

Looking To The Future:

Tree Crops and National Defense

The national defense requirements for construction materials place an additional drain on the timberlands of the South. Large orders for immediate delivery have stepped up production in established mills and influenced the starting of many small mills. During World War No. 1 vast forests of virgin timber were the backlog for heavy production but today the major volumes must come from second growth stands.

National stability is dependent on the capacity of the forests to meet the needs for national defense, not only on short call but on a permanent basis. Timber is a crop that will yield lumber or cellulose products on a permanent basis. Continued crops of timber can be made available through the application of sound harvesting methods.

This present emergency has called on the forests to give and give they have. From the ten and a half million acres of forest land in East Texas millions of feet are moving into defense projects. In all this rush, however, there is need for common sense methods of handling the forest lands from which these timber supplies are being harvested. Permanent forestry requires that wood producers **crop** their timber, not **mine** it. This is apparent once it is understood that Nature can't grow a crop of trees every year and that the practices used in cutting forest lands now can effect their producing capacity for years to come.

Naturally, wood yields per acre are higher from clear cut areas than from those cut selectively. But to counteract this, foresters recommend spreading out the operation over a larger area to take only trees that need to be cut, and to spare young fast growing stands just bordering on sawlog size.

Thus, every timberland owner and processor alike should bend every effort to safeguard the forests of today for the needs of tomorrow. Permanent supplies of raw materials for national defense and normal trade are needed for the permanent economy of the nation. The woods operators can assist by cutting timber conservatively. The general public can assist by preventing forest fires and seeing that those individuals responsible for incendiarism are punished. Just as poor cutting cripples the forest areas that will be needed in the future, so do forest fires sabotage the young stands of today that will be needed tomorrow.

OUR SOUTHERN FORESTS

Most people think of the South as a land of cotton, cane and corn, yet 60 percent of its own area is still in forests. These southern forests total 190,758,000 acres or 39 percent of the total forest area in the entire United States. The next largest region is on the Pacific coast accounting for 14 percent of the total forest area.

Of the gross area of forest land in the South 28 percent is in merchantable size saw timber, 28 percent in cordwood size timber, 36 percent is restocking to saplings and young growth, and 8 percent is non-restocking.

In 1935 more than 110 million acres of the South's land on farms were in farm woodlands. One southern farm out of every two depended in part on

farm woodland forest products. The farm population marketed much of its cultivated crops to forest industry workers which made up about 22 percent of all southern industrial labor.

To supply wood for a single large pulp mill in the South requires as much labor as is necessary to cultivate and harvest 100,000 acres of cotton. Today the forests of the lower South support over 10,000 wood using plants. Progress in converting raw wood into new products, thus creating new industries, is on the increase. Southern forests are growing at the rate of 48 million cords a year.

The southern forests produce lumber, structural timber, crossties, poles, piling, fence posts, fuel wood, naval stores, pulp and paper which are valued at approximately \$335,000,000.

They furnish employment to 190,000 men annually. The South furnishes all the naval stores, turpentine, and resin, and the pulp and paper mills furnish 70 percent of the bags and wrapping papers produced in the U. S.

Over 4½ million acres in large ownerships are now on intensive management and 6½ million acres additional on which extensive forest management is being practiced. It is estimated also that another ten million acres are being handled well under some form of intentional forest management.

Eleven states make up this bountiful timber empire called the southern forest region. They include Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas.

FORESTRY MOVIES AND LECTURE PROVE POPULAR

During 1940 the educational assistants operating the two motion picture units of the Texas Forest Service presented a total of 522 combined educational shows and forestry lectures to approximately 75,000 persons within 25 of the 31 East Texas counties which lie wholly or partially within the protection area. The programs are customarily presented at schools, churches, clubs, organizations, as well as other places in both cities and rural communities. The shows are offered without charge to children and adults alike, both white and colored. Their purpose is to help get forest fires stopped and encourage citizens to grow timber as a crop.

During the past fourteen years these units have presented a total of 4,357 forestry motion picture shows to an audience of 638,028 persons. An average of 147 persons, both adults and children, have attended each show offered.

Ninety-four percent of pines under one year old are killed by the average grass fire in East Texas.

We need fire protection to provide feed and protection for game birds and animals.

TEXAS SLASH PINE WITHSTANDS TROPICAL STORM

Only Five Trees in Acre Plantation Are Broken

The one acre of slash pine trees planted by J. Roland Ruth on his farm a mile south of Hamshire in Jefferson County, Texas, proved they could take it in the face of a gale estimated to have reached a velocity of 100 miles an hour. Only five trees were broken down by the storm which swept over this section of the gulf coast during the early part of August, 1940, and did considerable damage at Port Arthur and Beaumont.

Some idea of the wind resistance of these trees, which were planted in January, 1933, may be gained from Mr. Ruth's report that on his farm only the house and slash pine plantation were left standing after the storm. A large barn and all other farm buildings, including a silo anchored with approximately a two-ton concrete base, were leveled to the ground.

About 40 additional trees were partially bent over and were cut as a part of a thinning that Mr. Ruth states he had planned on making and therefore did not represent any particular damage to the plantation.

The plantation is a cooperative experimental one, started by Mr. Ruth with trees furnished by the Texas Forest Service, on which the Service is keeping records to determine the adaptability of slash pine to the gulf coast region.

At the present time, the trees average about 22 feet in height and 4½ inches in diameter at breast height. Located as they are on an otherwise treeless prairie the owner has expressed a great appreciation for the shade they furnish in the summer and for their effectiveness as a wind-break during the winter months.

PLASTIC AIRPLANES CONSTRUCTED

Manufacture of wood plastic airplanes is being undertaken by a Vancouver, British Columbia, inventor. He states that the process is similar to pouring concrete into molds. Be-

tween two layers of thin woven wood is a foundation of excelsior fused together with thermo-plastic material. The result is an exceedingly strong frame that will withstand hard hammer blows; in fact, it is so strong that pressure tanks are being made of the material. The bodies can be turned out at a cost of about \$1,000 and will be powered by 1,250 horse power motors.

New Slants on Old Ideas: WOOD DECAY

A common fallacy about wood is that in the course of time it naturally decays as a result of age. Time and age, however, in themselves have nothing to do with decay of wood.

The White House at Washington when remodeled in 1928 was found to contain sound roof timbers that had been in place since 1816. A home in Massachusetts is standing structurally intact after three centuries. Timbers several hundred years old have been recovered from the ruins of Indian pueblos in Arizona and New Mexico. A part of a Roman Emperor's house boat that sank long ago was sound nearly two thousand years later to be identified as spruce. A log seven feet in diameter was found not long ago in a tunnel being dug 150 feet below the bed of the Yakima River in Washington. A piece of it was identified as an extinct species of Sequoia of an age estimated by geologists as 12 million years.

These examples prove, the Forest Products Laboratory says, that wood does not necessarily decay with age at all. Decay is the result of only one thing; that is the attack of wood destroying fungus. In the cases mentioned above, the wood had been kept free of fungus attacks by either being kept dry or thoroughly and permanently saturated with water. A fungus is a plant, and if the wood is too dry for it to grow and spread, decay does not occur. If the wood is thoroughly saturated, the fungus is drowned out. The range of activity of fungus lies between 20 percent moisture content of the wood and a nearly soaking wet condition.

JASPER TIMBER SHIPMENTS FOR DECEMBER, 1940, BREAK RECORD

205 Carloads Are Moved During Month

Establishing a high mark in timber shipments from Jasper over a period of many years, the December 1940 shipment totaled 205 carloads, according to the report of A. I. Aden, local Santa Fe agent. This is an increase of 52 carloads over the shipments for the previous month.

The largest shipments included 80 carloads of finished lumber, 57 carloads of poles and piling, 37 carloads of pulpwood and 21 carloads of baskets. Minor loads consisted of eight carloads of ties and two carloads of hampers. A noticeable increase occurred in the shipment of baskets, which included 21 carloads for December and only one carload in November. —Houston Post.

TIMBER MAPPING COVERS TWO-THIRDS OF EAST TEXAS

About two-thirds of the East Texas piney woods belt has been covered on the timber type mapping project being initiated in this region by the C. C. in cooperation with the Texas Forest Service, reports at the end of last year showed.

Final maps for some of the area have already been completed and forest service officials expect to place new maps in the fire lookout towers in Polk and Tyler counties soon.

The maps will find their greatest service in the forest fire detection and suppression work. Woods, roads, houses, fields, streams, telephone lines, forest types and a great deal of other detail are shown. In fact, officials say that for accuracy and detail these maps will surpass any yet made for this East Texas area.

Field costs for this project have been estimated to run approximately \$204,000, or slightly over three cents per acre covered. Practically all of this has represented labor—an item furnished by the Civilian Conservation Corps.

FOREST PRODUCTS RESEARCH WORK INITIATED BY TEXAS FOREST SERVICE

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Finding New Uses For State's Wood Is One Aim

Forest products research work which will have as one of its basic aims the finding of new uses for Texas woods has been initiated by the Texas Forest Service. Creation of the new division was made possible through appropriations provided by the legislature at the last regular session in 1939.

Heading up the new division is E. W. Stark, specially trained forester in this field of research work. Other specialists will be added as the work progresses.

Construction of a laboratory building on the forest protection grounds at Lufkin was completed in 1940 and much of the equipment installed. At present the unit contains six rooms—office, general laboratory, chemical laboratory, photographic dark room, wood working shop and general work shop.

The construction of a research dry kiln for experimental use in drying wood and a plastic unit is being considered.

Five-Point Program Outlined

A five fold research program for the new laboratory has been mapped out as follows:

1. Finding new uses for present low grade or "non-commercial" tree species.
2. Developing new uses for present commercially valuable trees.
3. Improving methods of processing and manufacturing forest products.
4. Seeking to reduce woods and mill wastes.
5. Finding use for waste materials resulting from manufacturer.

Heading the list of reasons for undertaking the new work is the need for developing uses for timber in the present low value



From this six room building, the Texas Forest Service will carry on its forest products research work. The building is located on the forest protection division grounds at Lufkin and was completed in 1940.



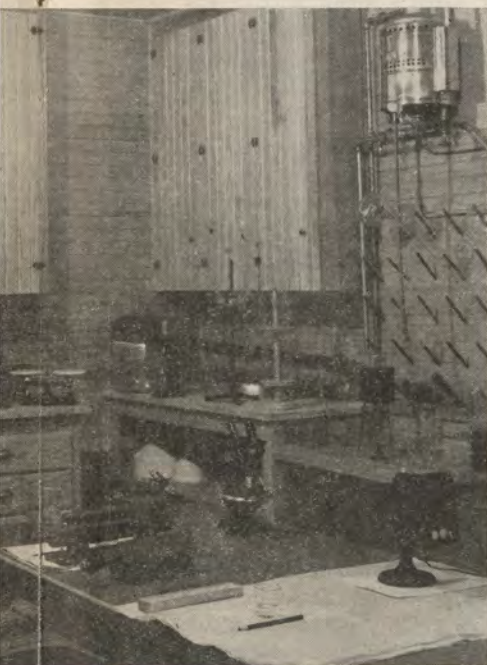
E. W. Stark, chief of Texas forest products research division, extracts wood sawdust in this queer shape. Four views show some of the materials the laboratory will attempt to find new uses for.



One of the main units of the Forest Products Research Division is the chemical research room, shown above. It is used for the production of paper, plastics, and other chemurgic products.



of Texas Forest Service's new forest extracts (hol and benzene from ueer shape apparatus. The other of the materials for which the lab-and commercial use.



Forest Products research laboratory at Lufkin above. Uses of various Texas woods for products will be studied here.

forest regions of central Texas, largely occupied by the post oak, cedar brakes, mesquite, and cross timber areas. These regions occupy three-fourths of the forest area of the states, and contain about half the wood volume.

Would Have Many Benefits

A good market for the timber in these regions would benefit the state, land owners and industry, the Forest Service points out.

In the commercial pine and hardwood region of East Texas, the work of the new laboratory will be directed more at reducing woods and mill wastes and developing better manufacturing methods, as well as increasing the uses of the present commercially valuable timber trees.

An example on waste reduction is the use of pine logging tops for pulpwood—a project worked out in 1937 and 1938 by the Service in cooperation with industrial companies.

Reducing Wood Waste a Factor

Reducing the yearly loss of wood material in the form of sawdust, slabbings, and other material would have a tremendous effect in lessening the requirements on standing timber forests. There have been some estimates which show that only about 25 percent of the wood in each tree cut is now used, although this varies with the locality and type of products being cut. Many consider that tie-cutting wastes the most of a tree at present in East Texas.

Lastly, the Service points to the rise in recent years of substitutes that are being used in place of wood. Research developed these substitutes, and foresters argue that wood uses can only be improved upon by an active research and advertising campaign. This field has been scarcely touched but already chemists are turning out such products as plastics, paints, cellophane, wall board rayon, explosives and photographic film. It is the general consensus of opinion that more work in the field of forest products research is urgently needed—that gratifying profitable results can be shown.



Any cabinet worker would be in "heaven"—so to speak—if he owned this wood working shop, which forms a part of the research laboratory. Here the mechanical properties of Texas woods and their ability to be shaped and turned into various articles will be studied.

FEWER FOREST FIRES, LESS AREA BURNED IN 1940

Smokers And Incendiarism Cause Seventy Percent of Fires

Last year 3,449 forest fires burned over 205,520 acres in the area protected from forest fires by the Texas Forest Service, which comprises a gross area of eleven and one quarter million acres and includes all or parts of 31 East Texas counties. This was a reduction of 44 percent in the number of fires and 16 percent in area burned as compared to 1939. The fires by causes were as follows: lightning 7, railroads 14, campers 183, smokers 1,249, debris, brush burning and new ground fires 564, incendiary 1,149, lumbering 121, miscellaneous 151, and unknown causes, 11.

Careless smokers caused 36 percent of the fires which burned over 41,890 acres, while 1,149 incendiary fires, 34 percent of the total, burned over 135,040 acres of timber land, about two-thirds of all the area burned last year. This, officials point out, is because careless fires generally originate in one place, whereas, incendiary fires are set in numerous places with the intent that they should cover a large area.

Fires Mostly Man-Caused

Except for 7 lightning fires, all the fires last year were man-caused. Education can help decrease the number of careless fires, but more often it takes a combination of that and law enforcement to cut down on the incendiary fires.

Of the 3,449 fires, seven percent burned less than one-quarter acre—42 per cent were from one-quarter acre to ten acres in size and 51 percent were ten acres and over. The largest fires occurred in grassy longleaf country and in areas covered with tops after logging. Fires in this type of timber are exceedingly hard to control.

Longleaf Pine Area Leads

Fifty percent of all the area burned in 1940 was the open grassy longleaf pine area of southeast Texas, forty-seven percent in the shortleaf-loblolly pine type and the remaining

three percent in the hardwood type. The longleaf timber type represents only one-eleventh of the total area protected from fire by the Texas Forest Service, but the large area burned in this type of country is attributed to the year round hazard, ease with which fires spread, and the greater number of incendiary fires.

In addition to the 564 fires that escaped from debris, brush, trash and new ground fires, forest patrolmen and field men checked up on 731 fires of this type that were found to be under control, and 163 fires of this type which they helped the land owner keep on his own property.

CITIZEN'S VOLUNTEER IN FIRES

Last year over 3,000 East Texas citizens offered almost 6,000 man hours of assistance in suppressing forest fires, according to information released by the Division of Forest Protection, Texas Forest Service. Since no payment for such fire fighting services is authorized by the State, officials point out that this help is good evidence that public sentiment against forest fires is increasing among the East Texas people.

Averaged out over the year, the volunteer service amounted to almost two hours per fire for each volunteer. Most of the smaller fires were controlled by the regular Texas Forest Service protection force, but on occasions of large fires there were as many as twenty-five to thirty-five volunteers helping out.

FORESTRY FILMS SHOWN IN EAST TEXAS THEATERS

As a supplement to the forestry educational work, carried on by the two Texas Forest Service motorized motion picture units in East Texas, special 35mm forestry films obtained free of charge from the Federal government and other agencies, were distributed to the public theaters in certain parts of the forest fire protection area in southeast Texas. The films illustrating ways and means of preventing and suppressing forest fires, as well as other related for-

NEW PROTECTION UNIT IS ESTABLISHED IN NEWTON COUNTY

Establishment of a new forest fire protection unit in Newton County was reported as one of the major accomplishments of the Texas Forest Service's division of forest protection, during 1940.

The new unit contains a net of 72,832 acres, listed by the Southwestern Settlement and Development Corporation. The forest growth is mainly longleaf pine and has been subjected to numerous incendiary forest fires in the past, despite the best efforts of the Service to protect it. With the company contributing towards the protection budget by matching public funds, both company and forest service officials are hopeful of reducing the fire losses in this territory.

H. M. Richter, Southwestern's vice president and general manager, admitted that the area was a "hot spot", but his company is anxious to have these lands produce more timber, and they are willing to help pay part of the protection costs to accomplish this.

The new unit lies in central Newton County, with a small portion extending into Jasper County. Unit boundaries extend north to Yellow Bayou and south near Bleakwood and Bon Wier.

