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PLANTING RED PINE RIDING MOUNTAIN FOREST EXPERIMENTAL AREA

by

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PLANTING RED PINE

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R.H.M. PRATT¹

INTRODUCTION

In the spring of 1961 experimental red pine (Pinus resinosa Ait.) plantations were set out to investigate the possibilities of planting this species on the Riding Mountain Forest Experimental Area. The trees were planted on two soil types, one a sandy loam and the other a clay loam. For comparative purposes white spruce (Picea glauca (Moench.) Voss), native to the area, was planted on each soil type. On the clay loam a small quantity of white pine (Pinus strobus L.) was planted; these trees had been obtained in mixture with the red pine. Details of planting sites, planting methods and early results of this experiment have been presented in reports by Cayford and Waldron (1961, 1962 and 1963).

SURVIVAL

In the spring of 1964 the plantations were examined, survival counts carried out (Table 1) and individual trees mapped. (Figures 1, 2 and 3).

Red pine survival has been more successful on the sandy loam soil (39 per cent) than on the clay loam (26 per cent). Some mortality has occurred annually to red pine on both soil types since the plantations were established in 1961. White pine survival on the clay loam soil has been similar to that of the red pine.

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TABLE 1

PER CENT SURVIVAL BY SPECIES AND SOIL TYPE

Species	SOIL TYPE											
	Sandy Loam						Clay Loam					
	Sept. 1961	June 1962	Sept 1962	June 1963	June 1964	No. Planted 1961	Sept 1961	June 1962	Sept 1962	June 1963	June 1964	No. Planted 1961
	Survival - per cent						Survival - per cent					
White spruce	42.0	21.0	17.0	14.0	12.0	100	15.5	10.0	10.0	10.0	10.0	90
Red pine	92.0	83.2	69.5	48.5	39.2	400	59.3	43.2	33.5	28.1	25.6	460
White pine							48.7	35.7	33.7	32.5	31.2	80

Early mortality of both red and white pine seedlings was attributed to a drought in 1961 while some of the more recent mortality can be attributed to deer and elk browsing (Cayford and Waldron 1961). Vigorous competition from invading woody shrubs, herbs, and grasses could also have contributed to seedling mortality.

The poor initial survival of the white spruce on both soil types can primarily be attributed to the very hot, dry spring and summer in 1961; little or no white spruce mortality has occurred since 1962.

In the spring of 1964 the vigour of the surviving trees was noted on both soil types and categorized as healthy or sickly. The percentage of trees in the various classes are shown on Table 2.

Most of the surviving white spruce, red pine and white pine in the plantations were healthy, a small percentage of the smaller and possibly weaker red pine were being choked out by grass and small shrubs.

TABLE 2
 CONDITION OF LIVING TREES BY
 SPECIES AND SOIL TYPE

JUNE 1964

Species	Soil Type			
	Sandy Loam		Clay Loam	
	Per cent healthy	Per cent sickly	Per cent healthy	Per cent sickly
White spruce	100	0	88	12
Red pine	93	7	92	8
White pine			100	0

ADDITIONAL FIELD WORK

Fencing and overhead release

In June 1964, fences 8 feet high, made of galvanized heavy-gauge farm fencing and barbed wire were erected around each plantation for protection against elk and deer browsing. At the same time the moderately dense spruce-aspen overstorey covering the sandy soil plantation was removed.

Replanting

On May 19, 1965 the plantations were restocked with red pine and white spruce seedlings purchased from the Manitoba Government Nursery at Hadashville, Manitoba (Figures 1, 2 and 3). The seedlings were planted using the slit method. Weather conditions were favourable for plantation establishment as cool showery weather occurred for the next three weeks. A total of 243 red pine and 88 white spruce were required to restock the sandy loam plantation; 397 red pine and 81 white spruce were planted on the clay loam site.

