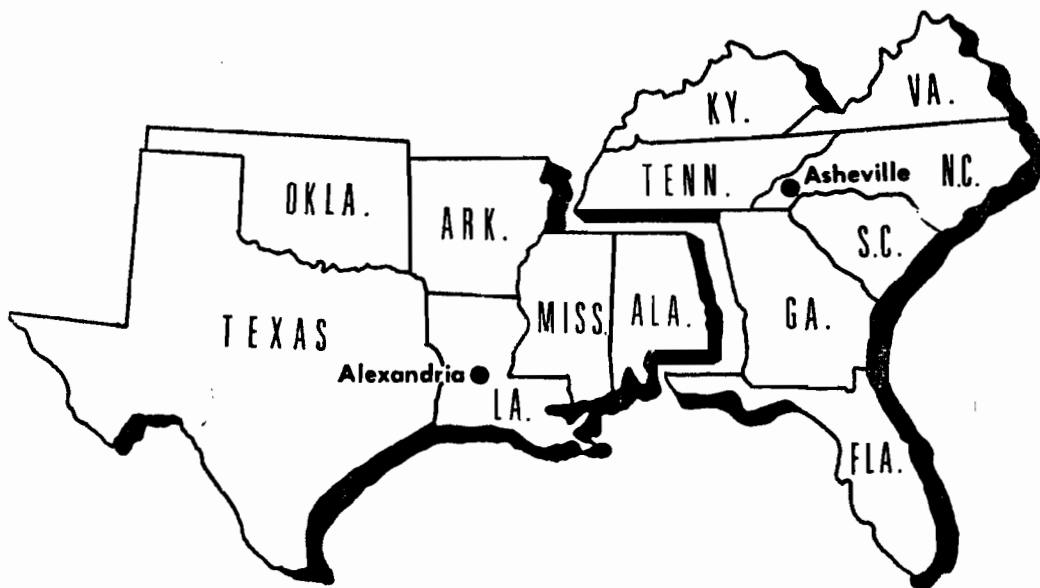


AN UNKNOWN DECLINE OF SHORTLEAF PINE ON THE  
KISATCHIE NATIONAL FOREST, LOUISIANA

U. S. FOREST SERVICE  
Pineville, Louisiana



U. S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE  
SOUTHEASTERN AREA, STATE AND PRIVATE FORESTRY  
DIVISION OF FOREST PEST CONTROL

AN UNKNOWN DECLINE OF SHORTLEAF PINE ON THE  
KISATCHIE NATIONAL FOREST, LOUISIANA

by

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ABSTRACT

*In May 1969, declining shortleaf pines were examined on the Evangeline Ranger District of the Kisatchie National Forest. These trees have many of the symptoms of little-leaf, however, further evaluation is needed before the cause can be determined.*

INTRODUCTION

In May 1969, R. A. Johnson, Forester on the Evangeline Ranger District of the Kisatchie National Forest, reported a decline and mortality of shortleaf pine *Pinus echinata* Mill. on the District. On May 22, 1969, Paul Peacher of the Division of Forest Pest Control, accompanied by H. K. Erwin and R. A. Johnson of the Kisatchie National Forest, examined a number of these trees. The trees range from 40 to 60 years of age and occur in mixed stands throughout the District.

METHODS

A roadside survey was made using a District map of the area (Fig. 1). All symptomatic trees observed along the route were checked for signs and symptoms of disease or insect attack. Declining trees were easily observed along the road because they exhibited the following symptoms: sparse crowns, yellow to yellow-green foliage, short needles, and usually small, persistent cones (Fig. 2 & 3).