Two new lookout towers erected by the Service near Burkeville and Bon Wier, and a previously erected tower near Newton, are used in detecting and locating fires in the unit. About 50 miles of telephone line have been constructed, and 17 additional miles are yet to be built. These and other improvements are being constructed by the Newton CCC camp.

estry subjects, were shown at 147 regular shows to an audience totaling approximately 27,000 people. The commercial theater managers have requested additional similar films with which to supplement their regular program. Through cooperation offered in this manner the commercial theater operators in East Texas are rendering assistance that will help in combating the problem of man-caused forest fires.

TEXAS FOREST NEWS

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CLEVELAND MILL GETS CONTRACT FOR BOMB CRATES

Work of reconditioning the plant of the Cleveland Veneer Company started early in January preparatory to filling contracts for the manufacture of shipping boxes for bombs, bomb sights and airplane motors for the government under the national defense program, according to E. S. Barnhill, manager. Plans are to start the plant at normal capacity, which will employ approximately 40 men. The mill will use approximately 200,000 log scale feet of local timber per month and its pay roll and log purchases will approximate \$4,000 monthly. The mill has been closed since last spring.—Houston Post, January 13, 1941.

WOOD LOOKOUT TOWER
ERECTED IN NEWTON
COUNTY

The Texas Forest Service announces the recent completion of a new, creosoted wood, stairway type, 120 feet high, fire observation tower within the Protection Unit No. 9 boundary in Newton County. The tower is located on U. S. Highway No. 190 between Newton and Bon Wier. It is built from prefabricated wood material and is the third creosote treated wood tower to be erected in Texas. This tower has a platform or cat walk with railings built around the outside of the enclosed cab for supplementary observation purposes. The addition of the new wood tower makes a total of three fire observation towers erected within Protection Unit No. 9 boundaries. With the final completion of this tower the Texas Forest Service now has under its supervision a total of 72 fire lookout towers in East Texas in use for fire detection purposes. For purposes of communication each tower is connected by telephone line with the field personnel and other towers in adjoining patrol districts thereby permitting the quick detection and suppression of forest fire. The new wood tower will be named "Bon Wier No. 72."

OFFERS BONUS ON SAWLOGS

"Our company will pay a bonus for sawlogs bought from farmers co-operating with the Farm Forestry Project here in Nacogdoches", Mr. H. W. Whited, president and general manager of the Frost Lumber Industries told Travis MacClendon, project forester, recently. Mr. Whited said that he was vitally interested in seeing Nacogdoches County farm woodlands kept in good producing condition, adding that farmer cooperation with the local forestry project would help make this possible.

In boosting the project, Mr. Whited offered the bonus on sawlogs raised on cooperators' lands. He only asked that when the time for a second cut comes around, his company be given an equal opportunity to bid on the sale. In other words, all bids would have to be made on timber cut on a selection basis, not by destructive clear cuttings.

Continuing further, Mr. Whited said: "We are also setting aside 100 acres of company woodlands to be treated in the same manner as the farm woods are being treated in the Farm Forestry Project Area. This will serve as an area where farmers may see and study the practices being recommended for application on their own woods, on a size comparable to the farm woods of this section. Over a period of years we expect to have some very convincing records on what the farmer may expect to earn by applying good management practices to his woodlands. Management, as I see it, means increased income for the farmer and the production of a steady supply of raw material, of an improved quality for industry."

The Nacogdoches Farm Forestry Project is administered by the Texas Forest Service of A. & M. College in cooperation with the Texas Extension Service and the U. S. Soil Conservation Service.

Since last April, when the project was begun, many farmers and woodland owners have taken part in better woodland management demonstrations. According to Project Forester Travis MacClendon, one of the major objectives of the project is increased

WATER PUMPER ADDED TO
FIRE FIGHTING EQUIPMENT

A newly purchased motorized fire fighting unit was recently equipped and put into operation within the forest fire protection unit area in northern Polk County by the Texas Forest Service. The fire fighting unit consists of a new improved type Panama Pump installed directly on the head of a $\frac{3}{4}$ -ton pickup truck and operated by the truck motor. It can suck water up from streams into a 125-gallon tank mounted on the truck bed and then pump the water out through hose and nozzle to suppress fires.

The Texas Forest Service has been using such a fire fighting unit since March 1937, largely in open forest and grass areas in southeast Texas which are more readily accessible to this type of portable motorized equipment, and has found it to be extremely satisfactory in extinguishing forest and grass fires. There are three of these units now in use.

From tests recently conducted with the new unit it was found that the 125-gallon tank can be filled with water in eleven minutes at an idling motor speed. At the same speed, the tank can be emptied in about 38 minutes with the nozzle wide open and ejecting a spray of water approximately 300 feet in distance. The water can be pumped out more rapidly however, if the intensity of the fire warrants it, by increasing the motor speed. At the idling motor speed the 125 gallons of water is sufficient to fight fires along several miles of fire line in open forest or grass areas.

The new truck is also equipped with tool boxes and is so arranged that the tank, tool boxes, and all accessories can be dismounted in five or ten minutes, thus permitting the truck to be used for other hauling purposes.

production of high quality forest products. The attainment of such an objective should result in increased cash income to farm woodland owners and a more constant flow of raw forest products to dependent industries.

1940 PROGRESS—

(Continued from page 1)

vocational agriculture teachers, on forestry contests, and timber cutting demonstrations, and through special forestry teaching courses inaugurated at two of the state teachers colleges.

Biggest boost along this line came through the Texas Forest Festival held at Lufkin in October, where a forestry exhibit contest was staged among thirty-two F.F.A. and 4-H club groups.

Larger timberland owners received assistance in forest protection and advice on timber cutting and management problems. A sustained timber yield study was inaugurated in the vicinity of Lufkin on an area of 1,800,000 acres, designated to determine the possibilities of perpetuating the forest industries and the forest communities in the territory.

Forest Industries Expand

Last year also witnessed a big development in the Texas forest industrial expansion program. The Southland Paper Mills located near Lufkin manufactured the first commercial run of southern pine newsprint in January, and in July the Champion Paper and Fibre Company located near Houston turned out machine coated book and other high grade papers from Texas wood. "The two plants," Director Siecke stated, "represent an investment of about \$15,000,000 and employ over 1,500 workers. Operation of these plants on a permanent basis depends upon forest fire protection and producing timber as a crop."

Lumber to meet national defense construction was in great demand in the latter part of the year and the timber cut in the state was estimated to total approximately 1¼ billion board feet. With this output Texas ranks sixth as a lumber producing state.

To find additional markets for Texas woods and increase the use of present non-commercial trees, an appropriation was available by the Legislature for the creation of a division of forest products research within the Texas Forest Service. A laboratory

building has been constructed and equipped within the last six months and work on several projects is now being outlined or is underway.

Forest Fires Reduced

In protection of the East Texas piney woods belt from forest fires the Service pointed to a reduction of 44 percent of the fires and 16 percent in area burned over the previous year. Before the work started in 1915, anywhere from one to three million acres of forest land burned each year. This has been reduced to an average loss of 160,000 acres during the past five year period.

Requests from soil conservation and water conservation districts, legally organized under state law, for assistance in making district forestry plans were received at the Forest Service offices in ever increasing numbers. The technical personnel was inadequate to furnish all of the desired assistance, but program material was worked up for fifteen East Texas districts covering a gross area of over twelve million acres.

The community forest program which the Service has been working on in connection with the East Texas Chamber of Commerce gained headway with the establishment of forests at Lufkin, Luling, Port Arthur and Texarkana. Numerous other communities have been contacted by Texas Forest Service representatives and special committees are working on acquisition plans. It is hoped that additional new forests will be established in 1941.

FLORIDA TIMBER ASSOCIATION ORGANIZED

A timber growers' association was recently organized at a meeting held in Jacksonville, Florida, and attended by landowners from the naval stores belt. The association is being formed to promote the interest of timberland owners in utilization and cutting practice, forest legislation in cooperation with state and federal forest departments, and fire protection, also to encourage forest and wild life conservation and to promote new wood using industries.

CHINQUAPIN OAK

(*Quercus muhlenbergii* Engelm., formerly *Q. acuminata* Houba.)

This oak, also known as chestnut oak, occurs over the eastern part of the state and west to the Guadalupe River! also on the Guadalupe mountains. It grows on most classes of soils, except in swamps, and is tenacious on shallow, dry limestone soil. The bark is light gray, and breaks up in the short narrow flakes on the main trunk and old limbs.

It reaches a height of 20 to 50 feet. The straight shapely trunk bears a round topped head composed of small branches, which make it an attractive shade tree.

The leaves are oblong, 3 to 6 inches



CHINQUAPIN OAK

Leaf, one-half natural size; twig and fruit, one-third natural size.

in length, 1½ to 3 inches wide, equally toothed or notched on the edges, resembling the leaves of chestnut oak. The fruit, which ripens in the fall of the first season, is light to dark brown when ripe, and edible if roasted. This acorn is one-half to nearly one inch long, usually less than one inch in diameter set in a shallow cup.

The wood is heavy, very hard, strong, durable, takes an excellent polish. It is used for cooperage, fencing, crossties, fuel and occasionally for furniture.

The variety brayi Sarg, is found on the Edwards Plateau.

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THE FARMER'S PLACE IN TEXAS FORESTRY

Annual field crops and livestock make up the greater portion of farmers' income in Texas, but timber holds the greatest possibilities for keeping an average farm enterprise running on an even keel, on an area of over 20,000,000 acres supporting a population of about a million people.

Texas farmers, ranchers and other small owners control ninety percent of the forest land in the State. They contribute more raw wood to the \$100,000,000 forest products industry than the industry does from its own lands.

Timber is needed on farms to supply wood for fuel and construction purposes. Forest land is also needed on the farms to help hold soil in place.

In other words, in the natural timber growing regions of Texas, tree growth should be considered just as much a part of the farm as the cultivated or pasture tracts.

Why not give timber a chance then?

Over in the piney woods region of East Texas in 36 counties, timberlands on farms and other small ownerships comprise two-thirds of all the forest land—and this is in the commercial timber growing region.

Farmers own 3,500,000 acres of forest land; other small ownerships under 3,000 acres each make up about 3,000,000 acres—together a total of 6,500,000 acres of forest land.

But take the average farm. There are 114,000 farms in East Texas with woodland on them. The average farm is 82 acres, of which 31 acres or 38 per cent is forested. It's only reasonable to assume that intelligent efforts directed to increasing the productivity and net profits of the farmers' woodland acreage will eventually so increase the net farm returns

as to spell the difference between successful and unsuccessful farm operations.

East Texas farmers have during the past years obtained more revenue from their timberland than is generally appreciated. Unfortunately, figures aren't available, but it would run into the millions of dollars. One big point to remember is that farm timber returns have been secured without any effort—merely as one farmer said, "by letting the trees grow", and not as a result of earnest efforts to grow timber as a crop. In fact, most of the income from farm woodlands is obtained from second growth timber that has succeeded

in providing cash for the farmer in spite of all the abuse and neglect heaped upon it.

Forestry experts have figured that even under crude forestry practices, the income from East Texas farm woodlands could be doubled or tripled. One would suppose that farmers would "hitch" on this fact and do something about increasing their timber income. There are some obstacles to overcome first, though.

Before the farmer can expect to materially increase his timber revenue, he will have to show some earnest respect for his wooded tract. The old idea that the forest land

(See FARMER Page 8)

FORESTRY HELP TO THE FARMERS

The following projects are being developed by the Texas Forest Service in cooperation with the U. S. Department of Agriculture.

Forest fire protection on 80,000 East Texas farms—an area of about 3,000,000 farm woodland acres.

Help from two technically trained district foresters in all or parts of 15 northeast Texas counties.

Forest tree nursery near Alto producing seedlings mainly for planting on East Texas submarginal cleared farm land.

Employment of 300 farmers on full or part time employment on forest fire protection work.

Special forestry moving picture shows and lectures presented before 100,000 people annually—most of whom are farmers and their families.

Intensive farm forestry projects underway in Angelina and Nacogdoches Counties, each under the sup-

ervision of a technical forester. This work is conducted under a cooperative agreement with the Texas Extension Service, Soil Conservation Service and U. S. Forest Service.

AAA soil building payments for the establishment and protection of forest plantations and for making improvement cuttings on farm woodlands.

Demonstrations in proper methods of timber harvesting held in East Texas counties by the Service with local civic organizations cooperating.

Establishment of 50 cooperative experimental slash pine plantations, mostly on farmers' lands.

Research on five state forests to develop better methods of growing timber as a farm crop.

In cooperation with the Extension Service of A. and M. College, a farm forester is employed who works through the county agents with farmers.

Forestry and Agriculture

(From "Planning For a Permanent Agriculture" by The United States Department of Agriculture)

Forests make a large contribution to the welfare of the agricultural communities nearby. The forest stabilizes stream flow and helps to hold the soil in place, it provides inexpensive supplies of fuel and building materials, it provides an outlet for surplus labor and a source of employment to those who need to supplement their income from agriculture, and by fostering local wood-using industries it provides a market for agricultural products. In the forested areas forestry cannot be considered apart from agriculture.

Improvement of depleted forest communities and forest regions is a major objective of National and State forest management. The purpose is not merely to restore the trees. Human rehabilitation is a fundamental objective.

A major problem in rehabilitation is that of supplying supplemental income through development of activities other than farming. The forest ranks high as a source of supplemental employment. It so happens that the most distressed areas have the highest percentage of forest land. It varies from 30 to 80 percent in the principal regions of low-farm income. A well-planned forestry program can provide needy families and other residents of these regions with cash income to supplement farming and other activities, and thus help them toward a better standard of living, and toward the development of communities with good schools, medical facilities, and the other necessities of good living.

Another important national objective is to insure an abundant timber supply for the future. As stored supplies of organic raw material such as oil and coal decline, the burden of supplying it will fall more and more on agriculture. The forest, of all agricultural crops, is the most efficient producer of raw organic matter; it yields the greatest dry volume of organic matter per acre per year of any crop. Thus as the science of chemistry develops and is forced to become less selective in its use of organic materials, forests should become increasingly important as producers of such material. The products of the forest can be stored on the stump indefinitely, an advantage not shared by other crops.

Vast areas of wild land in this country are capable of producing timber crops of some economic value at less cost than other crops. Even if the actual need for all of the wood produced cannot be foreseen, it would be foolhardy to permit these lands to deteriorate to an unproductive state. Restoration to a productive condition for needs not now foreseen might be very costly.

IMPORTANT MEETINGS

May 6 near Nacogdoches, May 20 at State Forest No. 3, Cherokee County, May 27 near Marshall and June 17 near Texarkana are the dates set for a series of important timber cutting demonstrations and forestry meetings being arranged by the Texas Forest Service in

Forest Destruction and War

(From "American Forests", March 1941)

Forest destruction is an inevitable corollary of war. In our own case of merely preparing against war, the government's program of purchases already calls for an amount of lumber that would load a train of cars 600 miles in length and would reach almost from Baltimore to Chicago.

The National Defense Council estimates that for every soldier, the war machine will need 1,500 feet of lumber. Assuming an army of two million men by 1942, that means a war levy upon our forests of over three billion feet—enough lumber to build 150,000 average houses. Fortunately our forests can stand the levy without serious consequences. But suppose we become involved in the conflict and a long war follows. To what extent and in what manner may prolonged warfare affect our forest security?

The question of course is not answerable. One might better reflect upon it if in this country we had a clearer picture of what is happening in the way of forest destruction in war-torn Europe. Little information on the subject is available to us but some insight of conditions may be gained from a pamphlet entitled "The German Exploitation of Polish Forests" recently issued by the Polish Information Center of New York. According to this publication, the Nazis in 1939 ordered a one hundred per cent increase in forest cutting in Germany, Austria, the Sudetenland and Bohemia. In January of 1940 they turned to Poland and demanded within the year an amount of wood equal to two and one-half times the normal yearly cut. State Forests were taken over by the Germans; private forests were either requisitioned or the owners allowed freedom of action subject to delivering the wood demanded.

"There is no question that German management had been mapped out in all details," the pamphlet concludes. "To say that it preserves the Polish forest borders on the tragi-comic. On the contrary, the Nazis have here but one purpose—to get out of Poland the maximum of lumber, totally disregarding the needs of the occupied country as well as the future of the forests they are now exploiting with such scientific ruthlessness."

This reference serves to bring home to us here in America not only the potentialities of forest destruction that lie in a long war but the vital importance of forests to national defense and the need of maintaining them in surplus abundance to meet all national contingencies.

cooperation with the Extension Service, East Texas Chamber of Commerce and local chambers of commerce.

Designed primarily as educational measures to help safeguard against indiscriminate timber cutting during the present National Defense program, the meetings, to be held in the woods, will also stress good forest utilization practices and ways to increase timber incomes. They are open to everybody and free barbecues are being arranged by the local chamber of commerce organizations.

Marshall Starts Community Forest Program



The senior class of the Marshall High School, 191 strong, start out to plant 20,000 pine seedlings on the first unit of the new Marshall Community Forest.—(Photo Courtesy Marshall News Messenger)

A unanimous vote of the city commission of Marshall on February 13, 1941, established the first unit of the Marshall Community Forest. This unit consisted approximately of 50 acres of land owned by the city and known as the Vawter property.

This action was the result of the efforts of the Marshall Chamber of Commerce under the leadership of their forestry committee which is headed by Mr. W. P. Lane. This group has been active over a long period in laying a foundation that

will assure the development of the community forest to best serve the citizens of Marshall.