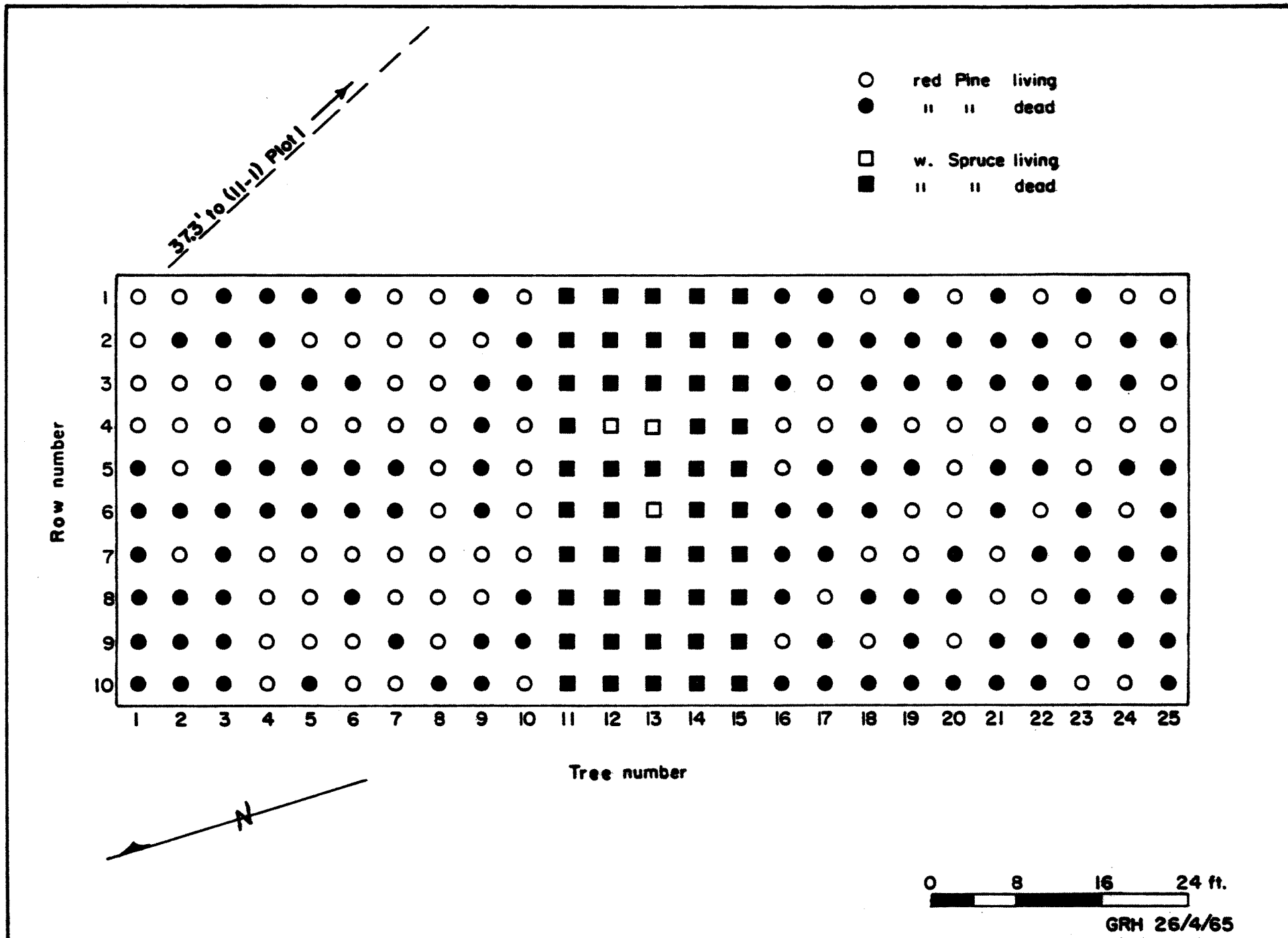


Figure 1. Map of sandy loam plantation (rows 1-10) showing dead and surviving red pine and white spruce in May 1964.

