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BIOLOGICAL EVALUATION

SOUTHERN PINE BEETLE INFESTATIONS

DICKSON, TEXAS

by

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Introduction

A biological evaluation of southern pine beetle infestations was made in Dickinson, Galveston County, Texas, on August 23, 24, 27, and 28, 1962. The aerial phase was conducted by John Goldman, Texas Forest Service, and D. E. Ketcham and W. H. Padgett, Pest Control Branch of State and Private Forestry, U. S. Forest Service. The biological evaluation was made by D. E. Ketcham, H. H. Galusha, W. H. Padgett, John McDowell, and Ronald Terry of the Pest Control Branch.

There is no history of the insect on the area concerned. The area is south of the present southern pine bettle epidemic in southeast Texas, where the Texas Forest Service has been conducting a control project in cooperation with private landowners and the U. S. Forest Service for the past 4 years.

Technical Information

Causal agent .-- The subject causal agent is the southern pine beetle, Dendroctonus frontalis Zimmerman.

Host trees attacked - The primary host in this area is loblolly pine, Pinus, taeda L.

Type of damage - Damage caused by the southern pine beetle is tree mortality resulting from adult beetles feeding and constructing egg galleries in the cambial region of the host and subsequently girdling the tree.

Biological data -

1. Entomophagous insects found in association with the southern pine beetle in infested areas to the north were not common to this area. However, a species of mite was found in the bettle galleries of a number of trees examined.

2. Egg galleries were abundant, indicating that a high population of insects had been present and active in the infested area. Southern pine beetle broods were found to be almost non-existent at the time of this evaluation.

Environmental factors - Timber in this area apparently suffered some damage from hurricanes Carla and Debra. Tops were broken out of a few trees, and a few were left in a leaning position, indicating root damage.

Severe drought conditions have existed throughout the infested area during the entire 1962 growing season.

Extent of outbreak - The area involved covers approximately 7,500 acres in and adjacent to the city of Dickinson, Texas.

Location of outbreak - The outbreak is located in Galveston County, Texas, near Dickinson. See figure 1.

Discussion - Flight lines were spaced to give the best coverage of the infested area. The plane cruised at 90 miles per hour and at an altitude of 1,000 feet. Nine singles and 9 multiple-tree spots were recorded during the aerial survey.

Numerous trees were ground checked and stand conditions observed throughout the infested area. One of the spots detected during the aerial survey contained approximately 160 acres in which nearly every tree had been killed by the southern pine beetle. No active brood trees of southern pine beetles were found in any of the spots that were ground checked. Ips beetles were present in several trees that were examined near the centers of infestations. However, they were not considered to be a threat to the remaining trees.

Small numbers of southern pine beetles were found to be associated with Ips engraver beetles in a few trees that were found as singles or on the fringes of larger infested areas. It was interesting to note the scarcity of southern pine beetle and Ips beetle larvae. Also, the larvae of commonly associated predators were notably scarce.

All lightning-struck trees checked contained small broods of Ips and showed little evidence of southern pine beetle activity.

The damages caused by hurricanes Carla and Debra may have been one of the contributing factors that led to the initial infestation within the Dickinson area. Broken tops and root damage often lead to insect outbreaks of damaging proportions.

The infested area was subjected to severe drought conditions over the entire 1962 growing season. Rainfall was considered to be normal throughout the fall of 1961 and winter of 1962. Trees subjected to conditions such as these are frequently susceptible to attack by destructive forest insects.

Resource evaluation - A resource evaluation of the area was made by Mr. Jim Luhning, Real Estate Department, Citizens State Bank, Dickinson, Texas. The comparative value of wooded lots versus unwooded lots was used as a basis.

The loss of timber figured on this basis was estimated to be in excess of $22.5 million over 7.5 thousand acres. No wood-using industries are dependent on this timber.

Impact of control on other resources - It is not expected that other resources will be endangered by control measures involved. However, when spraying infested trees on home sites, benzenehexachloride (BHC) should be mixed with water rather than oil because of the phytotoxic effect that oil has on grass and shrubbery.

Recommendations

It is recommended that no large-scale control program be initiated due to the low level of southern pine beetle activity and the coming of cooler weather.

It is recommended that persons with insect infestations on their property be encouraged to cut and spray all Ips and southern pine beetle infested trees. This would assist in removing the potential for another outbreak should conditions again become favorable for an increase in the beetle populations.