On February 28, the members of the Marshall High School senior class cooperated by sponsoring and actually planting 20,000 slash pine seedlings on an old field forming part of the forest area. This area, which had been cultivated at one time, was lying fallow and is now returned to a profitable use in growing a timber crop. Present plans call for adding to the planted area each year. It is also

hoped that the high school seniors will continue to sponsor the planting, thus establishing a living memorial to their class.

In addition to the planting, forest stand improvement practices will be applied to the part of area which is already covered with growing timber.

Mr. Lane has stated that "it is our earnest endeavor to carry on with the community forest program until at least a 200 acre forest is established. Until this is accomplished we will not rest."

NEW JERSEY ACQUIRES NEW FORESTS

Local municipalities in New Jersey are transferring approximately 100,000 acres of tax delinquent land to the state for administration as state forests by the State Department of Conservation and Development. This is possible under the terms of a law enacted in 1940 by the state legislature which permits the transfer

of such lands without liquidation of back tax obligations or any payment from the state. The lands involved are wasteland areas in the south Jersey coastal plain pine region on which taxes have been delinquent in most cases for many years, and on which the local municipalities have had to pay both county and state taxes annually. Under the terms of new law municipalities will not only be relieved of these annual pay-

ments but hereafter will receive from the state a ten cents per acre tax lieu payment each year.

NEW FORESTER IN FLORIDA

On January 14, the Florida Board of Forestry announced the appointment of H. J. Malsberger as state forester and park executive. He succeeds Harry Lee Baker, who resigned in July of 1940.

FARM WOODLAND PROJECTS UNDERWAY

Last spring two projects were set up under provisions of the Norris-Doxey Farm Forestry Act. The Texas Forest Service joined by the Extension Service, entered into cooperative agreements with the Soil Conservation Service for the operation of a Farm Forestry Project in Nacogdoches County and with the U. S. Forest Service for the operation of a Forest Farming Project in Angelina County. The major difference between the two projects is based on the percent of forest land as compared to other agricultural uses. The economy of the Nacogdoches farm forestry area rests primarily upon annual field crops with forest products secondary, whereas the economy of the Angelina forest farming area is based on forest products with field crops secondary. A technical forester is cooperatively employed for each project. These men devote full time to the development and execution of plans for the systematic cropping of the farm owned woodlands in the areas. They work in close conjunction with the county agents.

The major objectives of the two projects are similar and are summarized as follows:

1. To increase the annual net income from farm woodlands to the maximum obtainable under continuous management.
2. To establish examples of profitable woodland management operations as related to the whole farm economy.
3. To develop and emphasize the need for a continuous flow of raw materials of desirable quality from the farm woodlands to the well established forest products industries.
4. To provide opportunities for the conduct of essential forest research that will contribute to the improvement of the farm economy of the region.
5. To foster a widespread appreciation of the importance of farm woodlands as a renewable resource which should be managed as a crop.
6. To encourage appropriate wildlife management practices as a means of obtaining additional bene-

fits and income from farm woodlands.

7. To increase the contributions from farm woodlands towards the betterment of the farm economy through the proper use of forest products in farm buildings, implements and structures.

During the first nine months operation of the two projects inventory surveys and forest management plans have been completed covering a net forest area of 5,117 acres. Whole farm plans covering the 4,126 acres of non-forested lands on the 24 farms including cultivated fields and improved pastures, have been prepared by the Soil Conservation Service. In this manner the farm woodland operations are planned as an integral part of each farm so that the farmer can take advantage of the so-called "slack" periods after the field crops have been harvested and then spend what time is necessary to harvest his forest crops, make improvement cuttings or thinnings and carry on forest tree planting operations.

In addition to the development of management plans for specific woodlands the two project foresters conduct forest demonstrations and carry on educational work in cooperation with the county agricultural agents. As State Soil Conservation Districts are established and become operative, it is anticipated that the project foresters will be in a position to render service to the landowners of the districts in which the projects are located.

BIG TREE

Down in the sunny southland in Assumption Parish, Louisiana, stands what is claimed to be the largest pecan tree in the world. It rises to a height of 135 feet and has a branch spread of 145 feet. At breast height the tree measures 24 feet 8 inches in circumference, which is equal to a diameter of about 8 feet.

Steamboat pilots, long before the days of Mark Twain, used this old tree as a landmark. One of those old river packets would be required to haul away all the nuts this tree has borne during its life. The owner estimates that it has produced upwards of fifty thousand pounds of pecans.

DISTRICT FORESTERS HELP FARMERS

The Texas Forest Service's two district foresters, M. V. Dunmire at Maydelle, Cherokee County and Don Young at Jefferson, Marion County, spend practically half their time working on general forestry education with farmers and other owners. County agents have been of much assistance in developing this program and many of the forester's contacts with the farmers are developed through the agent's office.

Although primarily in charge of forest fire protection in their districts, these two men are also in a position to give timberland owners advice on many other problems concerning timber growing. They are technically trained foresters, especially suited for this work.

Their two districts cover approximately 5,500,000 acres, about half of the East Texas protection area. The other three districts making up the balance of the piney woods region do not have these technical foresters, mainly due to lack of funds.

Even in the two areas under this new type of administration, the district foresters are finding it difficult to keep up with all the requests they receive asking for general forestry advice.

During the past winter they held several tree planting schools for farmers and other owners.

They work with civic organizations and lately have been representing the Texas Forest Service on soil conservation district organization meetings and land use planning conferences.

The district foresters inspect small forest holdings and advise the owners on how to mark and cut their timber. They tell them about markets for their products, what trees to harvest, what ones to keep.

The foresters also contact their local wood using industries and sometimes can give them helpful suggestions.

All in all the two district foresters of the Texas Forest Service are being kept plenty busy. When they are not working on some forest fire protection problem, chances are you will find them walking through some timber patch with the farm owner.

FIRE PROTECTION HELPS THE FARMER

Contrary to the opinion of many, the State, through the Texas Forest Service, is protecting the farmers and small timberland owners' property as well as the larger industrial owners' forest lands.

This confusion exists mainly in southeast Texas, where because the major portion of the timberland is in commercial ownerships, folks naturally conclude that these are the only lands protected. However, all the small holdings within the boundaries of the protection area are protected regardless of where they are located.

Actually, the Texas Forest Service is protecting more small ownerships than large. The net forest area of all ownerships within the protection area amounts to about 9,000,000 acres. Of this, the woodlands on about 80,000 farms are being protected — around 3,000,000 acres. Other ownerships under 3,000 acres each contribute another 3,000,000 acres. These two make a total of nearly 6,000,000 acres of forest land in small ownerships. Large commercial ownerships being protected total 3,000,000 acres.

Thus the picture summed up briefly looks like this:

Small ownerships protected.....	65%
Large ownerships protected.....	35%

The prevention of forest fires on farm timberlands is the first step to making the woodlands on the farm contribute more to the owners' pocket book. In other words, by keeping the fires out, the Texas Forest Service is directly aiding the farmer to grow his timber as a crop. And any help along that road is the same as putting money in the owner's pocket.

Most of the fires on farm woodlands start from careless brush burning, the Texas Forest Service has found. There are not many East Texas farmers who intentionally burn their own forests—although in carelessly clearing their new grounds or fields, they do let fires escape to their woods.

In its fire protection work, the Texas Forest Service has set up five broad divisions or districts. Three of these are in charge of local Texas citizens, the other two are directed by technical foresters. Within the

main districts, there are 63 patrol districts, each in charge of a local Texas farmer-patrolman and farmer emergencyman. Other employees such as lookouts, guards and special wardens are all farmers, too.

Even in the forest protection headquarters at Lufkin, most of the supervisory personnel at one time were farmers.

Throughout East Texas, a volunteer forest fire guard organization has been built up in the past five years.

Most of the 4,000 members are farmers.

In general, wherever possible, it has been the policy of the Service to employ local Texas citizens, and in the protection area, these prove to be mostly farmers.

It's hard to put down in black and white just what the returns to the farmer are from good fire protection. It has been estimated that an investment of 4 cents an acre on fire protection will net a return of 30 cents an acre from reduced fire loss. On this basis, small timberland owners in East Texas are being indirectly benefited about half a million dollars annually through the protection afforded their woodlands. Money devoted to fire protection is therefore money well invested.

PIONEER FORESTER DIES

W. I. Mattoon, senior forester with the United States Forest Service and early leader in farm forestry in the southeastern and gulf states, died at his home in Washington, D. C., on March 4 at the age of 65.

As one of the pioneers of forestry, he had been with the Forest Service since 1904 when he began work as a forest assistant in the southwest, rising steadily in the Service to positions of inspector, forest supervisor and examiner. In 1912 he was chosen to develop the southern farm forestry program.

Mr. Mattoon was the author of a score of farm bulletins on forestry, many miscellaneous publications, posters, and articles. He had endeared himself in the hearts of many farmers and leaves a niche in the forestry profession which will be difficult to fill.

F. F. A. AREA CONTESTS IN FORESTRY

Forestry was included in the group of Future Farmer of America judging contests conducted throughout East Texas on March 29, 31 and April 1 by the Department of Vocational Agriculture. This was the first time that a uniform forestry contest has been adopted by the entire group which includes over 200 F.F.A. Chapters.

The contest was divided into three parts: tree identification, identification of wood and lumber samples, and a written test covering the subject of Texas Forestry and pertinent facts concerning the more important trees and woods of the state. Each chapter was allowed to enter one three-man-team.

A banner was awarded to the winner of first place in each area with pennants and certificates going to second and third place teams. While forestry is not one of the statewide group of judging contests the awards were identical with the state contests. It was interesting to note that in some cases more teams participated in the forestry work, than in any other contest.

Big Sandy First

The Big Sandy Chapter, Upshur County, placed first in East Texas with a total of 743 points out of a possible 900. In second place was the Tyler Chapter, Smith County, and third place went to the Kirbyville Chapter, Jasper County.

The winners in the four areas were:

Area 6, Commerce, —Big Sandy, 743 points; Tyler, 686; Commerce, 589.

Area 7, Nacogdoches, —Seventeen chapters were entered. Nacogdoches, 620; San Augustine, 618; Huntington, 615.

Area 9, Huntsville, —Kirbyville, 627 points; Willis, 613; Newton, 604.

Area 3, College Station, —Grape-land, 512; Crosby, 399.

In Pennsylvania there are 33 organized municipal forests with an area of 25,000 acres; 35 municipalities have secured trees from the Department of Forests & Waters for reforestation and have planted 10,000 to 500,000 each; 66 other communities have planted 1,000 to 9,000 saplings each.

FOREST FIRE COOPERATION IN RED RIVER COUNTY

The cooperation which is given the Texas Forest Service by the people of Red River County in their fire prevention and suppression activities is outstanding in the whole south. These folks are thoroughly aware of the value of their timberlands. Threats of punishment, similar to that administered in the early days to horse thieves and fence cutters, should woods burners be detected, have been made.

The assistance which is rendered is not limited to one group but all residents are concerned. They have been united in their objective by Forest Patrolman W. J. Leatherwood. Between a thousand and twelve hundred citizens have signed volunteer forest fire agreements in which they agree to aid in forest fire prevention and assist in extinguishing fires. It has been found that many times these people are making an effort to stop a forest fire before the patrolman arrives. Colored as well as whites go to fires not on their own land and it is customary to find the landowner attempting to suppress a fire on his own property. One man brought 25 men to a fire when the closest land he owned was over two miles away. Another brought men when he saw a fire. He sometimes had the fire out when the patrolman arrived. He asked that he be connected with the telephone system so he could know about burning fires sooner and take his twenty available men to help extinguish them. Still another man who lives thirty-five miles from where a fire was burning, telephoned that he would bring a truck load of fire fighters if they were needed.

One lumber company employs about 150 men in the woods. Patrolman Leatherwood knows that all or any part of these men needed for fire suppression are available to him at his call. Another lumber company has a man who assists him in scouting for burning fires by driving the rural roads on days when a hazy atmosphere lessens the distance a smoke may be detected from the tower.

The sheriff's department has been of considerable help. The practice is for a representative of that depart-

ment to go to a fire without being summoned so that apprehension of the culprit who caused the flame may be speeded up. Members of that department have used the tools available to rake fire lanes.

The Texas Ranger stationed near the Oklahoma border has worked with the patrolman on many fires. His wife and her sister on one occasion controlled a fire before the patrolman arrived.

Schoolteachers, both men and women, have labored many hours together with their pupils to stop flames.

Of all the criminal cases that were brought to trial, there was only one in which a conviction was not obtained. Court officials have done their part.

The CCC has fifty men available at all times to render assistance within 35 miles of their camp.

The telephone company at Clarksville has contributed free service to the lookout tower so that fires may be reported with the least loss of time.

There is at least one circuit preacher who talks forest fire prevention at every opportunity from his pulpit.

Not all of Red River County is under organized forest fire protection. Many times there has come considerable help from those living outside the regular protected district. The forest patrolman returns this help when all fires inside the protected area are under control.

The worst fire that has occurred there since fire protection was organized burned over 557 acres of land in five hours. Instead of being confined to the ground, it spread through the crowns of the trees. On this one fire 285 men assisted in its control. 50 were CCC enrollees, 85 were from a lumber company, and 150 other volunteers. At one time 72 saws were cutting a swath through the forest to head the fire off. Tools were scarce, there being hardly one for each ten men. At one place at least half a mile of fire line was raked with the bare hands of the volunteers.

It is really doubtful that such assistance as is given Patrolman Leatherwood in Red River County in his endeavors to fight the red demon can be found elsewhere in the South.

DISTRICT JUDGE TREE PLANTING ENTHUSIAST

Not all the interest in forestry and tree growing is centered in farmers and other timberland owners. A case in point is T. W. Davidson, U. S. District Judge at Dallas, and former lieutenant-governor of Texas, who is finding the management of a 3000 acre timber tract in northeast Texas a good sideline to making court decisions.

Judge Davidson has been mainly interested in planting trees on some of the formerly cultivated parts of his tract and has been writing to the Texas Forest Service for suggestions.

This winter he procured some fifty pounds of cedar seed and planted them. He has ordered 10,000 seedlings from the Alto nursery for delivery next fall. The judge plans to eventually set out between 50 and 100 acres in cedar and 50 acres in black walnut. He says that his pine timber is reseeded satisfactorily.

HEADS FORESTRY ASSOCIATION

William Starke Rosecrans, nationally known conservationist of Los Angeles, has been elected president of the American Forestry Association. He succeeds James G. K. McClure of Asheville, North Carolina, who retired on Jan. 1. The annual meeting of the Association was held in Los Angeles on April 15-17.

USED FORESTRY MOVIE

The Texarkana Chamber of Commerce recently borrowed the twenty-minute technicolor film produced by the Texas Forest Service called "Timber Harvesting in Texas". The picture was used in a series of nine soil conservation meetings held in the vicinity of Texarkana. It was shown to emphasize the place that forestry has in the land use conservation program of East Texas. The film shows good and bad timber cutting practices and the advantages, both financial and economic, of selective cutting. It was filmed by the Texas Forest Service on State Forest No. 3 near Maydelle in Cherokee County in 1939.

TEXAS FOREST NEWS

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JUNIOR FIRE FIGHTERS' CLUB ORGANIZED

The Future Farmers of America Chapter at Huntington High School, which numbers 60 members, recently organized a club known as "The Huntington FFA Junior Forest Fire Fighters' Club" with the purpose of suppressing forest fires in the vicinity of Huntington as well as preventing forest fires.

Mr. G. G. LaRue, vocational agriculture teacher at the High School, stated that the club, when possible, would be subject to fire calls within a 10-mile radius of the High School and would furnish its own transportation to and from the fires.

Membership of the club will function the year-long, Mr. LaRue said. All forest fires on which club members work, together with the amount of time each member spends, will be reported to Mr. LaRue by Patrolman Forrest. Suitable awards will be offered the club members devoting the most time to the work activities and aims of the club.

Fuller details and work aims of the Junior Forest Fighters' Club are to be worked out at a later date, club officials state.

The club was organized through the efforts of the Texas Forest Service in cooperation with FFA chapter of the Huntington High School.

NACOGDOCHES FARMER'S WOODS PAY OFF

One example of good farm forest management may be seen on the M. D. Coats farm six miles southeast of Nacogdoches on the Woden road. Mr. Coats has been cooperating with the Carisso Creek Project for the past five years in a complete conservation plan and was one of the first to sign up with the recently established Farm Forestry Project. On this 44 acre tract of farm woods, selective cutting is being practiced. During the past five years this area has yielded some 20 to 25 cords of fuel-wood for sale each year, has provided for a sawlog sale of about 73,000 feet in 1937 and cross-ties and cordwood from the tops the same year, and about 200 poles in 1938. A small cut of about 10,000 feet of logs is antici-

pated during the present year. All sales considered, this area has brought in about \$3.22 per acre each year as a supplement to other farm income, with the only cost being taxes and labor to work up fuel-wood. This amounts to the removal of about 220 feet of logs from each acre during each of the past five years, which is no more than the growth for the same period of time.

PROTECTION UNIT ACREAGE INCREASES YEAR BY YEAR

As one of its main activities, the Texas Forest Service has under protection the major portion of the East Texas commercial timber region. Organized forest protection is maintained in this area under two systems. Extensive patrol covers ninety percent of the area and is financed entirely by State and Federal funds; protection units cover about ten percent of the area and are financed half by the landowners within the units and half by the State and Federal governments.