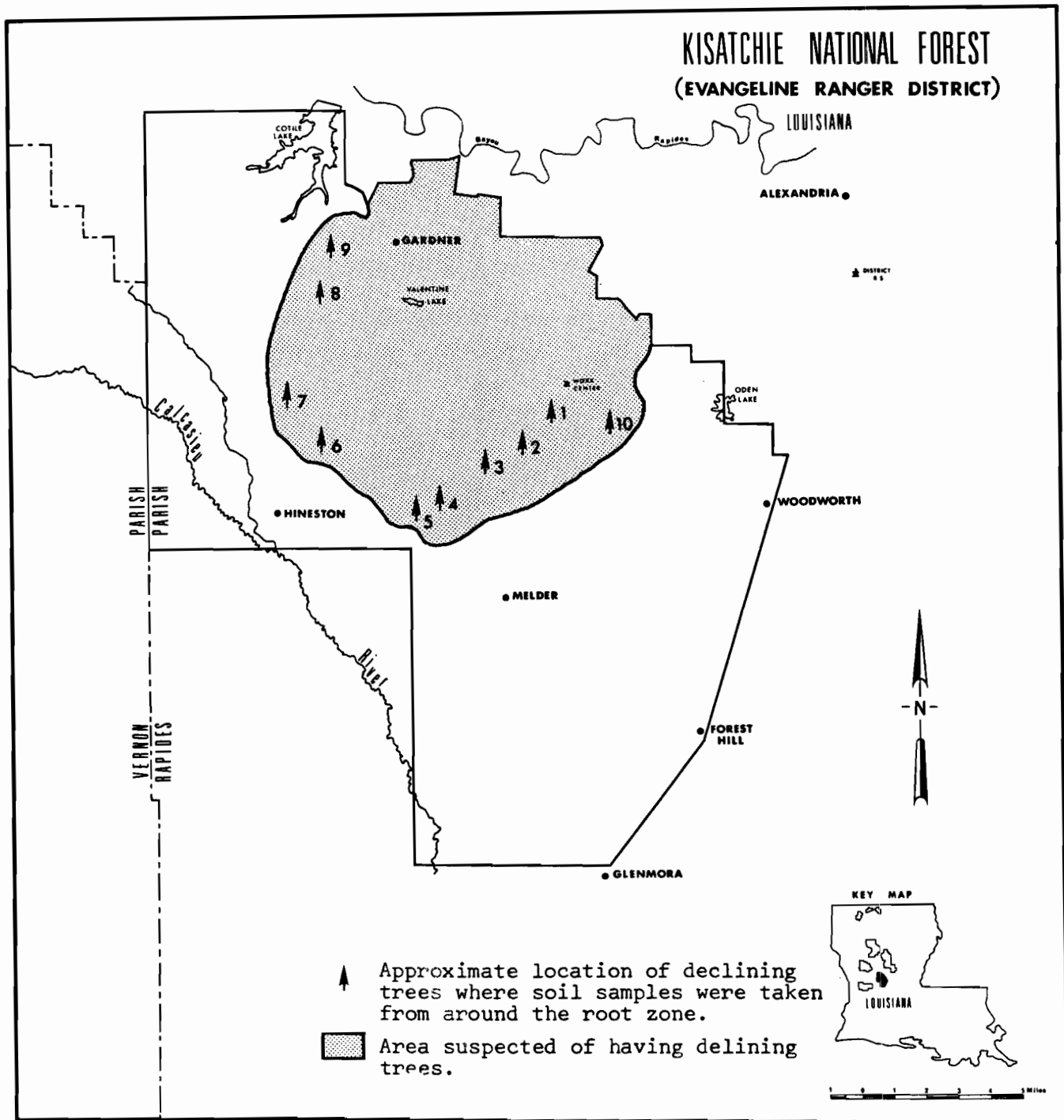


Fig. 1 Location of declining shortleaf pine sampled within suspected area.



Fig. 2 & 3 Shortleaf pine showing declining conditions.

Soil samples were taken from around the root zone of three trees. Increment cores were taken of eight or ten affected trees. Areas around the base of the trees were examined for *Fomes annosus* sporophores. The stumps of some 20 trees that had died and been cut were examined.

## RESULTS

The soil samples taken from around the three trees were brought to the laboratory and cultured for the presence of *Phytophthora cinnamomi*. The apple technique (Campbell 1949) was used to determine the presence or absence of *P. cinnamomi*. Two soil samples were positive for *P. cinnamomi*, therefore, on June 13, 1969, soil samples were obtained from the root zones of ten more affected trees. These samples were cultured in the same manner. All were negative for *P. cinnamomi*.

Increment cores taken from declining trees showed reduced diameter growth for the past four to six years. The stumps that were examined also showed reduced diameter growth, but no symptoms of heart rot.

## DISCUSSION

There are approximately 5,000 acres of shortleaf pine in mixed stands on the Evangeline Ranger District. At the present time, it is not known what pathogen is responsible for the decline and mortality of these trees. No estimate concerning the number of trees affected on the Evangeline District can be made from this preliminary survey. These trees have symptoms similar to littleleaf, but the decline cannot be attributed to this disease until more information is obtained.

## RECOMMENDATIONS

1. A complete soil analysis should be made -- soil classification, interpretations, and fertility, in areas having declining shortleaf pine.
2. If possible, a survey should be made to determine the number and location of trees expressing symptoms of decline.
3. In the spring of 1970, additional soil samples and new root tips should be cultured for the presence of *P. cinnamomi*.

4. Some single tree evaluation plots should be established and examined for several years to determine the trend of the decline.

LITERATURE CITED

Campbell, W. A. 1949. A method of isolating *Phytophthora cinnamomi* directly from soil. Plan Dis. Repr. 33:134-135.

For more detailed information, contact the Division of Forest Pest Control Field Office listed below or the Atlanta Office.

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