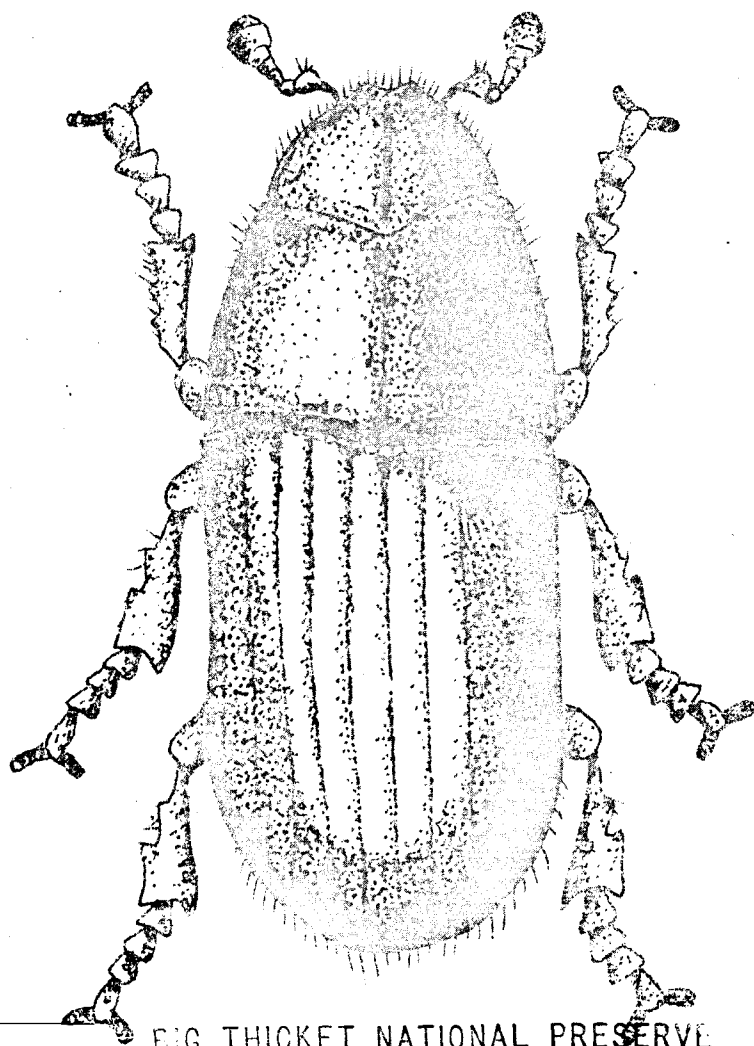
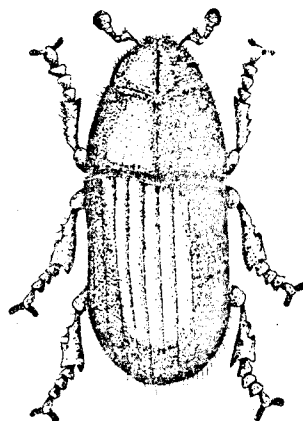
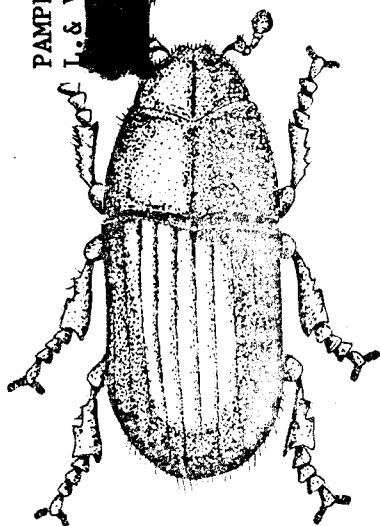


"CONTROL" OF THE SOUTHERN

PAMPHLET
H. & V. Mgmt.