These protection units vary in size from 30,000 to 200,000 acres of forest land. They usually include the holdings of industrial companies or other individual timberland owners who desire more adequate protection against forest fires on their lands and are willing to match public funds to achieve this. All owners of forest land inside the protection units are urged to list their timberlands. Whether listed or not, all lands in the units are protected, although contributors' lands are naturally given first priority in event of fires. Due to additional funds being made available from private sources, protection units have a more complete organization and more equipment than extensive patrol areas.

The first protection unit was organized in 1927 with a contributing area of 144,000 acres. At the present time, timberland owners are contributing on 693,387 acres, and the area is constantly expanding. The gross area inside these protection unit boundaries is approximately 1,400,000 acres.

PULPWOOD ASSOCIATION EXPANDS PROGRAM

A program featuring expansion of field demonstrations showing landowners the proper way to harvest timber, cooperation between pulp mills and timberland owners in the reforestation of idle lands, and a broad campaign of conservation education was adopted for 1941 by the Southern Pulpwood Conservation Association at its annual meeting at Atlanta, Georgia, January 23 and 24.

WHAT CAUSES WOOD TO ROT?

The decay of wood is caused by a primitive form of parasitic plant called fungus. The wood rotting fungus produces fruiting bodies, known variously as punks, conks, or toad stools, which when ripe disseminate numerous tiny spores through the air. If one of these spores happens to land in a spot where conditions are favorable for its growth, it will develop into a wood rotting organism itself and finally produce another fruiting body. Within the wood, the fungus takes the form of very fine thread-like strands called hyphae which feed on and destroy certain portions of the wood structure, causing the wood to lose its strength and usually take on a spongy appearance.

There are many different species of wood rotting fungi, some attack only living trees and some only dead timber; some destroy only the sapwood whereas others exist only in the heartwood. All species, however, must have air, moisture, food, and proper temperature in order to survive and continue their work of wood destruction. If air is eliminated from the presence of wood, decay does not take place. This accounts for the fact that wood does not rot when continually submerged in water. Creosote oils protect wood from fungi by rendering the food supply toxic. Temperatures in excess of 130 degrees Fahrenheit will ordinarily kill wood rotting fungi provided the atmosphere remains moist.

FARMER—

(Continued From Page 1)

on the farm is a hindrance, something to be cleared off so that more area can be devoted to crop production, doesn't hold now-a-days. The main reason is that most of the better agricultural land was cleared of timber long ago, and that land now in timber is mostly sub-marginal, fit principally for the production of wood as a crop. Years of research, plus the basic laws of nature and soil reaction, prove that timber has a place on certain areas.

Another obstacle to better farm forestry is the lack of forestry knowledge on the part of the farmer. Education in the benefits of growing timber as a crop is needed. Many farmers can't talk timber in the same terms as corn, cotton, hogs, and cattle. They can't estimate the value of a timber patch. As a result the buyer, familiar with the value of the timber, generally gets the better of the bargain and the farmer sells for less than his products are worth.

To the best means possible, the Texas Forest Service has been trying to educate the farmers about this forestry business. But East Texas is a big region and with limited funds only the surface has been scratched.

More money is needed for farm forestry work. Technical foresters are needed in the field who can advise with the farmer in much the same manner as does the county agent about other crops and livestock. This work is being undertaken now with two foresters devoting part-time on five million acres in northeast Texas, by the Extension Farm Forester and through special projects in Nacogdoches and Angelina Counties. In a small way the forest patrolmen are of service, but with fire protection their major duty, little time is available for this advisory work.

Forestry for the farmer must be carried to him direct. It can only be done through technically trained foresters. The field is a broad one. There are over a hundred thousand farms in the piney woods alone, thousands more in the other forested regions of the State.

DURAND WHITE OAK

(Quercus durandii Buckl.)

This oak is found on the well-drained soil of river bottoms from the coast region of East Texas to the bottoms of the Guadalupe River (Victoria County) and inland to San Saba County, and the neighborhood of Dallas.

It forms a tree 60 to 90 feet high with a tall trunk 2 to 3 feet in diameter, comparatively small branches, the lower horizontal, the upper ascending, forming a dense, round-topped, handsome head.



Durand White Oak (Leaves and Fruit, one-half natural size).

The bark is thin, light gray or nearly white and broken into loose appressed scales.

The leaves are thin, smooth on the edges, three lobed toward the tip, or irregularly lobed, the three forms appearing on different branches of the same tree, and 2½ to 7 inches long, falling late in the autumn.

The fruit is an acorn, solitary or in pairs, on a very short stem, nearly egg-shaped, pale chestnut brown, shining, one-half to two-thirds of an inch long, and barely enclosed at the base in the thin saucer-shaped cup.

The wood is hard and heavy and is used largely as fuel.

CAUTION IN CUTTING TIMBER IS URGED

"Don't slaughter your woodlands!" is the advice the Texas Forest Service is offering to farmers and other timberland owners.

That word to the wise comes at a time when the attention of foresters has been turned to the apparent indiscriminate wide scale timber cutting going on at present in East Texas. National defense requirements for construction materials have stepped up lumber production with a resulting greater demand for timber from the forests.

In all this rush, however, the Texas Forest Service urges a little calm business reasoning and use of common sense methods of handling the forest lands. They say, "Cut timber conservatively!"

Market conditions are good now and foresters suggest for those who plan on selling timber that they get the

best bid possible. If you can, you should also mark the trees to be cut, taking care to leave the small, young, straight and thrifty trees for future crops of poles and other products. If you can't mark your trees, then you should specify that no trees under 12 or 14 inches in diameter at breast height be cut.

Nature can't grow a crop of trees every year, and the practices used in cutting forest lands now will effect their producing capacity for years to come. "If you let your woods be slaughtered now for what looks like a good price, there are going to be years of idle waiting ahead before the land produces again."

The Texas Forest Service is urging that every timberland owner and processor alike do his best to safeguard the forests. There is plenty of timber to meet national defense needs in East Texas. Cut the trees that need to be cut, but spare the young fast growing stands just bordering on saw-log size.

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TWO FOREST REGULATORY BILLS INTRODUCED IN CONGRESS

Walter M. Pierce, member of the House of Representatives from Oregon, on March 6 introduced two bills in Congress to promote sustained yield management of privately owned forest land. They provide for nationwide regulation of cutting and certain other forest practices.

According to Mr. Pierce, "Both of these bills have the same objective; to prevent destructive liquidation of the nation's forest resources and to insure the permanent productivity of our forest land."

H. R. 3849

H. R. 3849 calls for direct administration of forest regulations by the federal government with authority vested in the Secretary of Agriculture. The bill would establish a National Forestry Board of twelve members, to be appointed by the President, who will advise the Secretary in the administration of the forest practices law.

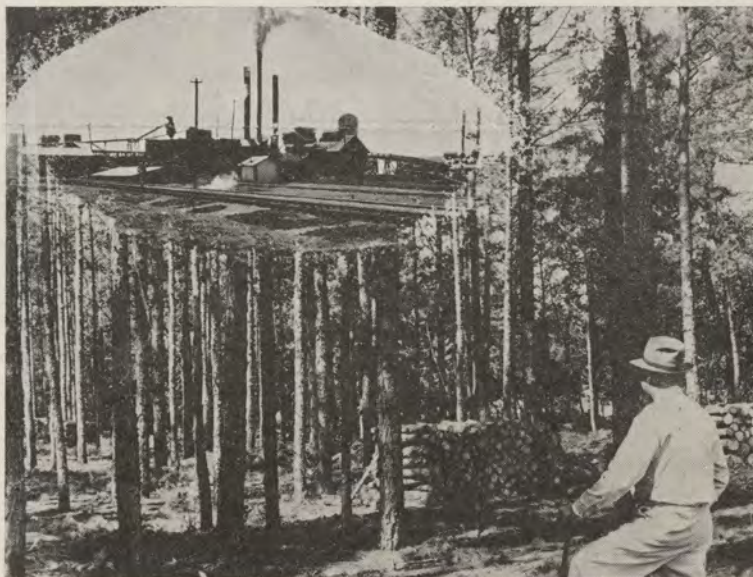
Under the proposed act, all privately owned forest land would be classified. On the basis of this classification, administrative areas would be established; each area would be under an area administrator. Each area administrator, with an advisory board of five members, would formulate rules and forest practices for application within the area.

Any forest operator would be permitted to submit to the Secretary of Agriculture a working plan for his forest lands. The bill further provides for federal inspection, and for appeals and enforcement.

H. R. 3850

H. R. 3850 follows the recommendations of the Secretary of Agriculture and the Forest Service to the Joint
(See REGULATION, Page 2)

Forest Defense



In national defense or in times of peace proper handling of the forests is essential. The above forest was first marked, then partially cut. It might be called the forester's goal for the aim of forestry is to perpetuate wood using industries, jobs, communities by wise cutting practices.

Helps National Defense



The national defense program has created a boom market for forest products. Biggest demand is for lumber to build army camps and defense housing, such as shown above. (Photo courtesy Mineral Wells Chamber of Commerce).

FORESTRY MEETINGS BRING GOOD ATTENDANCE

National Defense forestry meetings held at Nacogdoches, State Forest No. 3, near Maydelle, and Marshall during May have reached approximately 1,800 people.

The field days were sponsored by the Texas Forest Service in cooperation with the Extension Service, East Texas Chamber of Commerce and commerce organizations at Nacogdoches, Rusk, Palestine, Jacksonville and Marshall.

Demonstrations in the woods were designed to show timberland owners the disadvantages of over-cutting. Plots of timberland were used to show proper and improper methods of cutting. At each meeting it was emphasized that selective cutting, which left the proper number of trees of various sizes for future cuttings, was far better than stripping all the merchantable timber from the forest at one time.

The largest gathering occurred at State Forest No. 3, Cherokee County, where over 1,000 were present. The Maydelle School which occupied the buildings on State Forest No. 3 during the regular school year because their building in town was damaged by a tornado, merged their annual school picnic with the demonstration. This was done, one official said, "because we wanted this way to show our interest in good forestry management and to impress its value on our children".

Fourth and last in the series of spring meetings is scheduled for Texarkana on June 17.

BILL PROPOSES CREDITS FOR TIMBER OPERATORS

Senator McNary has introduced a bill in congress which would authorize an appropriation of \$40,000,000 for the establishment of a Forest Credit Bank which would be a part of the Farm Credit Administration. Loans would be made to timberland owners for the purpose of liquidation of indebtedness, purchase of additional stumpage, equipment, rights of way and other expenditures required to

carry out a logging operation. The amount of the loan would be limited to 30 percent of the appraised value of the property. Before securing a loan the timberland owner would be required to set up standards of forest practice consistent with sustained yield management. Loans could run for a maximum period of 40 years. The bank would also be authorized to set up an insurance fund of \$7,500,000 which would be used for reimbursement in case of loss from fire and other causes.

The bill also provides for loans to forest cooperatives such as a group of farm woodland owners. The funds could be used for the purchase of physical facilities necessary for processing the forest materials, refinancing indebtedness, and providing working capital. The amount of the loan could be as high as 60 percent of the appraised value of the property and would run for a period of 20 years.

FEWER FIRES

During March of this year 333 fires occurred which burned 13,137 acres in the area under protection by the Texas Forest Service in East Texas. Last year for the same month there were 1811 fires which burned 169,159 acres. Up to April 1 of this year 690 forest fires burned 25,100 acres of privately owned land in East Texas.

REGULATION—

(Continued From Page 1)

Congressional Committee on Forestry. In general, it provides for the establishment of systems of forest regulation by the states, with the federal government sharing the cost of enforcement and carrying out direct enforcement measures only when the states fail to set up a satisfactory system of forest perpetuation.

The administration of the act would be vested in the Secretary of Agriculture who would cooperate with the states and local agencies. It would create a National Forestry Board of twelve members, and would provide for land classification as would H. R. 3849.

Any state that submits to the Secretary a plan, which provides for satisfactory administration of rules of forest practices and which is approved by the Secretary, may receive cooperation and financial aid for its enforcement on a 50-50 basis.

If, after three years from the date of the act, a state has not submitted a forest practices plan, the Secretary of Agriculture is authorized to appoint a state administrator with a state advisory board to set up rules of forest practices. Forest operators may submit working plans to the Secretary. The bill provides for inspection by federal agencies and enforcement.



These are only a few of the three million railroad ties produced in East Texas each year. Cross ties are third in volume output of forest products cut, accounting for about ten percent of the total.

DIVERSIFICATION MARKS TEXAS' FOREST PRODUCTS INDUSTRY

One of the most interesting and favorable features of Texas' forest products industry is the multitude of products manufactured. Lumber leads by a wide margin but the industry doesn't stop here.

Many little plants, and some big ones too, are busy turning out more wood products than most folks imagine. Baskets, handles, shingles, ties, furniture, veneer, fences and panelling, are a few. Poles, piling and pulpwood come in the list too.

These wood using industries number about 100, employ nearly 10,000 workmen in woods and mills and use over half a billion board feet of wood material annually. This is no small industry considering that in addition there are about 400 sawmills which cut over a billion board feet of lumber annually and furnish jobs for some 18,000 men.

Furnishing a continuous wood supply for all these industries places a big job on the forests. The chief concern of the Texas Forest Service is protection of this resource and interesting land owners in good timber cutting practices.

Not ranked as an industry, but second in volume cut from East Texas forests is fuelwood, accounting for 15 percent of the total amount of wood cut for all purposes. Estimated annual fuelwood cut runs over 1,750,000 cords. Fence posts come in this class also. Almost ten million of them are cut each year. Lumber cut and used on farms totals an estimated 30,000,000 board feet.

The main products cut from East Texas forests annually are listed below:

Lumber.....	1,000,000,000 bd. ft.
Fuelwood.....	1,750,000 cords
Cross ties.....	2,750,000 pieces
Veneer wood.....	38,000,000 bd. ft.
Poles and piling.....	300,000 pieces
Farm use.....	30,000,000 bd. ft.
Pulpwood.....	325,000 cords
Fence posts.....	10,000,000 pieces
Cooperage.....	11,500 cords
Miscellaneous (Shingles, excelsior, handles, mine props).....	11,500 cords

Wood Is Favored For Furniture



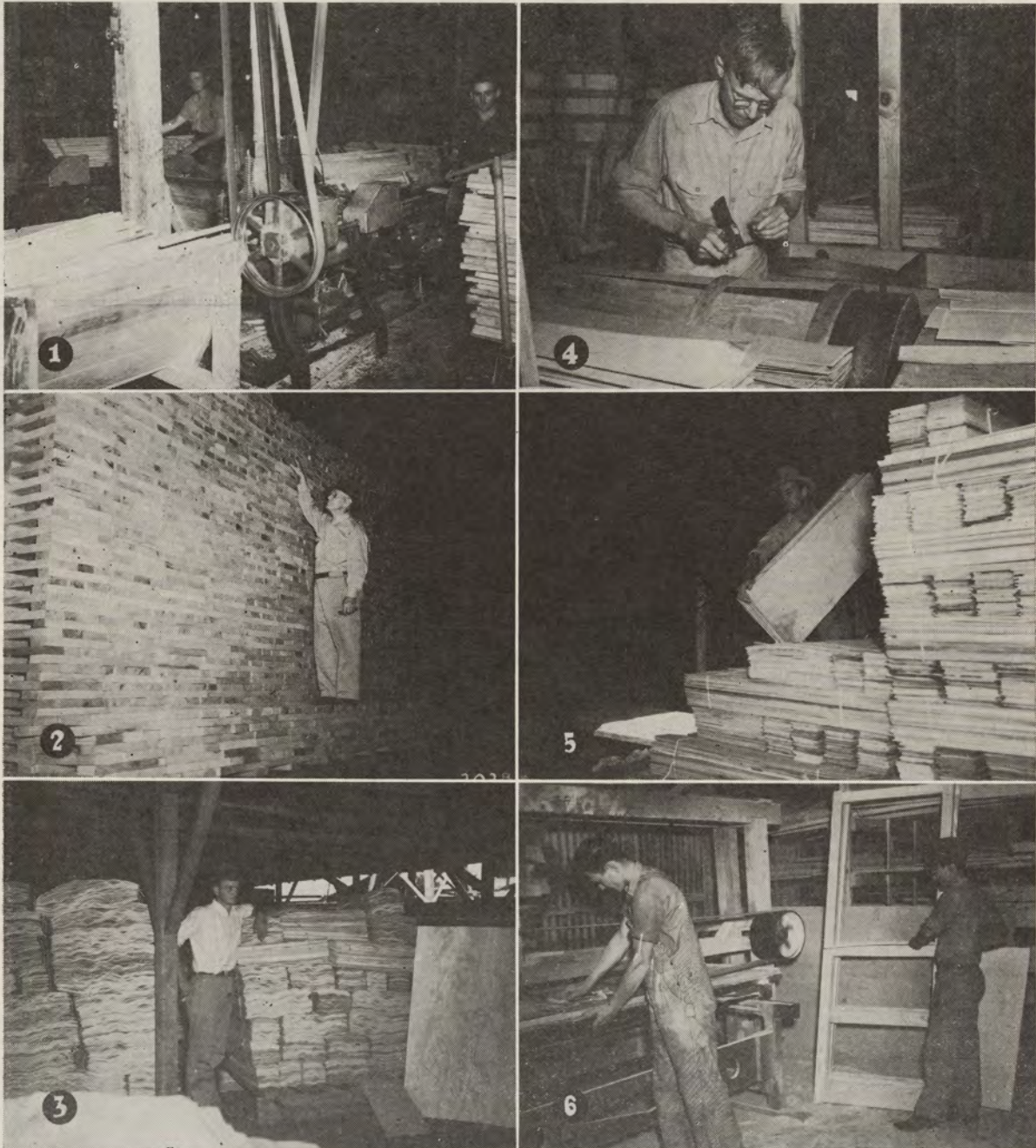
Over one hundred furniture factories are operating in Texas. The one shown above specializes in chairs, using native grown woods. (Courtesy Lufkin Chamber of Commerce).