All landowners should become aware of the situation and be on the lookout for an increase in beetle activity, particularly next spring and summer. If such activity should occur, the County Agent or the Texas Forest Service should be notified, and control efforts be promptly initiated to prevent such losses that have occurred in the past.

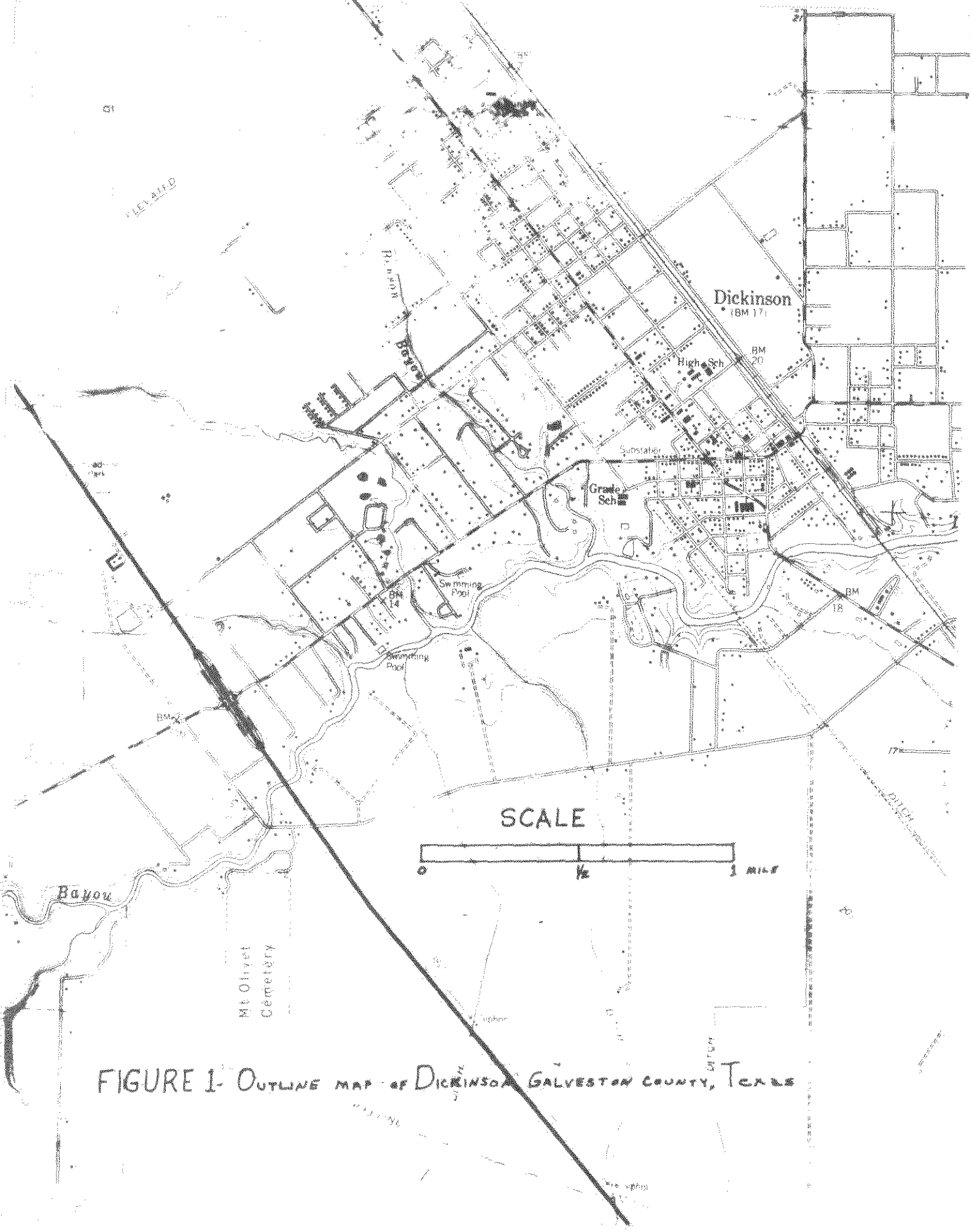

FIGURE 1- OUTLINE MAP OF DICKINSON, GALVESTON COUNTY, TEXAS