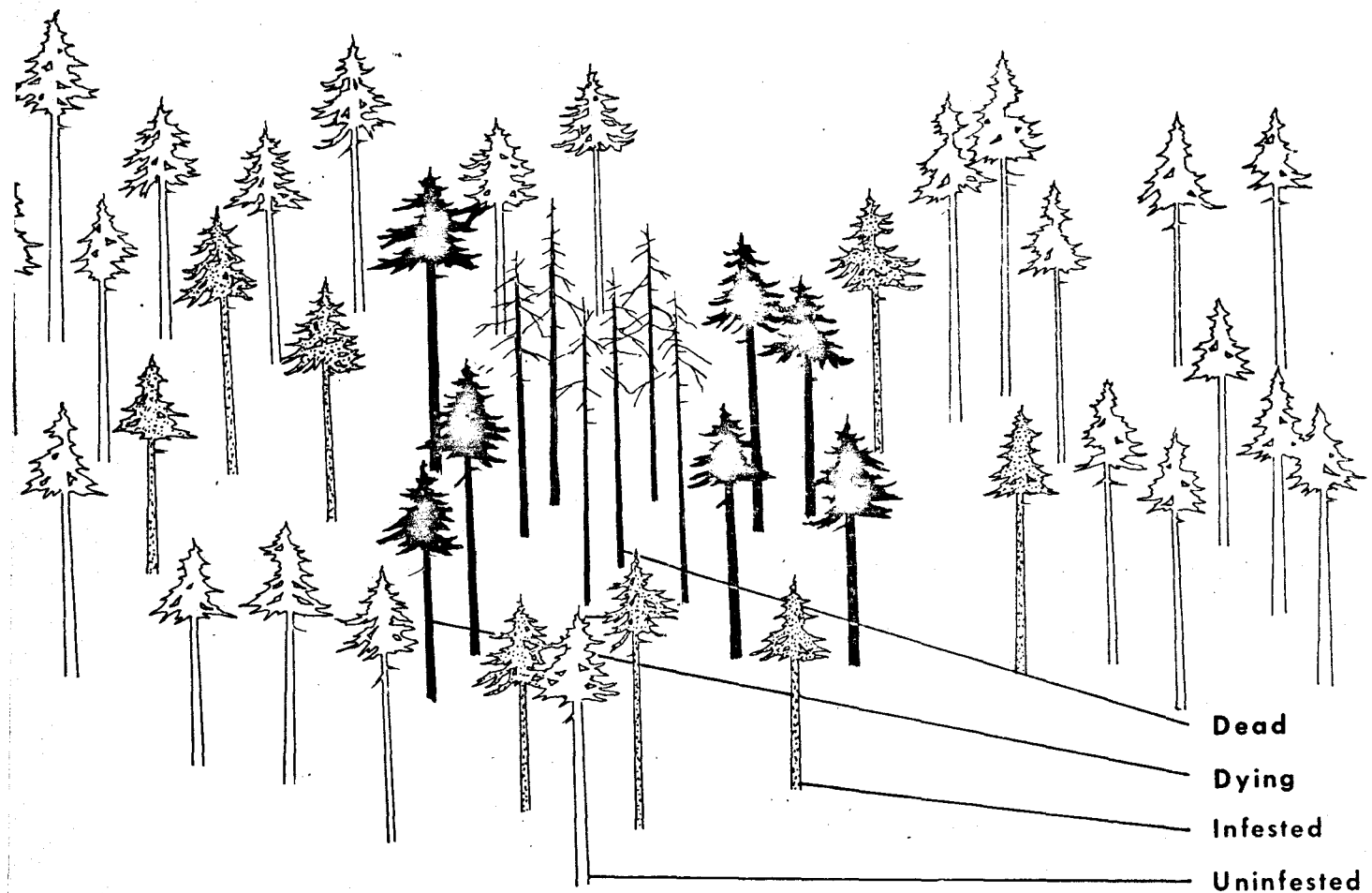
By John Wood

Head Forest Management Department

Entomologists with the Texas Forest Service have provided new information that may help to combat the southern pine beetle. For years landowners have waged a seemingly hopeless war against this pest. There seems to be no way of managing the insect. In addition to the insect, the entomologists have now turned their attention toward control strategies and the trees themselves. In other words, the insect problem may only be a symptom of a more basic tree problem.

When the beetle leaves an infested tree, it flies to a neighboring pine tree, flies out of the area to join other beetles to establish a new infestation, or dies somewhere in the process. If the beetle stays in the area, the result is an expansion of the current infestation (spot growth). If the beetle successfully moves out of the area, more spots occur (spot proliferation).

