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SOUTHERN FOREST EXPERIMENT STATION

E. L. Demmon, Director

New Orleans, La.

ADVANCE INFORMATION ON THE SUPPLY OF PULPWOOD IN SURVEY UNIT #1 FLORIDA

By

SOUTHERN FOREST SURVEY STAFF

I.F.Eldredge

Regional Survey Director

* - This is an advance release of Forest Survey data that will be included in complete reports to be published later. This information is subject to correction or amplification as computations proceed.

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ADVANCE INFORMATION ON THE SUPPLY OF PULPWOOD

IN SURVEY UNIT #1

FLORIDA

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This report presents information concerning the quantity of pulpwood in Survey Unit #1, Florida. The geographic location of this unit which includes twenty-one counties in the northeastern part of the state is shown in Figure 1. The total land area of this unit is 9,515,600 acres, excluding 263,000 acres within the boundary of the Ocala National Forest[1]. The data given in this release are preliminary and are subject to correction and modification when final computations are completed. It is believed, however, that the changes in estimates of pulpwood will neither be extensive nor important. The information is given in advance of the publication of a comprehensive report for the unit covering the quantity, character and growth of the timber supply expressed in terms of lumber, naval stores, poles, etc. as well as pulpwood.

The estimates of land area and pulpwood volume given in this report are based on data gathered during the period from December 1933 to October 1934 by the Forest Survey, a part of the U. S. Forest Service and an activity of the Southern Forest Experiment Station. These data are based on the measurement of the timber or record of condition on 11,956 quarter-acre sample plots established in a systematic line plot gridironing of the entire unit. The field work in this unit was done by a group of six specially trained parties of timber estimators.

Land Area

The area of land in the several land-use classes is shown in Table 1. Approximately 77 percent of the total land area of the unit is classified as forest land. Fifteen percent of the area is agricultural and the remainder falls into one of the other nonforest classes.

[1] The pulpwood estimate for this area has not been computed; it will be included in the comprehensive report for the unit to be published later.

Table 1. - Distribution of land area by class of land use, Survey Unit #1[1], Florida

Land use classes	Area in acres		Percent of total area
Forest		7,378,900	77.5
Nonforest:			
Agricultural:			
In cultivation:			
Old crop land[2]	939,800		9.9
New crop land[3]	11,000		.1
Out of cultivation:			
Idle[4]	315,400		3.3
Abandoned[5]	128,500		1.4
Pasture:			
Improved[6]	48,100		.5
Total agricultural		1,442,800	15.2
Other areas:			
Prairie and grass land	65,400		.7
Marsh	411,600		4.3
Waterways	44,200		.5
Towns and villages	83,600		.9
Roads, railroads, etc.	89,100		.9
Total other areas		693,900	7.3
Total forest and nonforest		9,515,600	100.0

[1]Does not include Ocala National Forest, the gross area of which is 263,000 acres.

[2]Land cultivated at least 5 years and on which a farm crop was raised within 2 years prior to the date of survey.

[3]Land recently converted from forest to crop land. Stumps or standing dead trees are usually present. Dead hardwood trees and stumps usually decay and disappear within 5 years.

[4]Cultivated land that has not produced a farm crop for two years or more, but which has not reached the abandoned class.

[5]Land once cultivated but showing distinct evidence of having been abandoned for agricultural crop production; no attempt is being made to keep it as pasture.

[6]Cleared land under fence used primarly for grazing. A real attempt has been made to produce and maintain a sod.

Forest Area

From the point of view of pulpwood production there are three significant groups of forest types in the unit. The first group consists of the turpentine pines, longleaf and slash, in their varying mixtures with each other and with other species. The second group is made up of types having varying mixtures of the nonturpentine pines, including loblolly, shortleaf, pond, sand, and spruce pines. Some hardwoods may be found in both of these forest type groups. The third group is composed of hardwoods, either pure or mixed to a very limited extent with pines. Table 2 shows the forest area classified by forest conditions and by these forest type groups. In round figures, the turpentine-pine forest types cover 67 percent, the nonturpentine-pine forest types 8 percent, and the hardwood forest types 24 percent of the forest area. Approximately 20 percent of the forest area bears uncut stands of second-growth timber of saw-log size. In the pines 9 inches d.b.h. and in hardwoods 13 inches are here considered the minimum diameters for saw-log size.