A Cannon of Defense



Resembling a huge cannon mounted on a railroad car, this crane loads pine poles for some national defense project. Poles and piling are the highest money producing crops of the pine forest. Between three and four hundred thousand are cut annually in East Texas.

For Handles or Bomb Crates, Texas Forests Furnish Materials



1. This machine "rounds" broom handles out of pine slabs and edgings which were formerly wasted because of no market. Not many folks realize that one factory in Texas turns out twenty percent of the nation's broom handles.
2. East Texas oak staves by the thousands carefully season awaiting the war's end when they will be shipped to Ireland, Scotland and Spain to make barrels for fine wines and whiskeys.
3. This cottonwood veneer made in East Texas will be made into beautiful modernistic cabinets. Twenty-five veneer mills employ 2,300 workers. One mill makes plywood for furniture.
4. With the ease and precision of a machine this workman puts together baskets made from red gum veneer. Most of Texas fruits and vegetables are shipped in baskets and crates made here in the state.
5. These harmless looking gum veneer slats will actually pack a wallop. They are being shipped away to be made into bomb crates.
6. Quality Texas pine millwork, such as these screen doors, are turned out by hundreds at many small wood working shops.

WINNERS ANNOUNCED IN ANGELINA COUNTY SCHOOL FORESTRY CONTEST

The first annual forestry poster and essay contest sponsored by the Lufkin Junior Chamber of Commerce, the Lufkin Chamber of Commerce and three local theaters attracted nearly 600 entries from the city and county schools in Angelina County, contest chairman J. O. Burnside of the Texas Forest Service announced.

The winning entries in the contest were awarded silver dollars totaling \$42.00. The Hudson High School, the Huntington Junior High School and the Huntington Grade School, the entries from which represented first place winners in each contest group, were awarded forestry plaques. Free theater tickets were awarded class winners in each school competing. Awards were made on the stage of the Pines Theater in a special matinee program.

The forestry contest was conducted with a view of impressing Angelina County students with the importance of proper forestry practices and the necessity of reducing the forest fire losses in the county.

The excellent cooperation of the school officials and all other agencies in the contest had much to do with its success, according to Mr. Burnside. It is planned to stage a similar contest annually in the county.

EXTENSION SERVICE SPECIALISTS VISIT FORESTRY HEADQUARTERS AT LUFKIN

Field agents and headquarter specialists of the A. and M. College Extension Service took a one-day trip through East Texas on May 5 to see at first hand some of the Texas Forest Service projects and to inspect the Lufkin field headquarters.

More than 50 staff members of the Extension Service, representing all sections of the state, made the trip headed by their Director, H. H. Williamson.

Enroute they inspected State Forest No. 5 near Weches in Houston County and the new forest tree nursery near Alto. At Lufkin they visited the Texas Forest Festival forest products



Fences for farm or city home are manufactured from pine at this East Texas factory. (Courtesy Lufkin Chamber of Commerce).

building and division of Forest Protection headquarters and new Forest Products Research Laboratory.

Speaking after the noon barbecue, arranged by the Lufkin Chamber of Commerce and Texas Forest Service employees, Director Williamson promised the full cooperation of his division in promotion of the forest tree planting program.

The group inspected the newsprint plant of the Southland Paper Mills and the East Texas Pasture Investigations Laboratory of the Agricultural Experiment Station at Hudson, in Angelina County, before they returned home.

The idea of familiarizing the Extension Service specialists with the East Texas forestry and pasture research work originated with Director Williamson during a visit to the Forest Festival last fall.

24,000 PEOPLE ATTEND FORESTRY SHOWS—FIRST QUARTER OF YEAR

Nearly 24,000 people attended the 165 forestry shows presented by the two educational assistants operating the Texas Forest Service's two motion picture units in East Texas during the first three months of 1941, the Division of Forest Protection reports.

The audience attending the shows consisting of men, women and children, both white and colored, in cities, towns and rural communities represents an average attendance of over 143 persons at each showing. Each forestry show scheduled by the educational assistants, Ed B. Long, in northeast Texas, and John R. Thigpen in southeast Texas, is accompanied by forestry lectures and on occasions forestry demonstrations.

Of the total number of forestry shows given during the first quarter of the year 85 shows at which 11,114 people attended were presented by Ed B. Long, while 80 shows at which 12,570 persons attended were presented by John R. Thigpen, the Texas Forest Service's educational assistants.

Mr. Thigpen reports an audience of 400 negroes February 4 attending the forestry show at the West End School, Nacogdoches County, in Patrolman J. W. Mitchell's district.

Mr. Long reports three shows at which 1,800 persons attended. These programs were given at the Simms High School and Texas Junior High School, Bowie County, in Patrolman R. W. Smith's district; and at the Avery School, Red River County, in Patrolman Lann's district.



In the yard of this Texas creosoting plant, ties and poles are given preservative treatment. Fifteen plants like this one treat some 300,000,000 board feet of wood each year, furnishing employment to 2,500 workers. (Photo courtesy Texas Creosoting Company).

SAN AUGUSTINE LIONS AWARD FORESTRY CONTEST WINNERS THIRTY SILVER DOLLARS

The first annual county-wide forestry poster and essay contest initiated in March by San Augustine Lions, headed by President J. B. Ball, in close cooperation with the county and city schools was brought to a successful close the night of April 25, when thirty silver dollars in cash prizes were awarded the winners in the crowded District Court room.

The purpose of the contest was to help eliminate forest fires from the county and to instill in the youth the idea that proper forest management will pay cash returns to the county.

A. O. Rushing, San Augustine, presided as chairman of the meeting. During the presentation ceremonies the forestry posters and essays submitted for final judging were displayed in the District Court room.

"Several hundred students in the San Augustine County and City schools entered the contest," Mrs. Marylou Viterbo, County School Superintendent, said.

"The three winners, representing one first place in each contest group, were selected by out-of-county judges from Hemphill, Center and Pineland from all of the contest entries submitted for final judging," President Ball said.

In addition to the cash prizes, for-

estry plaques were presented to the three first place winners who in turn will present them to the schools represented by the winners. The forestry plaques will remain the property of the winning schools until won by another school in a future contest.

It was unanimously agreed by the San Augustine Lions Club that the forestry poster and essay contest will be sponsored annually.

The idea of the contest originated with J. O. Burnside, assistant forester in the Texas Forest Service's division of forest protection at Lufkin.

Others who contributed unsparingly of their time to make the forestry contest a success were County Judge R. N. Stripling, District Ranger Martin Syverson, H. B. Clark, Arlan Hayes, Cassett Hanks, all of San Augustine; and A. T. Coleman, superintendent Broadus High School; B. B. Carter, principal San Augustine grade school; L. C. Smith, Frost Lumber Industries, Inc., Camp Worth; Johnnie Lacy, principal of San Augustine grade school and Burdett Pulliam, principal of Lucas school.

BOYS INSPECT NURSERY

Over 60 Future Farmers of America from Alto and Jacksonville made a tour of inspection of the Texas Forest Service tree nursery near Alto recently. They were brought there by their vocational agriculture teachers, C. M. Gregg, and Earl Cummings.

LETTER FROM A "CONVERT"

You might call this a "believe it or not" story. It surely is a boost in favor of forestry. We think the following letter, addressed to Director Siecke from W. C. Morgan, former legislator, speaks volumes. It was written after Mr. Morgan attended a forestry meeting at State Forest No. 3, in Cherokee County at which proper cutting methods were demonstrated by B. Koontz, chief of the Division of Industrial Forestry. The Texas Forest Service appreciates Mr. Morgan's new outlook. Here's the letter:

"A good many years ago while a member of the legislature I had letters and circulars from you advocating reforestation and selective cutting in timber operations.

"Then, in common I suppose with most other folks I probably without giving it much thought believed it might be all right but what's the use worrying about 20, 50 or a 100 years from then. Nature always had supplanted man's careless destruction. Why worry?

"That being only twenty years ago I have since cut a good bit of timber, still carelessly so, however, from tracts then apparently exhausted. I have come to see thousands of acres now replenished with a good growth slashed cut twenty odd years ago.

"Through the years I have watched these timber tracts and at various times recalled in an indolent way the things you used to and still say about timber. More recently I have come to have a better interest, having conferred with Mr. Koontz as well as attended the field meet on your State Forest in Cherokee County on May 20.

"It will be my intention now to give enthusiastic support to that method of timber cutting. I find Mr. Koontz a very interesting mentor and from here out whatever timber operations I have I am going to seek the advice of Mr. Koontz of your department and then do as I am told. I am glad to have the opportunity of telling your department my idea of its usefulness has very materially changed favorably."

An acorn was found in the center of a giant redwood, indicating its age to be several thousand years.

TEXAS FOREST NEWS

7

THE TEXAS SHELTERBELT PROGRAM

By W. E. Webb, State Director
Prairie States Forestry Project

The Shelterbelt Project in Northwest Texas recently completed its sixth major planting season. Approximately 1,790 miles of green, living, protection barriers have been planted in this area, primarily to alleviate the unusually severe wind erosion occurring in the spring and the losses to crops from the prevalent dry, parched summer winds.

Shelterbelts have been planted on about 2,300 farms in 33 counties in Northwest Texas. These plantings have been made principally below the Cap Rock and as far east as Wichita Falls. Wheeler County, with over 390 miles of tree belts, has one of the largest concentrations of shelterbelts in the country. Collingsworth, Donley, Wilbarger, Hardeman, Motley, Hall, Childress and Cottle Counties all have well over 100 miles of shelterbelt.

This tree planting project is operated by the Prairie States Forestry Project, a branch of the Forest Service, U. S. Department of Agriculture. Operations are taking place in the six states of North and South Dakota, Nebraska, Kansas, Oklahoma and Texas. The Texas organization is headquartered at Wichita Falls, with district headquarters at Childress and Shamrock and subdistrict field officers in nine county seats in Northwest Texas. Although the final figures for this spring's planting program for the Project as a whole are not complete at this writing, there will be over 16,500 miles of shelterbelts by the end of spring, 1941, in the six States involved.

The prairie States Forestry Project plants two types of belts. One type is the basic belt, usually consisting of 10 rows of trees containing 5 to 8 different species. A strong pattern of these substantial basic belts is usually developed and then supplemented by a system of narrow 3 to 5 row belts so that eventually the total cultivated area receives complete protection.

Normally the basic 10 row belts are planted $\frac{1}{2}$ mile apart running east and west. The narrow or intermediate

belts are spaced half way between these basics and are also planted in a northerly and southerly direction $\frac{1}{2}$ mile apart, leaving $\frac{1}{4}$ mile between protection barriers.

The reason for these intermediates is self-evident when we consider that effective protection from these living tree barriers extend to approximately 20 times the height of the trees. Where shelterbelts are planted in a series and a complete pattern is developed, protection to the soil and the crop area is given on both sides of the trees.

To develop this protection to the fullest extent, the selection of species is such as to give the shelterbelt a streamlined effect. First, rows of tall, extremely rapid-growing trees are needed to erect a barrier against the wind in the shortest time possible for the protection of the adjoining fields. Other rows of slower-growing trees flank the fast-growers and on the outside are low shrubs (see

sketch). This "streamlining" lifts most of the wind up from the ground and above the fields, but allows some of the air to pass through the tree foliage at a reduced velocity to prevent dead air spaces from developing in the lee of the shelterbelt.

Approximately 25 different species of trees and shrubs were used this year in the planting of Texas shelterbelts. Cottonwood and Chinese Elm are two very rapid growers. Honey and Black Locust, Green Ash, Ailanthus, Bois d'Arc, Black and Western Walnut, Hackberry, Sycamore, Catalpa, Mulberry, Apricot, Flowering Willow, Ponderosa Pine, Cedar, Plum, American Elm, and a number of others are used for long life or density of growth.

The Government operated nursery at Plainview raised approximately 5,000,000 trees for the 1941 planting program.

Shelterbelt planting is not a new (See SHELTERBELT, Page 8)



Here are two examples of West Texas shelterbelts. The top view shows a four-year-old windbreak planted in 1938. The lower picture shows how the shelterbelts are laid out; planted in 1939 and 1940. Both are located in Wilbarger County, Texas.

TEXAS SHELTERBELT—

(Continued From Page 7)

fad. Early pioneer work to determine which trees are hardy and drouth resistant began over 40 years ago. The fine work of D. L. Jones, Frank Gaines, and R. E. Karper of the Texas Agricultural Experiment Station at Lubbock is well known. Their bulletin, "Trees and Shrubs in Northwest Texas," makes a fine ready reference. The Texas Forest Service has done considerable work along this line. Their bulletin, "Tree Planting Needed in Texas," published in 1917 is a real pioneer. The U. S. Southern Great Plains Field Station at Woodward, Oklahoma, has contributed considerably toward the shelterbelt program. There are other sources of information also which were all analyzed, digested and developed for the use of the Prairie States Forestry Project.

Survivals of the various kinds of trees used to date in shelterbelt planting indicate that the early studies and plantings by the foregoing agencies have been of tremendous assistance. Actual survival of the various species over the past 4 years averages over 70% which is sufficient to give adequate protection to the crop lands. Over 76% of the trees planted in Texas during 1940 came through their first growing season successfully.

With many of the older shelterbelts averaging from 15 to 30 feet in height, other benefits in addition to stabilizing the soil and protecting the crops are developing. Definite increases in the number of quail are being reported. Poultry and cattle protection, prospects of obtaining fuel and material for posts and poles, and the development of a cleaner and more livable farmstead are some of the promises held forth by the miles of protective shelterbelts.

The effectiveness of these shelterbelts is best illustrated by mentioning a few of the numerous reports made by the owners. Mr. Weatherbee of Garden Valley in Childress County, tells of stopping the sand, which piled up in his yard after each spring blow, with his 1937 tree belt. T. L. Lambert of Foard County can tell you how his corn field, protected by his 1936 shelterbelt, yielded 25 bushels to the acre, whereas, in an adjoining unprotected

BLUE BEECH (Hornbeam)

(Carpinus caroliniana Walt.)

Blue beech, or hornbeam, also known as ironwood and water beech, is a small, slow-growing, bushy tree with a spreading top of slender, crooked or drooping branches. It is found along streams and in low ground, usually in the shade of other trees. Its height is usually from 20 to 30 feet and its diameter 4 to 8 inches, although it sometimes grows larger.

The trunk is fluted with irregular ridges extending up and down the tree. The bark is light brownish-gray to dark bluish-gray in color, sometimes marked with dark bands extending horizontally on the trunk.

The leaves are simple, alternate, oval, long-pointed, doubly toothed along the margin, 2 to 3 inches in length. They resemble those of the black or sweet birch, but are smaller.

The flowers are borne in catkins separately on the same tree; the male catkin about 1½ inches long, the female, about ¾ of an inch, with small leaflike, three-lobed green scales. The fruit is a nutlet about one-third of an inch long. It falls, attached to the leaf-like scale which acts as a wing in aiding its distribution by the wind.

The wood is tough, close-grained, heavy and strong. It is sometimes selected for use for levers, tool handles, wooden cogs, mallets, wedges, etc. The tree is of little commercial importance and often occupies space in the woods that should be utilized by more valuable species.



Blue Beech (Leaf and Fruit, one-half natural size. Twig, natural size).

field, the yield dropped to 5 bushels.

The alfalfa crop on the W. D. Berry farm in the same county was credited to the protection of a 3-year-old shelterbelt by Extension Service officials. J. H. McDougal of Wilbarger County speaks glowingly of the increased quail on his land. His 5¼ miles of 2 and 3-year-old shelterbelts are the talk of the county. Alga Turner and Davie Meacham are strong shelterbelt boosters because they too have noted the value of their 1937 shelterbelts. The trees criss-crossing the farms handled by R. J. and Ira Tucker of Cottle County form the backbone of the Dunlap concentration of shelterbelts.

Recently R. J. Tucker stated he wouldn't take \$2,000 for his shelterbelts because he felt the material value of those protective trees in dollars and cents was worth more than that to him. Dr. J. W. Gooch of Wheeler County is completely sold on the 9 miles of shelterbelt on his farm because of the reduced seed and crop losses from wind erosion.

Briefly, those who have taken care of their trees by proper cultivation

and care are the big boosters. Those who haven't have not had as good results. Shelterbelts thrive with care and attention. Scattered through Northwest Texas are the living evidences that trees will grow and bring valuable benefits to the farmer in better crops, stabilized soil, better living conditions and economic security.