Through computer records and statistical analysis of actual spots, the Texas Forest Service has studied all beetle spots in Texas from 1973-76. The analysis was directed to determine if direct control¹, type of treatment², and season of the year have any impact on the spread of beetle activity. The analysis indicates that beetle activity depends partly on the season. During the winter and spring, the beetle primarily disperses



Spot Growth

and starts new spots although some spot growth still takes place. During the summer, beetle activity tends to remain in the same area. Fall brings an increase in the number of spots, but proliferation is not as rapid as in the spring and spot growth may also be vigorous.

Direct control in the summer appears effective in minimizing new spots. During other parts of the year, direct control has little effect on the proliferation of new spots. Regardless of season, direct control does not increase the number of spots. No differences between types of treatment are apparent, whether the

treatment be salvage, cut-and-leave, or chemical spray. Control has no apparent effect on spot proliferation except to interrupt beetle activity.

Properly conducted, treatment will stop spot growth. Thus, treatment is feasible and necessary. The rate at which a SPB population in a spot expands without control varies with the season, the number of active trees, and the pine stocking (basal area).

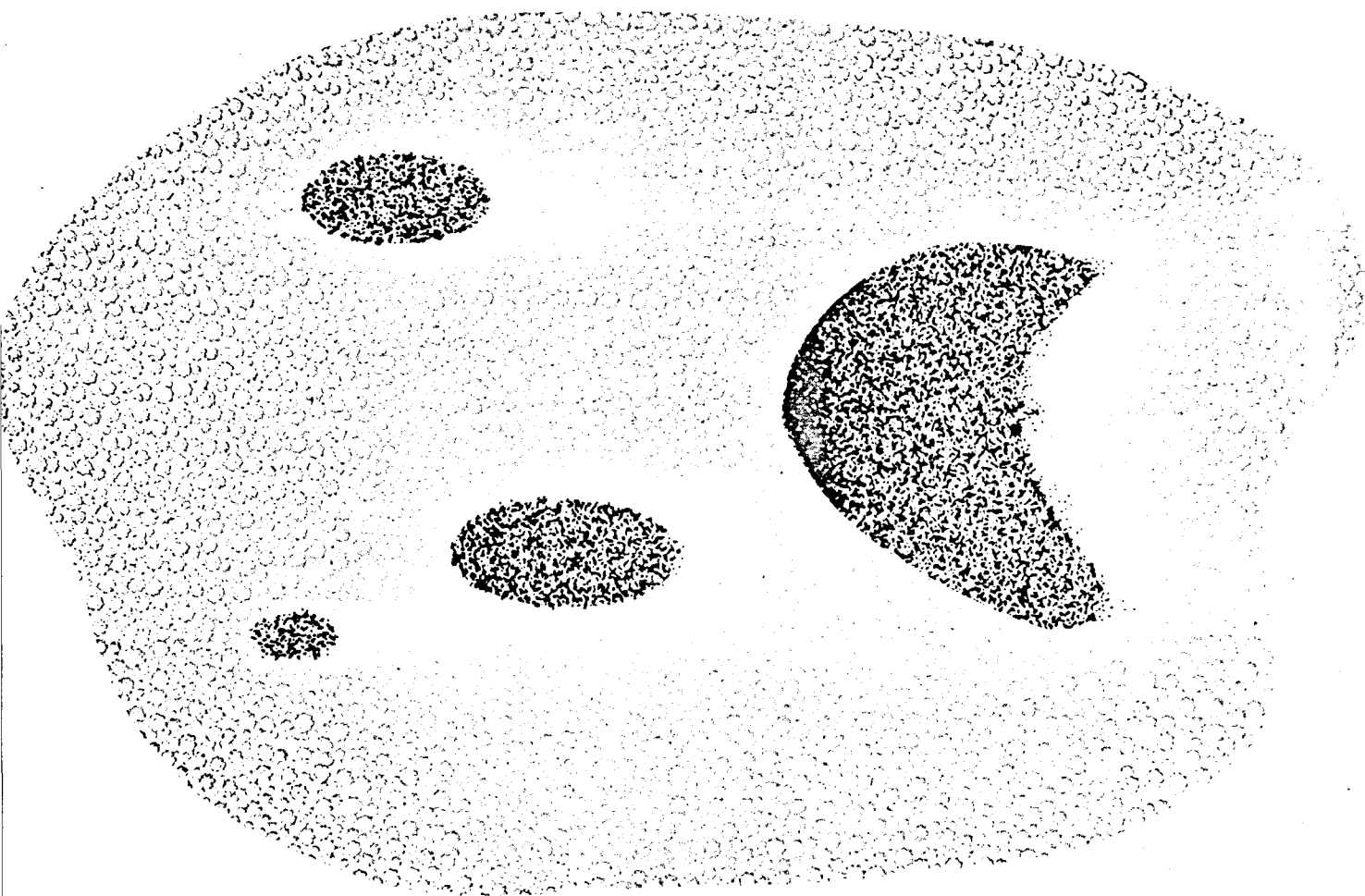
In an attempt to define the vagaries associated with SPB spot growth, the Texas Forest Service made a separate analysis of data collected in the summer of 1975, the winter of 1975-76, and the summer of 1976.