Table 2. - Forest area by forest conditions and forest type groups, Survey Unit #1[1], Florida

Forest Conditions	Forest type groups			Total	Percent of total forest area
	Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating		
	Acres				
Old-growth uncut	174,200	77,300	385,600	637,100	8.6
Old-growth partly-cut	429,700	49,600	391,100	870,400	11.8
Second-growth saw-log size uncut	1,183,400	191,600	138,000	1,513,000	20.5
Second-growth saw-log size partly-cut	91,400	39,400	15,800	146,600	2.0
Second growth under saw-log size uncut	1,816,600	146,600	675,700	2,638,900	35.8
Second-growth under saw-log size partly-cut	33,000	2,400	15,800	51,200	.7
Clear-cut[2]	1,001,400	33,200	32,200	1,066,800	14.4
Reproduction	217,700	44,900	111,100	373,700	5.1
Subtotal	4,947,400	585,000	1,765,300	7,297,700	98.9
Noncommodity[3]				81,200	1.1
Total				7,378,900	100.0
Percent of total forest area	67.1	7.9	23.9		

[1] Does not include the area of the Ocala National Forest.

[2] The area shown in the clear-cut condition includes a relatively small area in the fire-killed condition.

[3] Forest areas that do not bear commercial timber species; therefore not included in the three major type groups.

Volume Estimate

In the following tables, cordwood volumes are classified by pulping and nonpulping species groups. The pulping species group is subdivided into pine and hardwood, and the pine subgroup in turn is reclassified as turpentine and non-turpentine-pines. The turpentine-pines are further subdivided into round, working and idle, and worked-out groups.

These species groups are defined as follows:

1. - Round turpentine-pines - Longleaf and slash pine trees that have never been worked for naval stores, that is, no cups have been hung or faces made for the production of turpentine and rosin.

2. - Working and idle turpentine-pines - Longleaf and slash pine trees that are either being worked for naval stores at the present time; or are in a temporary period of rest between working operations.

3. - Worked-out turpentine-pines - Longleaf and slash pine trees on which as many faces have been placed as the trees will stand; these trees have served their purpose in the production of naval stores and are ready for the axe.

4. - The nonturpentine-pines - Loblolly, shortleaf, pond, sand, and scrub pines. They are not used in the production of naval stores, and of course, have no cups or faces.

5. - Pulping hardwoods - Hardwood species that can be used in the manufacture of paper. They include the gums, the maples, the bays, magnolia, cottonwood, poplar, etc.

6. - Nonpulping hardwoods - Hardwood species that are not generally considered of value for the production of paper, such as oak, hickory, ash, cypress, hackberry and sycamore.

In estimating the volvme of pulpwood, only live timber of pulping species was considered. All sound trees five inches and over in diameter at breast height were taken, but no wood under four inches in diameter outside of bark was included in the estimate. No limbwood was included. An approximate deduction was made for woods cull, that is, that portion of the trees that would be left in the woods on account of rot, firescar, crook, bad knots, or other defects. Volumes of the entire butt sections (approximately 10 feet) of working, resting, and worked-out turpentine trees were omitted from the estimate. Later information may show that a substantial percentage of these butt sections can be used for pulpwood. In that event, the totals given here will be proportionately increased in later reports.

Table 3 gives by forest type groups and species groups the total amount of cordwood, both pulping and nonpulping in stands in Florida Unit #1. The cord used is the standard cord, 4 by 4 by 8 feet, measured with bark on.