MARKET FOR MAGNOLIA LEAVES

A company in Florida buys magnolia leaves which they bleach and paint and retail to florists all over the country. They are reported to pay fifty cents for a hundred pounds of leaves when they do the picking, or five cents a pound for leaves delivered at the plant.

A sawmill carriage at a South Dakota mining company has been equipped with an electric "shotgun feed" which speeds 16-foot logs back and forth through a headsaw in less than six seconds, making more than 10 cuts per minute.

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Tall Pines From Little Seedlings Grow



Better than any words can tell, these two pictures show the growth that the oldest slash pine plantation in Texas, located at State Forest No. 1 in Newton County, has made. The trees were planted in 1926 as one-year-old seedlings. The above view was made in 1929, three years after planting, and the view to the left in May, this year—fifteen years after planting.

SLASH PINE PROVES ITS ADAPTABILITY IN TEXAS

Research studies with slash pine in East Texas have been going on only fifteen years, but the species has already proved it will do well in certain sections of the piney woods region. Slash pine is native to the South Atlantic and Gulf states, eastward from Louisiana. Some of the first Texas experimental plantations have been so successful that slash pine is being used both on farm and commercial reforestation projects.

The initial plantations of slash pine were made at State Forest No. 1 near Kirbyville in 1926. Within a short

time the study was expanded by cooperative plantings in East Texas. The trees grew so good that it wasn't but a few years until the Texas Forest Service was producing slash pine seedlings at the state forest tree nurseries for use in reforestation throughout East Texas. This year about 3,500,000 slash pine seedlings are being raised for distribution from the Indian Mound Nursery near Alto.

A detailed inspection during 1938 of 44 slash pine plantings located from Matagorda County on the south to Bowie County in the north showed that plantations set out in 1932, 1936, and 1937 have averaged well over 3 feet per year in height growth, while

no plantation that had not been damaged in some manner has grown less than 2 feet per year.

The same plantations showed an average diameter growth of one-half inch a year. Sixteen plantations checked seven years after planting showed an average diameter increase of .57 of an inch per year with the poorest being .4 of an inch and the best .71 of an inch.

Limited investigations have indicated that the species will grow on most of the important soil types in East Texas.

The study showed that slash pine is highly susceptible to fire damage.

(Continued on next page)

Silvicultural Research

Today, research is recognized as an essential part of any successful business enterprise. Forestry is a business involving many techniques and practices applied to the growing of timber as a crop. Forestry progress can not depend on "trial and error," but must be backed with careful experiments and practical demonstrations that are basic in silvicultural research.

The word "silviculture" is not a formidably technical term, but rather a very practical word as used in forestry. Webster's dictionary shows that it is derived from the Latin "silva" meaning "forest" plus the English word "culture." Going further, "culture" may be traced to the Latin "cultura" from "colere" which means "to till." Thus silviculture is "to till the forest." Silvicultural research, as defined in the dictionary and in practical application is primarily research in "the art of producing and caring for a forest."

Silvicultural research varies from most research in the time element. This is due to the very nature of tree growth. While some studies in annually maturing crops may be completed in one or two growing seasons, it is not unusual for a single cycle of a forestry project to require ten, twenty and even fifty or more years. Fortunately, in most of these long time projects it is not necessary to await the final results before advantage can be taken of beneficial practices. Intermediate measurements and progress reports generally will indicate whether or not the project will be practicable and profitable for use by private woodland owners. From this data, recommendations for or against adopting a new procedure can be made with a degree of certainty even though the complete evaluation of the research project must await its final culmination.

SLASH PINE—

(Continued from page 1)

A number of young plantations have been completely destroyed by a single fire, and even after growth is well started in those instances where fire has escaped into a planting mortality has been exceedingly high.

On the other hand, up to the present time, the slash pine plantations have been remarkably free of insects and diseases. Some damage from cut ants has been experienced just after planting but in most cases this might easily have been prevented by proper control measures before the plantations were established. Rabbits have destroyed some seedlings by chewing off the tender bark of the stem.

The data pertaining to the slash pine plantation which was established at State Forest No. 1 in Newton County in the spring of 1926 furnish a specific example of the growth of the species. This plantation is the oldest of the slash pine plantings established in Texas and it has been studied in greater detail than any other plantation. Thus, it has become the yardstick by which other plantations may be compared. It

probably will continue in that use until the Texas Forest Service research investigations of slash pine have progressed to such a degree that truly significant data can be averaged from a group of plantings distributed throughout East Texas.

Since 1929 a careful check has been kept on the plantation, with measurements being taken every two years and in some cases an extra measurement between these intervening periods. The following table shows the progressive growth of the trees:

Year	Average Diameter Breast High, Inches All Trees	Average Height, Feet All Trees	Volume Per Acre In Cords 4" & Over
1927	—	2.2	—
1929	—	5.2	—
1931	1.7	8.9	—
1933	3.0	16.2	1.0
1935	4.3	23.5	4.9
1937	5.2	32.7	9.4
1939	6.3	41.5	16.6
1941	7.1	47.5	22.0

The plantation produced seed in 1939 and 1940. Last year's were collected, planted and have come up as little seedlings—thus heralding in the second generation of slash pine in

COOPERATIVE PLANTING



In this seven year old plantation of slash pine at the Beaumont Boy Scout Camp near Silsbee the majority of the trees are 15 to 20 feet high. It typifies the growth made by the cooperative plantations that have been established to furnish the workshop for silvicultural research with this species. The Texas Forest Service has had the cooperation of farmers, vocational agriculture classes, 4-H Clubs and other groups in establishing these plantings throughout East Texas.

Texas. These seedlings will be planted out near their fifteen year old parents this fall.

Looking to the Future

The research of the Texas Forest Service with this slash pine plantation in particular, and with an increasing number of plantings located throughout East Texas leaves but little doubt that this species, which is the only one of the four principal southern pines not native to our State, can be successfully grown as a forest tree that will be a profitable addition to the woodland community. Every growth characteristic of slash pine that has been studied has pointed toward placing it on a par, or even in some instances, above the native pines.

Forest Fires and Timber Growing Don't Mix

Nine-year Records on Research Project Show Fires Retard Tree Growth and Reproduction

"If you want to grow timber as a crop you must keep the fires out", just about sums up the results of a nine-year old research project which the Texas Forest Service has been working out on State Forest No. 1, near Kirbyville in Newton County.

Of course the Service knew that fires and timber growing didn't mix, but just to what extent woods burning effected timber growth has always been the source of much debate throughout the South. New facts and figures are available with which to match the arguments of those who doubt the truth.

In brief the forest researchers found that annual fires retard the height and diameter growth of longleaf trees, and greatly hinder, if not prevent, the chances of young pines getting started.

They carried out their tests by dividing an area of longleaf timber into nine equal sized plots. They burned one set of four plots once a year—but each at a different season. The other four acres were burned every three years, each at a different season. The last area wasn't burned at all and the measurements on it serve as a comparison with the burned plots.

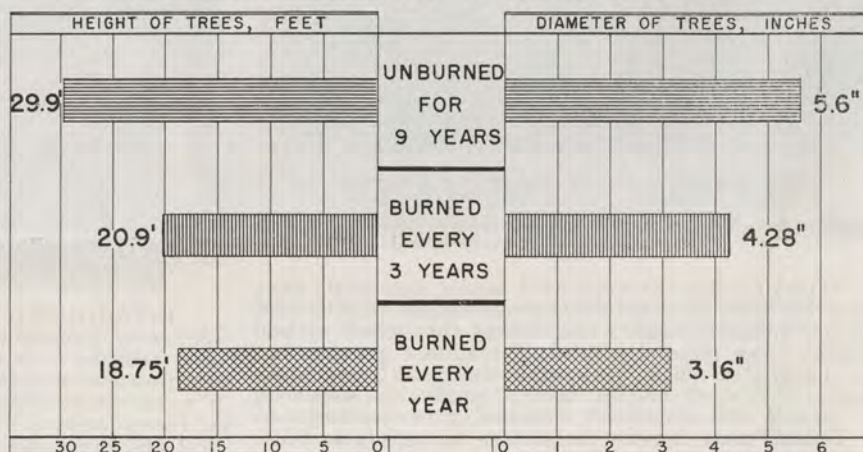
The project was started in 1931, and four of the plots have been burned eight times, and four others, three times.

Unburned Trees Are Larger

On the unburned area, the trees are 11.2 feet taller and 2.44 inches larger in diameter than those burned each year, and ten feet taller and 1.32 inches larger in diameter than those on the three year burns. And the main point in making this comparison is that the trees on all plots averaged the same size at the start of the experiment nine years ago!

Burning in the fall and winter was found to retard growth slightly more

GROWTH OF LONGLEAF PINE ON BURNED AND UNBURNED FOREST LAND



Based on records gathered by Texas Forest Service at State Forest No. 1, Newton County. Experiment started in 1931; above figures are 1940 measurements. Trees were all the same size at start in 1931

than the fires in spring and summer.

When the foresters started checking the effect of burning on the young seedlings or reproduction, they discovered even more startling comparisons.

The unburned check plot shows 1,000 six-year old seedlings, 1,000 four-year old seedlings and 7,000 three-year old seedlings per acre . . . 9,000 in all.

Reproduction Scanty on Burns

Only the summer burn of the plots burned annually showed any reproduction—2,000 two-year old seedlings per acre. But it was noticed that those seedlings on the sample checked had all their needles scorched or burned and their chances of recovery were held slim with the area to be continually burned. This had been evidenced previously during the life of the project when a few seedlings had made their appearance but later succumbed in the next burn of the area.

The three-year plots paralleled those burned annually. The area burned in the summer showed 6,000

seedlings per acre all of which have made their appearance since the last burn in 1938. As this plot has not been burned since then and will not be burned until 1941, no conclusions on the ultimate survival can be made.

Thus the work on this project area shows that if the present burning schedule of the plots is continued, very little reproduction can be expected on any of the area excepting the unburned check plot. This substantiates information the Texas Forest Service has been releasing for years, that "you can't have your timber and burn it too!"

Preliminary findings on the project further indicate that forest fires reduce the value and forage rating of the grasses for grazing purposes, but a definite report on this isn't expected for some time yet.

There are over ten and a half million acres of forest land in East Texas at present better adapted for timber growing than any other known use.



VITAMIN B-1—Strange as it seems, specialists have found that trees need hormones and vitamins in their diet just like human beings. They found that given certain vitamins, trees respond with rapid luxuriant growth—but that deprived of them, they grew pale, sickly and died. Results of use of one of these vitamins is shown in the treated and untreated shortleaf pine seedlings at the Texas Forest Service forest tree nursery near Alto. The response of the seedlings to the vitamin is quite noticeable, although not “phenomenal.” Curiously, the vitamin used was B-1, the one now used to energize bread for human beings. Since the use of the vitamin seems to vitalize the young seedlings, this increased vigor should be a factor in reducing mortality of the trees when they are planted.



INTRODUCED TREE SPECIES—Eleven different species of hybrids poplar trees are being grown on the area pictured. This is part of silvicultural research to test tree species not native to Texas. Such tests determine if a particular species recommended for use in planting on forest lands, will grow successfully and prove as practical and profitable as growing native trees. Over fifty different species have been tried, but to date only slash pine has been found generally acceptable. Tests now in progress, in addition to the poplar hybrids, are ship-mast locust, Chinese chestnut, bamboo, cajupet, Monterey pine, Arkansas cottonwood and the continued study of slash pine.



SPRAYING LONGLEAF PINE—In the above picture, the two rows of longleaf pine seedlings to the right, 3 and 4, have been sprayed regularly during three summer seasons with a solution called “Bordeaux” which is made from the chemical copper sulphate or “blue stone.” The two rows of trees to the left, 1 and 2, where the forest stands, have not been sprayed. A three times greater height growth of treated trees has resulted from the effective control of a brown spot needle blight which attacks longleaf pine seedlings up to ten years of age. This disease has been one of three big reasons why longleaf pine is hard to start again on cutover areas in East Texas. Forest fires and hogs are the other two.



PRUNING—The ever growing scarcity of the best grade of clear, knotless lumber, and the increasing price that it commands raise questions as to whether man can improve and hasten Nature’s method by pruning off the side branches. This is being demonstrated above in the W. W. Wipprecht loblolly pine plantation near Bryan. Crop trees were trimmed up to an average height of eleven feet in January 1939 when nine year old. Another pruning is planned this winter, to a height of 18 feet. From then until the trees are harvested, growth on the first log will be clear, knotless wood. Pruning crop trees in the farm woodlot is suggested as an excellent way to use farm labor during slack winter months.

TEXAS FOREST NEWS

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WEATHER RECORDS—The Texas Forest Service has cooperated with the Weather Bureau of the United States Department of Agriculture in maintaining records of the temperature, rainfall and wind conditions at the various State Forests. The importance of these records to research projects is frequently overlooked. Weather records are particularly important in forest fire studies and growth studies. The extreme changes weather conditions undergo within limited areas in Texas make local records necessary. The forester in this picture is taking readings on the maximum and minimum temperature thermometers.



THINNINGS AND IMPROVEMENT CUTTINGS—Any farmer knows that agricultural crops need continual weeding and cultivating. A forest crop is the same and will respond in growth according to the care given it. Hastening and improving Nature's method by thinning crowded timber stands or by weeding out low grade, defective trees helps the remaining trees to grow faster and improve in quality. Several plots are under study to see how a forest responds to thinning. One is pictured above at State Forest No. 1 near Kirbyville. Low grade trees have been cut into pulpwood and fuelwood. Similar plots are left uncut to check and compare results of this improvement practice.



GROWTH OF TREES—It is important that a farmer know how much cotton his land will produce per acre. It is equally important that the owner of woodland should know how much wood his forest will produce. For this reason studies of tree growth are made, keeping check on many individual trees, such as illustrated above. These studies cover changes in tree height, diameter and volume growth as affected by variations in soil, effect of competing trees and other factors. The studies do not stop with standing timber, but include measurements of the yield of wood from felled trees. With these basic facts the forester is able to draw up charts and tables which serve in "diagnosing" similar forest tracts, or are useful as guides in predicting future timber yields.



WOOD PRESERVATION—Late in 1938 a project of treating pine and hardwood fence posts with zinc-chloride compounds was started. This was called the "tire-tube" method, illustrated in operation above. The old tire tubes were fitted over the small end of green posts and filled with the chemical solution which gradually seeps into the wood. Other tests with open tank methods using creosote and other commercial treating compounds have been underway for a number of years. Posts and poles treated on these research projects are put in the ground and checked periodically for decay. The reason for these experiments is to determine the cheapest and most effective method of increasing the period of service of posts used on the farm.

DEFOLIATION OF LONGLeAF PINE

It has been observed that some longleaf pine seedlings, which have accidentally had part of their needles cut off or removed, apparently have shown a more vigorous growth and a greater resistance to brown spot needle infection. In order to systematically study the effect of various degrees of defoliation on longleaf pine seedlings a research project was initiated in January, 1941.

A plantation consisting of 29 rows of longleaf pine seedlings having 50 trees per row was planted using 6 foot spacing between the rows and trees in each row. The treatments were applied to complete rows varying, by 10 percent intervals, from no defoliation to the removal of all the needles. Also, the plantation was divided into two series in which twelve of the rows were sprayed with Bordeaux mixture for controlling brown spot needle infection and the other twelve rows were left unsprayed.

While the project is in its first year and no findings are available as yet, the fact that horticulturists and landscape men cut back hardwood, fruit and nut trees to lessen transpiration and increase productivity points to certain possible results from this project. That is, through reducing the amount of longleaf pine foliage a corresponding reduction in transpiration may be expected. The moisture thus conserved should tend to increase the growth vigor of the seedlings and, through being more vigorous, increase their resistance to brown spot needle infection. Whether or not this will be the result is an objective of the project.

DIRECT SEEDING

The question of the practicability and advisability of using some method of direct seeding for reforestation, as contrasted to the planting of seedlings frequently arises. The Texas Forest Service has made several tests of the broadcast sowing of seed without success. As an alternate, the use of seed spots was proposed, and in March, 1939 a project was started.

The plan followed was to clean the

weeds and grasses from an area about 18 inches square, and sow five seeds per spot. The test area was divided into three plots each containing 200 seed spots. The following procedures were used: spots not covered, spots covered with a commercial paper cap, and spots covered with wire cones. In 1940, a repetition of the project extended the treatments to four by including the covering of the seed spots with pine straw.

The project is now in its third year, and to date the results have been rather erratic, as during 1939 severe drought throughout the entire growing season influenced the results; and during 1940 excessively heavy rains, between the time the seed was sowed and the time growth started, heavily covered some seed with earth and washed other seed away. The growth conditions during the present year have been more satisfactory, and the results should be more nearly normal.

However, such variations of weather conditions might be expected if the methods were in practical use; thus, each year's results are of importance and interest. They will all contribute to the average results that may be expected in using seed spot for reforestation. Also, cost data is being checked for comparison with the cost of reforestation by planting tree seedlings. It is believed that at least five years' results must be studied before any conclusions should be drawn from this project.

SOIL STUDIES

The fact that soil factors are just as vital to tree growth as they are to other crops is being recognized more today than ever before. Therefore, with each research project of the Texas Forest Service in which the soil may have any bearing, the plan of work specifies that soil tests are to be made of an intensity comparable with the evaluation that the soil has in relation to those final results that are the objectives.