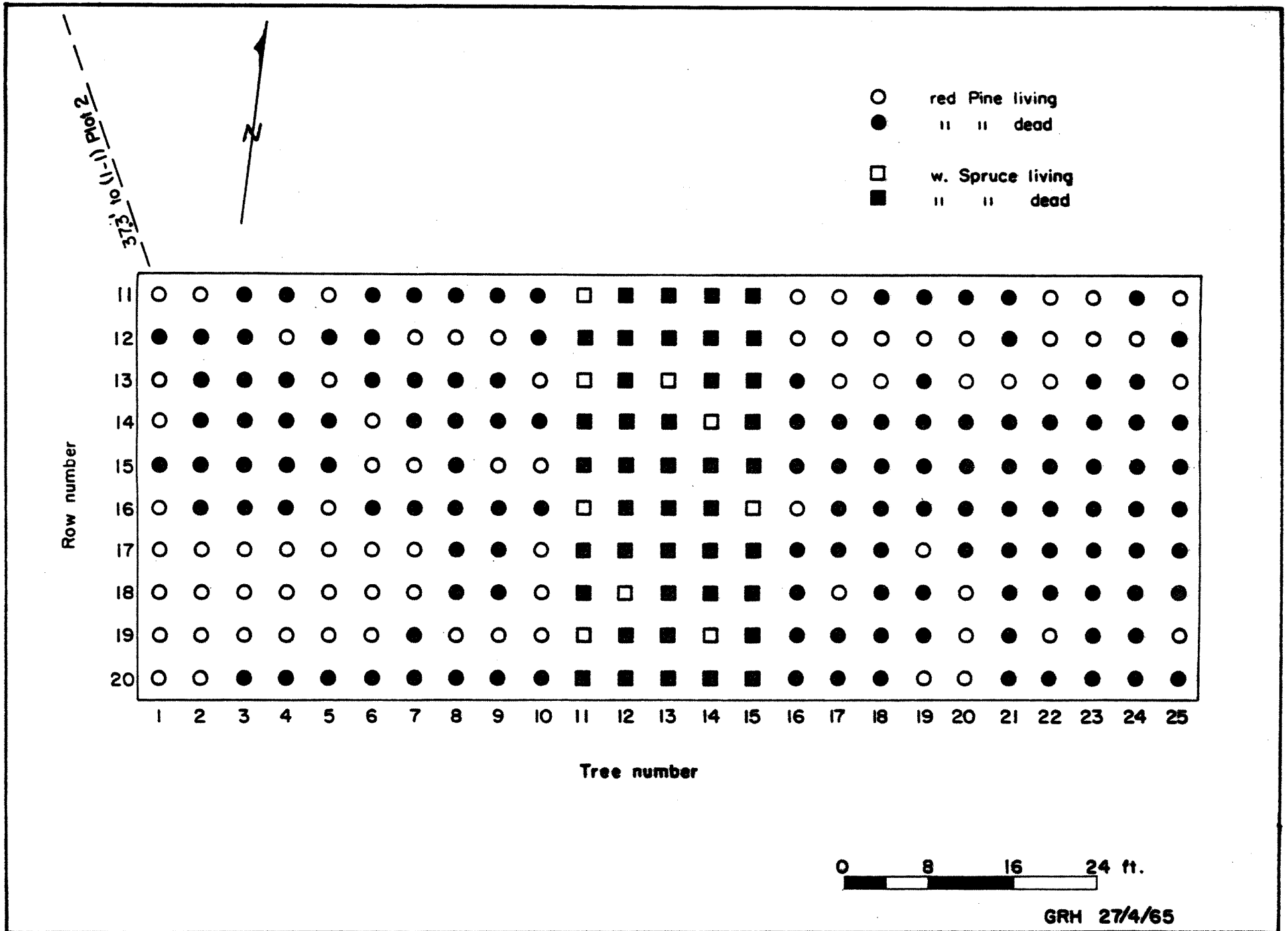


Figure 2. Map of sandy loam plantation (rows 11-20) showing dead and surviving red pine and white spruce in May 1964.