Table 3. - Estimate of cordwood, by pulping and nonpulping species groups, and by forest type groups, Survey Unit #1[1], Florida

Tree species groups	Forest type groups			Total
	Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating	
	Thousands[2] of cords			
Pulping species:				
Pine:				
Turpentine pine (longleaf and slash)				
Round	11,202	178	311	11,691
Working and idle	5,206	71	106	5,383
Worked-out	1,746	29	38	1,813
Nonturpentine pine (loblolly, shortleaf, pond, sand, and scrub)	639	3,582	228	4,449
Total pine	18,793	3,860	683	23,336
Hardwood (gum, maple, bay, magnolia, etc.)	982	682	6,599	8,263
Total cordwood in pulping species	19,775	4,542	7,282	31,599
Nonpulping species:				
Hardwood (cypress, oak, hickory, ash, etc.)	2,991	657	9,816	13,464
Total cordwood	22,766	5,199	17,098	45,063

[1] Does not include Ocala National Forest.
[2] To convert to full number of cords add "000".

Survey Unit #1, Florida, is in the heart of the naval-stores belt. In it is produced nearly 20 percent of this country's annual output of turpentine and rosin. A large part of the pine forest is owned or leased by naval-stores operators. It is reasonable to assume that the naval-stores industry will continue to control a considerable part of the longleaf and slash pine timber stands, and will use these stands for turpentine and rosin before they are relinquished for any subsequent utilization. Taking this into account, Table 4 has been prepared to show the volume of pulpwood in species not used in naval-stores production and in trees that have already been fully exploited by naval-stores operators. The amount of pulpwood in the worked-out turpentine pines increases each year. This is due to the fact that each year the turpentine industry abandons the working trees in its older operations, transferring its activity to round timber. These worked-out trees are not utilized for saw-timber or other products as rapidly as they are thrown out of naval-stores production.

The volume estimates given in this release are based upon a conversion into cords of standing timber suitable for pulpwood. No attempt is made here to estimate the proportion of the amount of standing timber that will presently be available for use as pulpwood. This estimate would be governed by such factors as the prior claims of established industries, the accessibility of the timber stands and the percentage of stands that must be reserved to assure reproduction and to provide growing stock for continued operation.

Table 4. - Estimate of pulpwood, not including round, working, or idle turpentine pine, clasified by tree species groups and by forest type groups, Survey Unit #1[1], Florida

Tree species groups	Forest type groups			Total
	Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating	
	---------- Thousands[2] of cords ----------			
Pine				
Turpentine pine (longleaf and slash) Worked-out	1,746	29	38	1,813
Nonturpentine pine (loblolly, shortleaf, pond, sand, and scrub)	639	3,582	228	4,449
Total pine	2,385	3,611	266	6,262
Hardwood (gum, maple, bay, magnolia, etc.)	982	682	6,599	8,263
Total pulpwood (not including round, or idle turpentine pine)	3,367	4,293	6,865	14,525

[1] Does not include Ocala National Forest.
[2] To convert to full number of cords add "000".

In Table 5, the total estimate of cordwood, not including that in round and in working and idle turpentine pines, is shown by tree diameter classes. It is significant that of the 14,525,000 cords of pulpwood in species groups exclusive of round, working and idle turpentine trees 7,066,000 cords are in trees in the 6, 8, 10, and 12 inch classes. Trees in these diameter classes are usually not in demand by the lumber industry.

Table 5. - Estimate of cordwood, not including round, working or idle turpentine pine, classified by forest type groups, and by species groups and diameters of trees, Survey Unit #1[1], Florida

Tree species groups	Tree diameters[2]	Forest type groups			Total
		Longleaf and slash pine predominating	Loblolly and other nonturpentine pine predominating	Hardwood predominating	
	Inches	Thousands[3] of cords			
Turpentine pine (longleaf and slash) Worked-out	6" - 8"	217	3	7	227
	10" - 12"	866	15	20	901
	14" - 18"	505	11	11	527
	20" & over	158	-	-	158
Total worked-out turpentine pine		1,746	29	38	1,813
Nonturpentine pine (loblolly, shortleaf, pond, sand and scrub)	6" - 8"	139	598	48	785
	10" - 12"	245	1,001	69	1,315
	14" - 18"	198	1,146	68	1,412
	20" & over	57	837	43	937
Total nonturpentine pine		639	3,582	228	4,449
Pulping hardwood (gum, maple, bay, magnolia, etc.)	6" - 8"	455	180	1,114	1,749
	10" - 12"	291	185	1,613	2,089
	14" - 18"	173	219	2,216	2,608
	20" & over	63	98	1,656	1,817
Total pulping hardwood		982	682	6,599	8,263
Nonpulping hardwood (cypress, oak, hickory, ash, etc.)	6" - 8"	1,173	132	2,256	3,561
	10" - 12"	1,039	178	2,701	3,918
	14" - 18"	587	203	2,516	3,306
	20" & over	192	144	2,343	2,679
Total nonpulping hardwood		2,991	657	9,816	13,464
Total cordwood (not including round, working or resting turpentine pine)		6,358	4,950	16,681	27,989