Added to this correlation of soils with general research projects, are special soil study projects being developed at the present time. For while it is frequently true, that a tree crop may be grown on land not suitable for annual crops, certain soils

will be more productive than others for timber growing, or will be particularly adopted to certain species of trees and specialized types of silvicultural treatment. The soil studies will help in the determination of how forest areas may be most productive.

Some of the soil studies that have been initiated include studies of soil types in relation to tree growth, control of crust formation in seedling beds in the nursery, soil fertilization and the effect of forest fires on soils.

An illustration of the interrelationship of soils and other factors of tree growth is furnished by a recent test which showed pine straw holds approximately 200 percent of its own weight of water while coarse sand holds only 18 percent and fine sand 27 percent of its own weight. The burning of pine forests destroys this protective cover of needles increasing surface run-off and soil erosion. This loss of moisture and washing away of soil directly affects the water holding capacity of the site, the available plant food and other growth factors.

PLANTING IN NATURAL STANDS

Frequently, Nature is slow in completely reseeding a severely cutover forest. The resulting open spots prevent a forested area from producing the maximum timber crop. By aiding Nature through tree planting, productivity of the area often can be greatly increased.

Several such areas have been established by the Texas Forest Service on the State Forests. They demonstrate methods of doing this planting and also furnish an opportunity for collecting data on the comparative growth of natural tree growth and planted tree growth on the same area.

While the demonstrations are of recent establishment, it is anticipated that the areas reinforced by planting, and those not assisted by planting, will furnish comparative data as to the feasibility of the work.

The stand of commercially valuable sawtimber in East Texas is estimated to be about 28,000,000,000 board feet by the International $\frac{1}{4}$ " Rule.

Timber Harvesting Demonstration

Early in 1939 the Texas Forest Service at State Forest No. 3, located in Cherokee County, laid out one of its most interesting, practical and far-reaching combined research-demonstration projects. They called it a "timber harvesting demonstration."

The 40 acres set aside for this study were divided into four ten acre blocks and each cut according to various timber harvesting practices in use in East Texas today. Located side by side, these areas offer a startling and striking comparison.

Each of the plots are pictured on this page. The timber was cut in January 1939 and the pictures made in March of that year from permanently established camera stations.



Everything was cut here from 8 inches in diameter and up. Progressive Timberland owners call this "butchering" the woods. All the merchantable timber volume was removed. It will take from 30 to 40 years to build this area up to a normal stand producing the maximum amount of timber per acre. Unfortunately this practice is all too common in East Texas.



On this area trees were selectively cut. Slightly over three-fourths of the original timber volume was left to furnish repeated timber cuts of about 2,000 board feet per acre every five years, indefinitely. This is good forestry!



The timber on the four cutting plots looked like this before cutting. Its age is 70 years, second-growth shortleaf pine. Incidentally, this is also a view of the 8-inch plot. See the other picture on this page for the view from the same position after cutting.



All timber 14 inches and larger in diameter at breast height was cut on this tract, leaving about one-third of the original volume. This is conservative cutting, but often leaves trees poorly spaced and disregards poor quality timber that should be taken.



On this tract all the trees 12 inches and over in diameter were harvested. Less than one-fourth of the original volume was left. This cutting is heavy and the same drawbacks apply to it as in the 14-inch limit, only to a greater degree.

CARELESS SMOKERS ARE THREAT TO FORESTS

Forest fires caused by negligent smokers have always been a big worry to forest protection forces. In the United States about one-fourth of all the fires are traced to smokers. In East Texas the average is nearer forty percent.

Tests show that cigarette butts burn longer than do those from cigars, and the possibility of their starting a fire is about three times greater. Considering the number of cigarettes used, they present ninety times more the hazard than cigars.

Authorities have found that cigarettes will continue to burn from 8½ to 12 minutes after being discarded whereas cigars will not burn more than 5 minutes.

Two solutions are put forth by forest service officials for cutting down on the smokers' fires. One method is by legislation and the other by education. Several states have already enacted laws particularly relating to the discarding of smoking materials from conveyances.

More educational work on the public showing the danger and loss from such fires is needed. The manufacturers of "Comino" cigarettes are the first tobacco company to collaborate with the federal and state forest service organizations in this educational need. They have agreed to carry on each package of cigarettes the following message:

"Care!"

"Every year in the United States over 40,000 forest fires result from carelessness with matches and cigarettes."

"Enjoy your cigarettes and your forests, but don't let the one destroy the other."

"Break your match in two before you throw it aside; be sure your cigarette is dead before you throw it away."

NEWSPRINT MILL SPONSORS TIMBER DEMONSTRATION

As the initial step in a program of forest conservation and systematic cultivation of timber crops, Southland Paper Mills, Inc., manufacturers of Texas pine newsprint, sponsored

a demonstration of timber cutting methods at a meeting on paper mill acreage near Lufkin recently for 20 pulpwood contractors for the mill.

C. H. Sprott, Southland forester in charge of the program, showed the contractors three demonstrations of an acre each, showing successively, first, timber that has been completely cut without planning; second, a tract on which seed trees were saved; and third, a tract on which the timber has been marked selectively for cutting.

Mr. Sprott described best cutting methods and outlined approved procedure for the individual timber owner to obtain best and most lasting returns from his timber stands.

LUMBER BULLETIN ISSUED

Facts and figures on the Nation's lumber industry are contained in a new publication recently issued by the National Lumber Manufacturers Association called "Lumber Industry Facts, 1941." Copies of the bulletin are available at ten cents each and may be obtained by writing the Association at 1337 Connecticut Avenue, Washington, D. C.

LIFE USES TEXAS MADE PAPER

Perhaps not many folks realize or know that Life Magazine, one of the most popular magazines published today, is using paper made in Texas from Texas wood.

More than 3,000,000 copies of Life are issued each week. Placed one upon another the weekly issue would reach more than eleven miles into the heavens, or placed end to end would make a chain of magazines more than 600 miles long, or cover nearly 75 acres.

During 1940 more than eighty-eight thousand tons of paper were used in the publication of Life.

Life paper is made by the Champion Paper and Fibre Company at its Houston plant. The machine was designed especially to produce the type of coated paper needed—one that would absorb ink quickly, turn out quality jobs and not blur.

Next time you read an issue of Life stop a moment and think that the paper was made here in the State from Texas pine and hardwood trees.

FARM TIMBER COOPERATIVES DISCUSSED

About 40 farmers and their wives attended a conference held in Lufkin recently by the Texas Extension Service to discuss cooperative methods of marketing farm timber.

A. S. McKean, extension forester of Louisiana, explained the way the cooperatives are working in his state.

Under the plan Mr. McKean explained, the cooperative hires a forester who helps the farmers mark, cut and sell their timber. Members are assessed so much for joining the cooperative and then pay for other services rendered by the forester. Directors of the organization are farmers.

No action for starting a cooperative was taken at the Lufkin conference.

Speakers on the program included members of the Texas Forest Service.

FOREST PATROLMEN MEET

About 80 forest patrolmen, lookouts and smokechasers of the Texas Forest Service's division of forest protection met from June 9-12 with their supervisory and technical personnel for the annual conference at State Forest No. 3 in Cherokee County.

The men studied mostly new and better methods of getting the forest protection job done effectively. Field work by trained technicians was given in telephone line maintenance and repair, fire fighting, pacing and fire fighting equipment repair.

Part of the time was also devoted to giving the men elementary training in forest stand improvement according to practices that have been adopted by the AAA for soil building payments. This was done so that they could advise and help their local farmers on this practice.

During the meeting the group visited the Indian Mound Forest Tree Nursery maintained by the Texas Forest Service near Alto and State Forest No. 5 at Weches.

Mr. J. W. K. Holliday from Atlanta, Georgia, represented the U. S. Forest Service at the four-day conference.

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"Thicker than hair on a dog's back" are these thousands of slash pine seedlings at the Texas Forest Service nursery, near Alto. Each row is four feet wide and 500 feet long, and contains about 30,000 trees. In all the Service

is producing about three and a quarter million slash pines this year, and a million and a quarter other pines and hardwoods. The trees will be lifted from the nursery starting about the first of December. The seed was sown

last March. The rows of overhead pipe are part of the sprinkler system used to irrigate the trees during the dry summer months. Water is supplied from a 600,000 gallon concrete-lined, spring fed reservoir.

FARMERS CAN EARN \$15 AAA CREDITS PLANTING TREES

East Texas farmers can earn an extra \$15.00 per farm in addition to regular AAA credits by planting forest trees, according to provisions contained in the 1942 State AAA program which becomes effective December 1.

Tree planting can also be used in earning credits for part or all of the regular AAA soil-building allotments.

The soil building allowances as set up call for payment of \$4.50 for each acre of pine trees planted and \$6.00 per acre on hardwoods. Another provision grants a credit of \$1.50 an

acre for maintaining the plantation for one year after the trees have been set out.

According to the AAA program, a farmer is only limited to the number of acres he can plant to trees by the total amount of his soil building credits. In addition, he can plant from 2½ to 3½ acres, or a total of \$15.00 payments, without deducting from his other credits. The 2½ acres are for hardwoods and the 3½ acres are for pine. This \$15.00 credit, officials pointed out, can only be earned by planting trees.

AAA records show that most farmers don't use all their soil building allowances. The balance could be spent on planting trees. Average figures for 1940 showed that only 72 percent of the total credits were used per farm.

In AAA district 5, which includes 44 East Texas counties, farmers planted 968 acres under AAA contracts in 1940. This represented almost a million trees. Most of the trees were purchased from the Texas Forest Service nursery, located near Alto in Cherokee County.

It's Time To Plant

"When the frost is on the pumpkin" and the hogs are in the persimmons, tree planting time is just around the corner.

With the fall of the year many East Texas farmers and other timberland owners are starting to think about planting up those idle acres on their property—putting them back to work with a new crop of trees.

And this year the Texas Forest Service of A. & M. College is going to be in a better position to meet the demand for planting stock that has grown with leaps and bounds in recent years. The Service has nearly five million seedling trees at its big Alto nursery ready to ship out to landowners as soon as the winter rains start, usually in December.

Without a doubt, the fact that the AAA has recognized forest tree plant-

ing as a distinct soil building conservation practice by providing credits that can be earned through retiring sub-marginal lands to hand-planted forests, has boosted tree sales in the State immensely. Last year East Texas farmers planted almost a million trees in qualifying for AAA allowances. It is expected that the number will be tripled this season.

In view of this fact the Texas Forest Service is urging prospective tree planters to get their orders in early. They suggest that farmers seek the advice of their local AAA administrative officers, county agents, chambers of commerce, banks, or forest patrolman. Further information can be obtained by writing direct to the forestry headquarters at A. & M. College, College Station.

HOW TO ORDER TREE SEEDLINGS

Tree seedlings are easy to order from the Texas Forest Service nursery near Alto. Here's all you need to do:

First write in either to Texas Forest Service, College Station, or to Indian Mound Nursery, Alto, asking for a tree application blank. Fill this out specifying the number and kind of trees you want and mail it back to the Indian Mound Nursery with your check or money order made out to the Texas Forest Service.

Your order is acknowledged and filed along with other orders. When it comes time to ship the trees, you will be notified by a card.

The trees are shipped f.o.b., Alto, which means you pay express rate from Alto. A bundle of a thousand trees weighs about 35 pounds and express costs average between 38 cents to 50 cents, depending on distance. Your local agent will let you know when the trees arrive.

If you live close to Alto, you may save money by going after the trees in your car. Perhaps several of your neighbors are also getting trees. If so, you could make one trip for all the trees and really save.

FARMERS SHOULD PLANT TREES ON IDLE LANDS

"What kind of land should I plant to trees?" is a question often asked of Texas Forest Service employees.

It all boils down to three types.

First, there are the idle, or abandoned fields that are too poor to cultivate in annual crops.

Second, are the heavily cut, or burned forest areas that are not reseeded fast enough of their own account.

Third, are the non-forested lands which should be in trees for watershed or windbreak protection. These areas are mostly outside the East Texas commercial timber area.

TREE SPACING DEPENDS MAINLY ON SPECIES

If you're having trouble figuring out the number of seedlings to plant on a given area, here are some suggestions, which, the Texas Forest Service has found, work satisfactorily.

With pines, a 6 x 8 foot spacing is recommended. Usually trees are set out six feet apart in rows eight feet apart. This spacing requires about 1,000 seedlings to an acre.

Hardwoods, for fence post production, seem to do best planted 8 x 8 feet

apart. This takes approximately 700 seedlings per acre.

Wider spacings, such as 10 x 10 feet, are advisable for high quality hardwoods like black walnut. This spacing needs about 400 trees an acre.

FEW FIRES IN AUGUST

Only 42 fires were reported during August by Texas Forest Service patrolmen who are protecting almost nine million acres of timber land in East Texas.

The total area burned amounted to 237 acres, an average of 5.6 acres per fire.

The year's record up to September 1, show 1,012 fires burned 33,653 acres, slightly over a third of one percent of the area protected.

PITTSBURG DEMONSTRATION IS BIG SUCCESS

Over 200 farmers, other timberland owners and timber contractors attended the forestry demonstration held near Pittsburg on September 4 by the Texas Forest Service in cooperation with the Texas Extension Service, Pittsburg Chamber of Commerce, Soil Conservation Service, Southern Kraft Division of the International Paper Company, and the East Texas Chamber of Commerce.

The meeting particularly was centered around good and bad forest cutting practices, and special plots of timber were marked and cut to demonstrate both methods.

As a side line to the main events, log chopping and sawing contests were staged with prizes donated the winners by local hardware stores.

County Judge W. Knox Bass was the main speaker at the noon barbecue which was furnished by the Southern Kraft Company.

The meeting was arranged by and in charge of Don Young, district forester, Texas Forest Service, County Agent W. B. Morris, and Farm Forester C. W. Simmons of the Texas Extension Service.

We need fire protection to protect and grow timber for revenue.

Forest Service Nursery Near Alto Produces Millions of Trees

**Largest Reforestation Program
In History To Be Started
Soon**

Four and a half million tree seedlings will be shipped from the new Texas Forest Service nursery near Alto within the next four months in the largest reforestation program ever undertaken in the State.

Tree seedlings are supplied to farmers and timberland owners at cost to be used for reforesting worn-out or idle farm lands, erosion control, windbreaks and wildlife food and shelter. No planting stock is available for landscape or ornamental use.

Species available this winter are 3½ million slash, shortleaf, longleaf and loblolly pine at \$2 a thousand; about 300,000 black locust at \$2.50 a thousand and limited quantities of black walnut, mulberry, bois d'arc, chinese elm and russian olive at \$3 a thousand.

The Indian Mound Forest Tree Nursery, so-named because of the large Indian mound located on the area, was established in 1940. It is located in Cherokee County, 6 miles southwest of Alto.

The nursery was purchased with State funds, supplemented by a contribution from Alto citizens. Operating funds are provided by the federal government under the Clark-McNary law, and by the receipts from sale of the trees.

The gross area of the Indian Mound Nursery is 73 acres, 40 of which will actually be used for growing forest tree seedlings. The remaining 33 acres consist of woodlands, roads, and building sites. The development of the nursery includes a four-room nurseryman's residence, a three-room office quarters, foreman's quarters, a cone-drying shed, implement shed, warehouse, garage, 40-foot water tower, and a 600,000 gallon concrete-lined reservoir for storing water to be used in sprinkling the nursery beds. The nursery is planned for the annual

production of ten million one-year-old seedlings.

The operation of the forest nursery at Alto is a year-round job. The procedure followed in growing pine seedlings might be considered typical of nursery activities. The pine cones are usually gathered in October behind logging operations and placed in a special drying shed. After the cones are dried and open, they are shaken and tumbled around until most of the seeds have dropped out. After cleaning, they are stored until the following March. About one pound of seed is obtained from a bushel of green cones.

The pine seeds are sown with a special seedling machine in carefully prepared beds four feet wide and 500 feet long. From 300,000 to 500,000 seedlings are produced in this way per acre, enough to later plant about 300 to 500 acres. These beds are watered by an overhead sprinkling system and cultivated during the dry summer months. By December the young trees vary anywhere from six to twelve inches in height, depending upon the species, and have developed a hardy root system. In the winter the trees are dug up from the beds, graded and tied into bundles for shipment to the planting site.

Although forty acres are laid out in seed beds, only half is used for one year's production of trees. The other half carried green cover crops. Thus the sites are managed on a rotation basis—trees and cover crops, cover crop and trees. This prevents the soil from being depleted and, at the same time, eliminates fertilizer cost.

PLASTIC PLANE

For the first time on record a plastic plane, the Timm Aircraft Co. Trainer, has been approved by the Civil Aeronautics Authority. Made of laminated wood and phenolic resin, by a process in which thin layers of spruce, laid cross grained, are cemented with the plastic, shaped, and then baked, the plane is claimed to be twenty percent lighter than one made of metal. C. W. Timm, president of the company, pointed out that mass production of the plane would not require machine tools or many highly skilled workers.

Eight Tree Species Available For Farm Planting This Winter

**Choice Will Depend On Type
Of Land And Products
Desired**

"What kind of trees should I plant?"

That's the question a large number of Texas farmers and timber owners ask themselves about November 1 when they begin thinking of planting forest tree seedlings on their land.