The results of this study indicate that a SPB spot in a pine stand having a basal area of 120 square feet and higher is a serious situation because the beetle population may rapidly expand. When

the beetle is active in more than 40 trees at the time of detection, the situation may be critical. A southern pine beetle spot will usually persist in stands having a basal area from 100 to 120 square feet. If allowed to continue, this sustained beetle activity can kill a significant number of trees. Beetle activity, however, in stands with a basal area of less than 100 square feet usually stops without control after a period of time. The spot in a less dense stand will become inactive in the summer when the nearest green tree is separated by at least 15-20 feet from the nearest infected tree. Thus, large spots should have a higher priority for control than others and dense stand should rate a higher priority.

Studies of beetle physical characteristics as well as the proliferation studies indicate that a spot going inactive in the summer is a sure sign of the beetle's demise. At other times of the year, it is not clear whether the beetle dies or (Continued on page 16)

- ¹ Direct control is an immediate suppression of the beetle. Indirect control is a treatment of forest conditions which promote beetle activity.
- ² Common treatments include (a) salvage: removing infested trees from the woods, (b) cut-and-leave: felling the trees in place, and (c) chemical spray: lindane formerly was used in the woods but now is limited to landscape trees.
- ³ Basal area is a forestry term for measuring the density of trees within an area.



Spot Proliferation

whether he simply changes location.

It becomes apparent that some administrative control over SPB direct control operations is both possible and desirable to improve management of forest stands and to minimize losses from the insect. Control priorities must be a part of the effort.

Because beetle activity is not as visible from the air when hardwood trees are dormant, many landowners and land managers have given a sigh of relief. Southern pine basal areas of 120 sq. ft. per acre and higher are considered abnormally high, and most people are genuinely convinced that their properties do not contain such unusually dense stands. Perhaps they should take another look and ask a few questions of themselves. These studies considered basal areas of stands smaller than an acre. The average basal area of most operating

units may be much lower even though the woodlands contain some dense stands. An East Texas landowner should look at the overall condition of his woodlands and consider indirect control of the SPB through improving the vigor of his trees.

For example, does your woodland contain well-stocked stands of pine that have not been thinned within the past ten years? Are you setting your harvest schedules primarily from areas to be replanted? If the answer to either or both of these questions is yes, that manager is playing Russian Roulette with the southern pine beetle.

The conclusion that over-stocked pine stands have the potential for SPB damage was verified in the data of the 1975 Forest Survey for Texas. 70 percent of the pine volume is located in the current loblolly-shortleaf pine timber types. Since 1965 the total volume of pine has increased 23 percent although the

acreage in the loblolly-shortleaf type diminished by 59,800 acres. It is quite apparent that tree stress, which occurs when stands are over-stocked, has increased considerably in the past decade.

In addition to the indirect control of improving the vigor of a stand through thinning, direct control does stop beetle population in specific areas. If treatment is early enough to salvage beetle-infested timber, losses are minimized. However, evidence indicates that many landowners have concentrated on small problem areas and not given enough attention to the care and proper thinning of standing timber.

Small landowners may contact the Texas Forest Service for help in evaluating the need of treatments to improve the health of timber stands.