[1] Does not include Ocala National Forest.

[2] Diameter measurements on all nonturpentine pines and all hardwoods were taken at 4½ feet above the ground. Diameter measurements on worked-out pines were taken at 10 feet above the ground, and represent the the bottom diameter of the part of the stem above the turpentine-butt section. The two-inch diameter classes used are designated by the midpoint of each class; accordingly the 6-inch class includes trees from 5.0-6.9 inches, and the 8-inch class from 7.0 to 8.9 inches.

[3] To convert to full number of cords add "000".

Table 6 shows for the average acre the cordwood volume classified by species groups and diameter classes. In this instance the volume of the average acre is theoretical one arrived at by dividing the total number of cords of wood in each species group and diameter class by the forest acreage bearing commercial timber species.

Table 6. - Estimate of cordwood on the average acre of forest land[1], classified by species groups and diameters of trees, Survey unit #1[2], Florida

Tree species groups	Tree diameters[3] in inches									
	6" - 8"		10" - 12"		14" - 18"		20" and over		Total	
	Cords	% of total	Cords	% of total	Cords	% of total	Cords	% of total	Cords	% of total
Turpentine pine (longleaf and slash)										
Round	.74	12.0	.52	8.4	.26	4.2	.08	1.3	1.60	25.9
Working and idle	.14	2.3	.43	7.0	.15	2.4	.02	.3	.74	12.0
Worked-out	.03	.5	.13	2.1	.07	1.2	.02	.3	.25	4.1
Nonturpentine pine (loblolly, shortleaf pond, sand and scrub)	.11	1.8	.18	2.9	.19	3.1	.13	2.1	.61	9.9
Total pine pulpwood	1.02	16.6	1.26	20.4	.67	10.9	.25	4.0	3.20	51.9
Pulping hardwood (gum, maple, bay, magnolia, etc.)	.24	3.9	.28	4.5	.36	5.8	.25	4.1	1.13	18.3
Total pulpwood	1.26	20.5	1.54	24.9	1.03	16.7	.50	8.1	4.33	70.2
Nonpulping hardwood (cypress, oak, hickory, ash, etc.)	.49	7.9	.53	8.6	.45	7.3	.37	6.0	1.84	29.8
Total	1.75	28.4	2.07	33.5	1.48	24.0	.87	14.1	6.17	100.0

[1] Only the 7,297,700 acres bearing commercial timber species were considered.

