

F7623
3.014
971



South Carolina State Commission of Forestry

JOHN R. TILLER
STATE FORESTER

P. O. BOX 287
COLUMBIA, S. C. 29202

January 18, 1972

507-D-2
x507-3A

To: Registered Consulting Foresters, South Carolina
Industrial Foresters, South Carolina
Other Cooperators in Forest Pest Control

Gentlemen:

Enclosed is information about oak wilt occurrence in South Carolina
that may be of interest to you.

Yours very truly,

John E. Graham

John E. Graham
Forest Management Assistant

JEG:yr

Enclosure

cc: Commission Foresters

S. C. STATE LIBRARY

MAR 23 1972

F7623
3,014
971

1971 OAK WILT SURVEY IN SOUTH CAROLINA

by
John E. Graham¹ and Wesley Witcher²

ABSTRACT

A survey for oak wilt was made by S. C. State Commission of Forestry personnel in parts of 9 counties where the disease had not previously been found. The 1,994,300 acres were flown at 50% coverage followed by ground checks of all suspicious spots. One new spot was confirmed by laboratory analysis at Clemson University. The spot occurred in Richland County, the first case in this county. A review of spots confirmed in 1970 revealed that spread in 1971 is equal to 1970 and many new spots are appearing nearby.

INTRODUCTION

Oak wilt caused by the fungus Ceratocystis fagacearum (Bretz) Hunt was discovered for the first time in South Carolina in 1968. Surveys in 16 piedmont and sandhill counties through 1970 revealed the disease in three counties, Chesterfield, Kershaw and Lee. Most of the disease was in the scrub oak type in such species as turkey oak (Quercus laevis Walt.) and bluejack oak (Quercus cinerea Michx.).

SURVEY METHODS

The 1971 survey consisted of three parts. A systematic aerial sketch map survey followed by ground examinations was made in an area to the east, south and west of the known oak wilt infestation area. The objective was to determine if oak wilt existed in areas adjacent to the known area of infestation and in other sandhill areas to the southwest.

The second part of the survey involved the rechecking of spots confirmed in 1970 and the investigation of suspect spots detected in the known infestation area. The purpose was to observe disease spread at confirmed spots and casually observe occurrence in the infestation area without making a systematic survey.

The third part of the survey is a continuing ground surveillance throughout the state for oak wilt suspect trees. The objective is to discover new areas of oak wilt in the state if they exist. Oak wilt trees were confirmed in the first two parts of the survey only.

AERIAL SURVEY

In mid-June a systematic aerial survey was conducted in portions of 9 counties as shown in Figure 1. The 1,994,300 acres were surveyed along flight lines every two miles for 50% coverage. Two survey crews were used, each consisting of a pilot, a tracker and two observers. Observers recorded suspect spots on aerial photographs. North-south lines were flown at an altitude of 500-800 feet and 85 to 100 miles per hour airspeed.

1/ Forest Management Assistant, S. C. State Commission of Forestry
2/ Professor of Plant Pathology, Clemson University

Foresters examined all recorded spots on the ground and sampled those where oak wilt was suspected. Specimen 6 inches long and 3/4 to 1½ inches in diameter were cut from at least two limbs in the portion of suspect trees showing symptoms. A maximum of three trees were sampled per spot. Specimen were mailed in plastic bags to Clemson University for culturing in the laboratory. Dr. Wesley Witcher, Forest Pathologist in the Department of Plant Pathology and Physiology, directed the laboratory work.

RESULTS

The results of the aerial survey are summarized in Table 1. Aerial observers recorded 106 spots which were examined on the ground by foresters. Specimen were collected from 12 spots. One spot was confirmed in Richland County which is the first in this county.

The results of re-examining the spots confirmed in 1970 are in Table 2. The number of trees dying this year is nearly equal to the trees that were dying in 1970.

Twelve suspect spots were examined in the infestation area, ten in Kershaw County and two in Chesterfield County. Ten of the spots had oak wilt, the two negatives are in Kershaw County. All of these spots were near previously confirmed spots except two. Two of the spots sampled were unconfirmed 1970 spots. One of them was confirmed this year.

DISCUSSION

Current and previous surveys have not detected oak wilt outside the middle and upper sandhill section of the state. This leads to the speculation that in South Carolina oak wilt occurs only in this section.

Discovery of ten new spots while reviewing old spots in the known infestation area indicates that oak wilt is much more abundant than previous surveys indicate or it is increasing. The 1970 survey indicated that oak wilt spots are very hard to detect in the scrub oak type by aerial surveys. Observations during 1971 strengthen these findings. Six of the ten spots would have been extremely difficult to detect from the air.

Currently oak wilt under forest conditions appears to be confined to low value species in the sandhills area. As shade trees these species are significantly more valuable.

RECOMMENDATIONS

1. No control efforts are recommended for forest stands of low value oak species. When oak wilt is found in high value trees such as shade, ornamental or recreation area trees, treatment should be considered. An oak wilt spot may be controlled or the spread reduced by cutting all infected trees and adjacent trees that might be infected through root grafts. Stumps should be removed or poisoned to hasten death. Other portions of the tree should be burned or sprayed with benzene hexachloride (BHC) in diesel oil.
2. Foresters and others should be alert for oak wilt spots, especially in areas outside the known infestation area and in high value oaks.
3. Additional systematic surveys should be made periodically as necessary to determine the spread of oak wilt in the state and to determine whether it poses a threat to valuable oak stands.



TABLE 1
SUMMARY OF OAK WILT SURVEY
1971

<u>County</u>	<u>Acres Surveyed</u>	<u>Spots Detected & Ground Checked</u>	<u>Oak Wilt Suspect Spots Sampled</u>	<u>Trees Sampled</u>	<u>Oak Wilt Spots (& Trees) Confirmed</u>
Aiken	546,600	16	0	0	0
Calhoun	55,000	7	2	2	0
Darlington	159,800	13	2	2	0
Florence	197,100	17	1	2	0
Lee	61,600	0	0	0	0
Lexington	340,500	27	4	4	0
Marlboro	308,500	10	0	0	0
Richland	156,200	9	2	3	1
Sumter	169,000	7	1	3	0
TOTAL	1,994,300	106	12	16	1

TABLE 2
RECHECK OF 1970 OAK WILT SPOTS

<u>County</u>	<u>Spot No.</u>	<u>Trees Dying</u>	
		<u>1970*</u>	<u>1971</u>
Chesterfield	62 P.U.	9	3
	52	3	0
	58	2	0
	61	14	14
	74 P.U.	2	2
	111 P.U.	7	10
	112 P.U.	1	0
Lee	32	7	9
TOTAL		45	38

* Does not include trees that died prior to 1970.