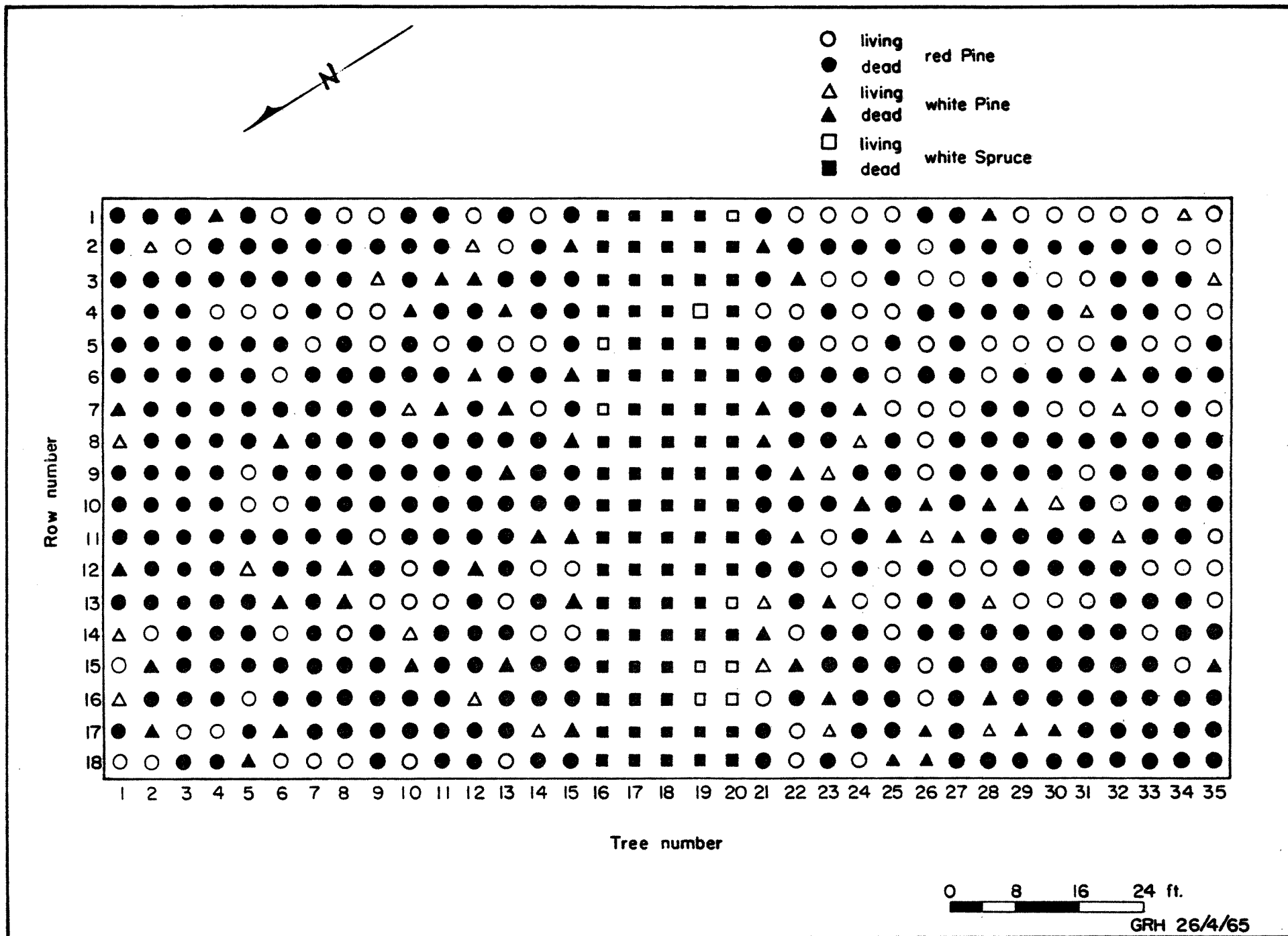


Figure 3. Map of clay loam plantation, showing dead and surviving red pine, white pine and white spruce, June 1964.



Figure 4. View of the competing aspen suckers, hazel and rose on the sandy loam plantation prior to weeding.



Figure 5. View of the competing grasses and herbs growing on the clay loam plantation prior to weeding.

Weeding

During the second week of August 1965, the competing vegetation was removed from each plantation. On the sandy loam soil competition was largely from aspen suckers, hazel and rose (Figure 4) whereas on the clay loam soil grass and herbs predominated (Figure 5).

FUTURE WORK

In July 1966 the plantations will be inspected and competing vegetation removed. At the same time a survival count by tree species and soil type will be carried out.

REFERENCES

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