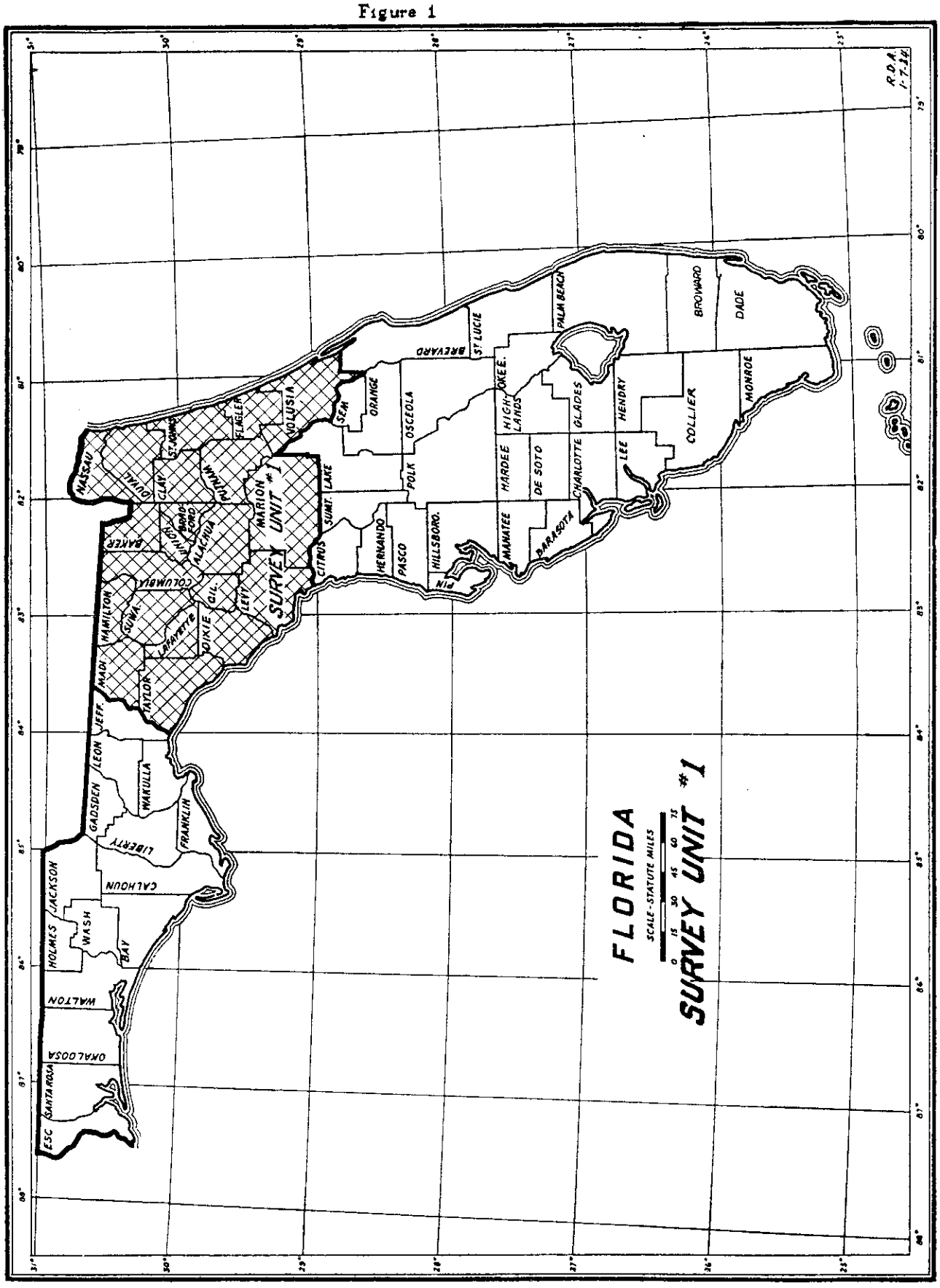
[2] Does not include Ocala National Forest.

[3] Diameter measurements on round turpentine-pines and on all nonturpentine-pines and hardwoods were taken at 4½ feet above the ground. Diameter measurements on working, idle and worked-out turpentine-pines were taken at 10 feet above the ground, and represent the bottom diameter of the part of the stem above the turpentine-butt section. The two-inch diameter classes used are designated by the mid-point of each class; accordingly the 6-inch class includes trees from 5.0-6.9 inches, and the 8-inch class from 7.0-8.9 inches.

Growth

The calculation of the annual growth of the present timber stands in this unit has not been completed, and the result of the Survey's findings in this respect will be shown in a later more comprehensive report for the unit. This report will be published as soon as all field data have been assembled, computed and analyzed. It will be sent to those who express a desire to receive copies.