Slash pine is being recommended by the Texas Forest Service on a wide variety of soils in East Texas because of its rapid growth. It is also resistant to pine tip moth damage. Slash pine is used for pulpwood, poles and piling, sawlogs, pulpwood and turpentine production.

Longleaf pine planting should be confined within the natural longleaf range in southeast Texas. It grows best on well drained, sandy soils and is used for the same purpose as slash pine.

Loblolly pine is used for general planting in moist locations. It grows rapidly into a wide variety of commercial forest products.

Shortleaf pine is the most common native pine of northeast Texas. It may be planted on uplands and hills within the commercial pine area of East Texas.

Black walnut requires a well-drained, deep, rather fertile soil such as is found on moist slopes. Walnut sawlogs are high in value.

Black locust grows rapidly on well-drained bottom lands and fertile uplands where there is enough moisture. Black locust produces fence posts of exceptional durability and is useful in erosion control.

Chinese elm is used primarily for windbreak and shelterbelt planting in West Texas. It is drought resistant but has little value for posts.

Russian olive is a small tree with a low, dense crown suited for windbreak and shelterbelt planting in West Texas, being especially drought resistant.

THREE YEARS OLD



When this picture was made, R. A. Wilson's slash pine plantation near Newton was three years old, one acre of trees having been planted in December, 1931, through cooperation with the Texas Forest Service.

SEVEN YEARS OLD



The same plantation, three years, nine months and ten days later, at which time it was seven years old. The pole shown, used in measuring the height of the trees, is divided into one-foot sections.

GROWING TIMBER AS A CROP PAYS RED RIVER MAN

A good example of what one East Texas farmer has made from his timber is reported by Texas Forest Service patrolman W. L. Leatherwood for the 100-acre W. J. Carroll tract in Red River County.

In 1924 Carroll sold 200,000 board feet at \$5 per thousand board feet. In 1933-34 he sold another 200,000 board feet at \$8 per thousand. The same price was received for 265,000 board feet in 1937-38. The 100-acre tract yielded an additional 133,000 board feet in 1940-41 at \$10 per thousand. Total sales in the eighteen-year period amounted to 798,000 board feet for which he received \$6,500. His average annual receipts from the sale of pine in this period were \$3.63 per acre. The only charge against this land from year to year was the tax levy. Upkeep required no time or expense. The tax and cost of maintaining fences could have been earned several times over each year by grazing livestock on the land.

This might seem like a small annual

return to the farm. However, it is a larger net return than is realized from many annual agricultural crops. If every land owner in the county could be assured of this much per acre per year from his holdings, he would be fortunate.

Four acres of the land cut over in the recent sale of timber by Carroll brought him \$100 an acre. The minimum diameter tree allowed to be cut in previous harvests was fifteen inches and cuts were more numerous on this area.

AN INTEREST IN FORESTRY

Real interest in forestry was indicated in the August 19 issue of the Conroe Rotary Club's news letter on the cover of which was drawn a forest scene and the poem, "Trees."

The cover was designed by A. E. Hickerson, Montgomery County auditor, and up until recently Conroe chamber of commerce president. Mr. Hickerson is a former lumberman and is an enthusiastic forestry supporter. He is a vice president of the Texas Forestry Association.

New Protection Unit In Tyler County

Landowners Are Contributing Half Of Fire Protection Costs

A new forest fire protection unit has been recently established in central Tyler County, near Woodville, by the Texas Forest Service, A. and M. College.

The unit contains a gross area of about 100,000 acres, although seven landowners are actually contributing half the fire protection costs on a net area of 48,210 acres. These private contributions are being matched by state and federal government funds.

A new creosoted wooden lookout tower has been built with CCC help near Emilee, and approximately one hundred miles of telephone line has been erected throughout the unit. These will serve in detecting and reporting fires occurring mainly within the protection area.

The new unit brings the total acreage on which private owners are contributing half the fire protection costs up to more than 741,000 acres, an all-time high. The Texas Forest Service established the first protection unit in 1927 in Houston County.

The gross area inside the protection units reaches approximately 1,500,000 acres. Because of the additional funds contributed by private sources, many small holdings within the units are receiving better protection of their timber than is possible otherwise, the Texas Forest Service points out.

SEE PULPWOOD SHORTAGE

American paper manufacturers who have counted on imports of Swedish, Finnish and Norwegian pulp, see a shortage developing, especially in the field of unbleached sulphite pulp. American facilities for producing that product are about 220,000 tons short of annual demand. Attention is being directed to southern pine forests as raw material for the sulphite process.

Slash Pine Makes Grade Against Tip Moth Bug

Slash pine has made the grade again in East Texas!

A recent check of tip moth damage in the four main southern pine species showed slash and longleaf pines unaffected, whereas shortleaf and loblolly pines in most cases, suffered heavily. All except slash pines are native to Texas.

The tip moth insect damages the bud on the tip of branches and the main shoot causing a general set back in the growth of the tree and a later crook in the trunk when the main bud is killed.

The slash pine areas checked were plantations established by the Texas Forest Service to test the adaptability of the tree to East Texas. Shortleaf and loblolly forest trees growing adjacent to the slash pine, were mostly infected.

Texas foresters say this is just another point in favor of slash pine which has already proved itself suited to many sections of the piney woods region.

NEW CHIEF OF PRIVATE FORESTRY

The Department of Agriculture has announced the appointment of Howard F. Hopkins, associate regional forester of the California Region, as chief of the Division of Private Forestry Cooperation in the Forest Service. His appointment was effective June 1. The position has been vacant since Gerald D. Cook resigned last October to enter private business.

NEW MISSISSIPPI FORESTER

The Mississippi Forestry Commission has announced the appointment of Albert A. Legett to serve as state forester for the unexpired term of Fred B. Merrill, who resigned June 13.

Ten Years' Contrast

You may not believe it, but these three views are of the same area, the X's marking approximately the same spot. In December 1939, one-year-old slash pines were planted on the heavily cut longleaf pine land. When ten years old they averaged about five inches in diameter and 30 feet in height. The plantation, covering nine acres, is located on State Forest No. 1 in Newton County.



FOREST SERVICE TELEPHONE LINES HIT BY HURRICANE

The telephone line linking the fire protection organization of the Texas Forest Service was out of service for more than a week in the area north of Houston as a result of the hurricane of September 23.

According to Mr. W. E. White, chief of the fire protection division, telephone lines in the vicinity of Humble were seriously damaged by trees falling across the lines. Farther north, in Angelina County and southern Cherokee County, only limited damage was done.

A heavy rain which accompanied the hurricane lessened the danger of forest fires until the lines could be repaired. The Texas Forest Service CCC Camp at Humble was authorized to spend 500 man-days of work in assisting in the repair of lines within the work area of the camp.

The Texas Forest Service operates over 1,900 miles of telephone circuits in protecting about 9 million acres of timberland from fire.

HOW TO PREVENT DECAY IN YOUR HOUSE

A good, dry, well-built wood frame house is in practically no danger from decay if just few normal precautions, as outlined by the Forest Products Laboratory, are taken:

1. Build on a well-drained site.
2. Secure well-seasoned lumber from a yard where rot in foundations and lumber piles is not tolerated, rejecting any material that is suspected to contain decay.
3. Do not allow the selected material to lie on the ground after it has been delivered on the job.
4. Untreated lumber should not be allowed to come in contact with the soil or with foundations or walls which are liable to be damp. It should not be imbedded in concrete or masonry without leaving ventilation around the ends of the timbers.
5. Wood flooring, unless it has been chemically preserved, should never be laid directly on the soil or on concrete that is in contact with the soil.
6. Ample ventilation should be provided so that free circulation of air around the wood will keep it dry.

Oldest Tower



Oldest forest fire lookout tower of the Texas Forest Service is this one at State Forest No. 1, near Kirbyville. It was erected fifteen years ago. Today the Service uses 73 towers in East Texas to locate forest fires.

FIRE RESISTANCE OF WOOD

One common misconception about wood is that it is more dangerous than steel in case of fire.

It is true, according to the Forest Products Laboratory, that wood soon becomes charcoal when heated to about 572 degrees Fahrenheit and that steel is little affected at such temperature. But wood has one tremendous advantage in that it is a poor conductor of heat. In other words, although the outside of large beams or thick planks may burn or char, the inside retains its strength. Steel in the same fire and carrying the same load is very rapidly heated and not infrequently loses its strength and drops its load sooner than wood.

In the case of a burning barn with the hay on fire where it is a question of minutes or seconds whether you can save the livestock, the extra support given to the structure by heavy timber framing as compared to light steel members might make all the difference.

CHARCOAL INDUSTRY MAY BE REVIVED IN EAST TEXAS

With the introduction of large externally-fired retorts operated for the production of hardwood charcoal and distillation products, charcoal burning by individuals or small groups of individuals has become more or less of a lost art. An indication that perhaps it is being revived in at least a small degree is found in a charcoal-burning operation at Alba, Texas, in Wood County, carried on by several members of the Consumers Lignite Company located there.

This operation was started several months ago primarily to furnish spring and summer employment for those men engaged in the mining and briquetting of lignite during the winter months. In the beginning the oldest known type of charcoal burning device, the earthen kiln, was used but that has since given way to six portable steel kilns, each capable of burning a cord of wood during one cycle. The average length of the cycle for these steel kilns is approximately thirty-six hours, whereas for the earthen kiln it was nearly eleven days.

Post and blackjack oaks are the woods used in the greatest volume, with other low quality hardwoods entering into the mixture as they occur in the timber stand. Except for use as fence posts and fuelwood these low quality hardwoods have but little value. It is encouraging to see that an enterprising group has been able to derive a product from them which not only will pay its way but return a small profit as well.

The lump charcoal which is produced is marketed in small paper bags, appropriately labeled as "Lone Star Charcoal", through wholesale houses of the region for local consumption.

NEW MILL CUTS LOG FAST

A sawmill carriage at a South Dakota mining company has been equipped with an electric "shotgun feed" which speed 16-foot logs back and forth through a headsaw in less than six seconds, making more than 10 cuts per minute.

TEXAS FOREST NEWS

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TEXAS MILLWORK PLANT USES SOUTHERN PINE

"It is encouraging to note that some of the smaller millwork shops are turning more and more to the use of southern pines as a source of supply for their raw material," reads a report by the Division of Forest Products Research of the Texas Forest Service.

The report is part of a study being made by chief of the new Texas laboratory, E. W. Stark, of the various wood using industries in the state.

Stark said that he found one millwork plant in Lufkin that is producing window and door frames, window sash, screen doors, and window screens almost exclusively from southern pine. He said that in the near future officials contemplated using southern pine exclusively.

For years it has been customary to manufacture millwork, especially such items as window and door frames, window sash, screens and screen doors, etc., from the true soft pines, notably eastern and western (Idaho) white pines and sugar pine, as well as from ponderosa pine.

Probably the principal reason why the southern pines are not more commonly used for millwork are that more care is required in their working and they are more subject to splitting in nailing than are the softer woods. In all other properties such as appearance, weight, strength, nail holding ability, shrinkage, ease of drying, durability, paint holding properties, and others there is not enough difference to warrant discrimination against them. In some of these properties the southern pines excel and in others the softer woods are somewhat superior. The disadvantages with respect to difficulty in working and splitting in nailing can be minimized to such a degree with proper care that they need no longer be considered as rendering the harder woods unfit for millwork items.

"Bearing in mind the fact that the South as a whole is acknowledged to be deficient in secondary wood using industries which produce finished products from rough lumber this opportunity for the increased utilization of one of its native products by home in-

dustries should not be overlooked," Mr. Stark said. "It is more advantageous to a region to manufacture finished products from its raw material at home than to send out such raw material for manufacture and buy back the finished products, or even to produce a finished product from raw material purchased from outside the region when a native material will serve just as well."

STATE TEACHERS COLLEGE ADDS FORESTRY COURSE

Two forestry courses have been added to the curriculum of Stephen F. Austin State Teachers College at Nacogdoches to meet the increased interest in forestry and land use planning.

The addition of the courses is the result of the personal interest and efforts of Dr. A. W. Birdwell, president of the college, and Professor V. R. Glazener.

Professor Glazener, who is in charge of organizing and teaching the classes, said, "The degree requirements of the college have been chang-

ed so that any student can take courses in forestry and have it count as required science to meet the needs of a degree."

The studies will be arranged to furnish an entire year's instruction in forestry, with 2 hours of lecture and 3 hours of laboratory or field work each week. Effort will be made to emphasize the practical work and its direct application to farm woodland.

FARMERS SHOULD LEAVE LAND PLANTED IN TREES

One of the most serious agricultural problems in this country is the cultivation of marginal land, according to Roger W. Babson, nationally known business analyst. Too many struggling people are trying to farm on land meant only for timber, he said.

In his opinion marginal lands "should be turned back to the purposes for which God made it." If this were done, he concluded, people's health, character and pocket books would be in better shape.



Jeff O'Quinn, Pollock, Angelina County, stands beside slash pines he planted two years and four months ago. The trees were obtained from the Texas Forest Service as one-year-old seedlings. This is one of more than fifty private cooperative plantations

that are being studied by the Texas Forest Service. These plantations and those on the State Forests have been used by the Service to determine the adaptability of slash pine to East Texas.

BURNING THE FARM WOODS WON'T CONTROL INSECTS

Burning the woods this fall and winter won't help rid the farm of insect pests.

Specialists point out that very few harmful pests spend the winter in the woods and that sometimes the "proposed cure is worse than the disease", especially when a lot of good timber goes up in smoke.

Cotton's pest, the boll weevil, cannot be controlled by annual burnings, as was once believed and federal and state entomologists do not advocate this practice.

Destruction of this year's cotton plants after picking is over and two weeks before frost would be the most effective means of reducing boll weevils, according to Cameron Siddall, entomologist of the A. and M. College Extension Service. The best way to do this he says, is to plow up or cut the plants below the surface. By destroying the weevil's food supply, they would go into hibernation in a weakened condition.

Boll weevils can never be controlled by burning the woods, Mr. Siddall stated.

Cotton fleahoppers, another common pest, overwinters in weeds such as crotons, which flourish on overgrazed pastures. On continually burned pastures, good forage grasses are destroyed and the weed harboring this insect cannot be crowded out.

Grasshoppers overwinter as eggs down in the soil where fire won't harm them.

Cotton leafworms or army worms cannot stand Texas winters; in fact no form of this insect overwinters north of the Rio Grande River.

Two other insects, the boll worm and wingless May beetle also spend the winter below the surface of the soil.

Burning the woods will never eradicate cattle ticks either, because cattle ticks breed upon cattle and not on the ground.

Forest fires do kill a lot of beneficial insects, experts say. Among these are the bugs that prey upon the harmful ones, those that pollinate flowers and crops, and those that are food for birds and fish.

Authorities on this matter indicate that no experiments have yet been

PLANER TREE (WATER ELM)

(*Planera aquatica* (Water) Gamelin)

The planer tree or water elm is found on low wet lands along the streams of the eastern part of the state as far west as Brazos and Matagorda Counties. It forms a small spreading tree with a low broad head 30 to 40 feet in height

and with a maximum trunk diameter of 20 inches.

The bark is light brown or gray, about one quarter inch thick, and separates into large scales.

The leaves resemble those of the small-leaved elms. They are 2 to 3 inches long, three quarters to 1 inch wide on short stalks, dark dull green above and paler on the lower surface with yellowish veins.

The flowers appear with the leaves in March



WATER ELM (Illustration nearly natural size)

or early April. The small flowers are sometimes normal, and sometimes the male and female flowers are borne separately on the same tree. The fruit is a peculiar rounded, shaggy appearing body, about three eighths of an inch long. It consists of a nut-like center covered with soft and very irregular wing-like outgrowths which extend out on all sides from the center.

The wood is light brown, coarse grained and soft, very light in weight, and has a broad zone of nearly white sapwood. It has little economic value.

developed that show woods burning to be successful in controlling insect pests.

The Texas Forest Service has urged that farmers abandon this harmful practice.

PACK FOUNDATION TO STUDY THE SOUTHERN SMALL MILL INDUSTRY

The Charles Lathrop Pack Forestry Foundation of Washington, D. C. has initiated a three-year study of the small sawmill situation in the southern pine region. Particular attention will be paid as to the possibility of fitting in the small sawmill industry so as to make a larger contribution towards proper forestry practices and the economic welfare of the community.

Mr. Albin G. Jacobson, a graduate forester with considerable experience in the operation of small sawmills, has been employed to head up the three-year project. Mr. Jacobson is also well acquainted with the operation of larger sawmill units through

his past service in Arkansas with the Fordyce Lumber Company and the Crossett Lumber Company.

Director Siecke of the Texas Forest Service, who has been a member of the advisory board of the Pack Foundation since its establishment in 1929, and Captain I. F. Eldredge of the Southern Forest Experiment Station, New Orleans, La., also a member of the Pack Advisory Board, are assisting in directing Mr. Jacobson's activities. While Jacobson will spend some time in Texas in connection with the project, his investigations will extend eastward to the Atlantic seaboard.

The Pack Foundation has approved a budget of \$7,000 per annum for the three-year period to cover the cost of the project.

A new record in the newsprint industry for a continuous paper run was established at the plant of the Southland Paper Mills, Inc., Lufkin, Texas, on April 23 after newsprint sped through the machine for forty-nine hours without a wet end break or a snap-off at the calendar stack.