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Mice Cause Severe Damage To Virginia Pine Reproduction

Heavy damage to a young Virginia pine stand was noticed recently on the Beltsville Experimental Forest in Maryland. The injury was confined to pine trees that had come in on an abandoned field. This reproduction ranged from 1 to 10 feet in height and had an average density of 19,000 per acre. Andropogon was the predominant ground vegetation.

The typical injury was a conspicuous wounding of the stem just above the ground line. The bark had been gnawed from portions of all the damaged trees. The wounds on individual trees were from 1 to 8 inches above the ground. On recently damaged trees, small beads of resin had formed on the exposed sapwood. Injuries several months old usually had a white resinous coating, and year-old injuries often had a black resinous rim.

Experts from the Patuxent Research Refuge (U.S. Fish and Wildlife Service) identified the damage as the work of meadow mice (Microtus pennsylvanicus). These mice normally prefer such foods as grasses, sedges, and other tender foliage. Their girdling of trees usually occurs during the winter months. Although the mice store food supplies in their nests and tunnels, normal water supplies are often frozen in the winter: then tree sap may be the best available substitute. A mouse census made in May indicated that meadow mice had left the pine area.

Virginia pine girdled by meadow mice.

To measure the extent of the damage, three 1/100-acre study plots were established at

Table 1.--Meadow-mouse damage to a young stand of Virginia pine and pitch pine

Species	Diameter*	Trees per acre	Trees injured	Portion of stem circumference wounded				
				None	1/4	1/2	3/4	All
	Inches	Thousand	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
Virginia pine:	0.1--0.4	12.0	58	42	14	8	22	14
	0.5+	5.9	60	40	8	14	18	20
Pitch pine:	0.1--0.4	0.3	0	100	0	0	0	0
	0.5+	.6	20	80	5	5	5	5

*Measured 1 foot above ground line.

random on the 1-acre damaged area. Observations were made on each plot of all trees that had attained a diameter of 0.5 inch. Smaller trees (0.1 to 0.4 inch) were examined on 1 milacre in each of the plots. The diameters were measured 1 foot above the ground line to avoid interference with the girdle scar. Condensed results of the study are presented in table 1.

A similar study of rodent injury in a young pine stand had been made on the Beltsville Experimental Forest in 1945 by Marburg.* This was in an open-grown stand of mixed Virginia pine, pitch pine, and hardwoods. It showed that 58 percent of the Virginia pine and 11 percent of the pitch pine had been injured by meadow mice.

The results of the two studies are closely parallel. Both indicate that meadow mice decidedly prefer Virginia pine. No hardwoods were damaged on any of the plots. For Virginia pine, size of the tree made little difference (the largest tree injured was 2.2 inches in diameter). However, wounding of pitch pine was limited to trees between 0.5 and 0.8 inch in diameter.

In areas heavily stocked with Virginia pine seedlings mouse damage might be beneficial--by thinning the stand. However, such thinning is apt to be rather spotty. In poorly stocked areas, the girdling and subsequent mortality might be a serious matter.

--THOMAS W. CHURCH, JR.

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*Marburg, F. W. Preferential girdling by mice in a mixed young stand of pitch and Virginia pine. (Unpublished report.) Northeast. Forest Expt. Sta. 1945.