Figure 1


FLORIDA
SURVEY UNIT #1
SCALE - STATUTE MILES
0 15 30 45 60 75
SURVEY UNIT #1
NASSAU
DUVAL
CLAY
PUTNAM
FLAGLER
VOLUSIA
ST. JOHNS
SEM.
ORANGE
OSCEOLA
BREVARD
ST LUCIE
PALM BEACH
BROWARD
DADE
OKEE.
HIGH LANDS
GLADES
HENDRY
COLLIER
MONROE
LEE
CHARLOTTE
DE SOTO
MARDEE
MANATEE
SARASOTA
HILLSBORO.
PIN.
PASCO
HERNANDO
CITRUS
SUMT.
LAKE
MARION #1
UNION
BRADFORD
ALACHUA
GIL.
LEVY
DIXIE
LAFAYETTE
SUWA.
HAMILTON
MADI.
JEFF.
TAYLOR
BAKER
COLUMBIA
LEON
GADSDEN
WAKULLA
FRANKLIN
LIBERTY
CALHOUN
JACKSON
HOLMES
WASH
BAY
WALTON
OKALOOSA
SANTA ROSA
ESC
R.D.A. 1-74

A word about the nation-wide Forest Survey

The Southern Forest Survey has been under way since January 1931. It is a part of the organization established by the United States Forest Service for the purpose of making a survey of the timber resources of the United States. The five-fold object of this nation-wide survey is: (1) to make an inventory of the present supply of timber and other forest products, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which this supply is being diminished through industrial and local use, windfall, fire, and disease, (4) to determine the present requirement and the probable future trend in the requirement for timber and other forest products, and (5) to correlate these findings with existing and anticipated economic conditions in order that policies can be formulated for the effective use of land suitable for forest producton.

The Survey work in the South is carried on in geographic units of four to ten million acres. Unit boundaries are so established within a given state that the timber stand conditions, as well as factors governing the social, economic, and industrial activities are as uniform as possible throughout the unit. The land area within a unit is gridironed without regard to ownership or occupancy. Quarter-acre sample plots are laid out at intervals of 660 feet on parallel compass lines ten miles apart. On each sample plot the trees are counted and measured, and are classified by diameter classes and species groups. Growth rates of individual tree species, cull percentages, merchantable lengths, and other special data are obtained on randomly selected sample trees located on the sample plots. Forest growth and forest utilization specialists are assigned to forest growth and utilization studies in each of the survey units. In the naval stores region of the South Atlantic and Gulf Coast States, a special study of the gum naval stores industry has been made to determine, for each survey unit, the annual production of gum turpentine and gum rosin, the number of producers, and other related data not heretofore available. In addition, pertinent economic information concerning local woodusing industries is gathered in each survey unit.

A group of nineteen statistical experts and skilled computers is summarizing and analyzing the tremendous mass of field data gathered in each survey unit by the field crews. In this computation work modern electric sorting and tabulating machines and many other timesaving devices are being effectively used. In the analysis of the field data that have already been gathered by the Survey, it is estimated that more than half a million tabulating machine cards will be used.

As soon as analysis of the survey data is completed for any unit, a comprehensive statistical report will be prepared. This report will give essential information on the volume, growth, and present drain of the timber resource, and in the naval-stores belt will furnish data on naval-stores croppage and production.

On the following map is shown the status of the field work of the Survey on January 1, 1935.

The Forest Survey in the South is an activity of the Southern Forest Experiment Station of the United States Forest Service. Further information concerning the Survey can be obtained by writing to the Director, Southern Forest Experiment Station, 600 Stern Building, 348 Baronne Street, New Orleans, La.

