GFC in the tri-county demonstration area, the Choctawhatchee variety has grown 18 feet in height in six years (Table 3). Also, when interplanted with an already established slash pine planting, the Choctawhatchee has averaged .6 foot more per year in height growth than slash pine and with a higher rate of survival (Table 4).

To date, about 3,500 acres of sand pine have been planted in the demonstration area. The demonstration program has stimulated such an interest among landowners in the tri-county area towards revitalizing non-productive timberlands that approximately 1,000 acres are being planted each year to sand pine. Industry has planted several thousand acres throughout Georgia with the largest concentration in the tri-county area.

A thorough economic analysis of future marketing prices for the sand pine was not incorporated into the major tasks of the tri-county study. Although data collected during inflationary times cannot be depended on as reliable, the value of real estate and the demand for stumpage continue to increase at this time.

It is estimated that the market value of revitalized forestland would increase from 50 to 100 percent as a result of site preparation and planting to trees. This indicates a positive economic impact for Taylor, Marion and Webster

Table 3.—*Growth Study of Choctawhatchee Sand Pine as of October 1978, Taylor County, Georgia*[1]

Date Planted	Average Diameter at Ground	Average Total Height	Trees Planted Per Acre	Current Stocking	Survival	Approx. Age at Growth Check
	(inches)	(feet)	(No.)	(trees/acre)	(%)	(years)
March 1973	4.2	18.3	1,093	767	70	5 1/2
Jan. 1974	2.4	8.8	640	485	76	4 3/4
Jan. 1975	1.5	6.6	693	515	74	3 3/4

[1]Data Collected by Georgia Forestry Commission Personnel.

Table 4. *Interplanting Growth Study of Choctawhatchee Sand Pine and Slash Pine as of October 1978, Taylor County, Georgia*[2]

Species	Date Planted	Average Total Height	Average Diameter	Trees Planted Per Acre	Survival	Current Stocking
		(feet)	(inches)		(%)	(trees/acre)
Sand	Winter 1969-70	18 at 9 yrs.	3 at ground	580	78	450
Slash	Winter 1959-60	26.8 at 19 yrs.	4.7 at breast ht.	600	47	280

[2]Data Collected by Georgia Forestry Commission Personnel.

counties which have about three-fourths of their total land in forest —half of which is non-stocked or poorly stocked. It is estimated that these lands are capable of producing about 200,000 cords of wood per year, so such land would be of greater benefit planted to trees than left idle. In addition, Georgia continues to have a ready market for pulpwood with 16 pulp and paper mills in the state.

In 1973, stumpage prices for pulpwood in the Coastal Plains area ranged from $8.00 to $30.00 per cord on the stump. Due to forest conditions and limited competition in the program area, pulpwood prices are presently $8.00 per cord. The potential value, from these unproductive lands at present prices, would be 1.6 million dollars annually to landowners, most of whom are farmers and private owners other than industrial.

The economic impact of this type of reforestation project in Georgia will probably be felt in three areas: land values will be increased; income to the farmers and landowners will be enhanced; and increased raw material will benefit other business sectors. Transportation, equipment and other services would be affected as well as increased demand for employment to work in the woods. It is estimated that for every dollar received for a tree on the stump, that small amount will generate an economic impact of $25.00 through harvesting, transportation and processing.

Additional information concerning ongoing research of sand pine can be obtained from the Southeastern Forest Experiment Station, P.O. Box 900, Marianna, Florida 32446. The following references will offer additional information concerning past research and accomplishments.

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