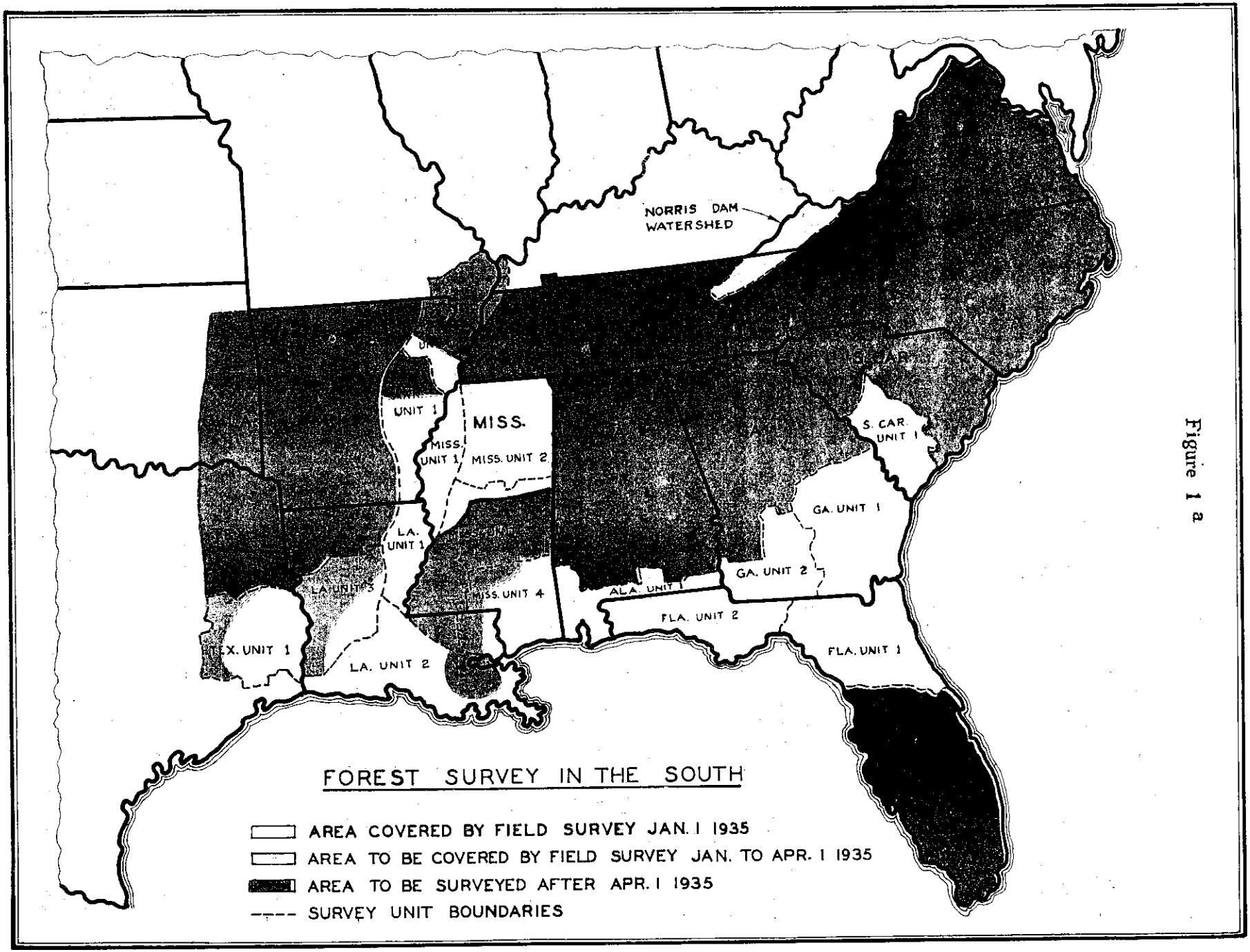

NORRIS DAM
WATERSHED
UNIT 1
MISS.
MISS. UNIT 1
MISS. UNIT 2
S. CAR.
UNIT 1
GA. UNIT 1
LA.
UNIT 1
GA. UNIT 2
LA. UNIT 3
MISS. UNIT 4
ALA. UNIT 1
FLA. UNIT 2
TEX. UNIT 1
LA. UNIT 2
FLA. UNIT 1
FOREST SURVEY IN THE SOUTH
AREA COVERED BY FIELD SURVEY JAN. 1 1935
AREA TO BE COVERED BY FIELD SURVEY JAN. TO APR. 1 1935
AREA TO BE SURVEYED AFTER APR. 1 1935
SURVEY UNIT BOUNDARIES

Figure 1 a