NOT FOR PUBLICATION

ROOT PLANTING TRIAL OF *POPULUS TREMULOIDES* (MICHX.) AT THE RIDING MOUNTAIN EXPERIMENTAL STATION

by

J.F. Dronzek

FOREST RESEARCH LABORATORY

WINNIPEG, MANITOBA

INTERNAL REPORT MS-81

FORESTRY BRANCH

JANUARY 1969

CONTENTS

	Page
INTRODUCTION	1
LOCATION AND DESCRIPTION OF STUDY AREA	1
METHODS	1
RESULTS	2
DISCUSSION	2
REFERENCES	4

ROOT PLANTING TRIAL OF POPULUS TREMULOIDES (MICHX.) AT THE RIDING MOUNTAIN EXPERIMENTAL STATION

by

J.F. Dronzek*

INTRODUCTION

Trembling aspen occupies approximately one-tenth and one-third respectively of the productive forest land in the Manitoba-Saskatchewan Region (Gill 1960, Anon. 1959). Due to its availability, the intensity of its utilization has greatly increased in the past few years. Adequate regeneration of good quality material is needed to insure sufficient supply for future demands. Aspen commonly reproduces vegetatively, which could cause poor genetic material to be maintained in the stand indefinitely. One possibility to improve the potential of stands developing on cut-over areas would be the introduction of material of higher quality than that present.

The present report describes an attempt made at the Riding Mountain Experimental Station to establish trembling aspen by direct field planting of root cuttings on a cleared and scarified area.

LOCATION AND DESCRIPTION OF STUDY AREA

The study area is located in the Riding Mountain National Park, which is in the southeastern extremity of the B18a Forest Section (Rowe 1959). The area cleared for the planting of the roots is located in Section 31, Township 20, Range 18, W.P.M.

The soil is grey wooded and has been derived from calcareous shaley tills. Soil textures range from clay loam to loam. Moisture regime (Hills 1952) along the south end of the cleared area is fresh and changes to moderately moist and moist down along a gradual slope towards the north.

METHODS

Root cuttings were collected from three locations in the Riding Mountain in the late summer of 1966 (Figure 1). Cuttings were collected from 40-year-old trees ranging in dbh between six and nine inches at the north end of the park (MS-146 Plot #4), from two approximately 100-year-old triploid aspen with dbh of 12 and 18 inches along the Thomson Trail and from 60-year-old trees along the Ministik Trail.

---

* Technician, Canada Department of Fisheries and Forestry, Winnipeg, Manitoba.

The immediate vicinity of each tree was excavated and roots with a diameter of one-quarter to one inch were collected. Roots were cut to six inch lengths and set horizontally in the soil at 10 foot intervals and a depth of about two inches. The ends of each root were marked for later identification. A portion of the roots were placed outside in box-flats. These roots were watered regularly and when suckers had appeared, after about two weeks, the roots were also planted out on the cleared area.

RESULTS

Table 1 presents the status of the planted roots in the early summer of 1967. The roots that were directly field planted showed a much lower mortality than roots which were allowed to sucker in box-flats first. Apparently the transplanting of roots from the flats which received adequate moisture to the much drier conditions on the study area was detrimental to the suckers. The availability of moisture seemed to have been the deciding factor determining mortality.

Although the root material was not replicated along the slope, there seemed to be a trend towards higher survival with better moisture conditions along the lower slope.

Where suckers did appear in 1967 they were up to about 3" high on the average, while among the Ministik root material a 10", 12" and 15" tall sucker were tallied. Favorable moisture conditions were probably the reason for this good growth.

One factor essential for the survival of the suckers is the formation of new roots at their base. Examination of the cuttings showed little or no new root formation up to 1967 (Table 1). There were, however, more new roots observed on the directly planted material than that grown in flats first. The transplanting into a new environment may again have damaged or prohibited new root growth.

DISCUSSION

The root planting trial has not been a success. Even with adequate moisture mortality was high, sucker growth was not vigorous and new root formation was poor. The 1967 examination required the digging up of all roots, so no further observations on their development were made. However, judging from the results, survival chances of those suckers growing on the surviving root cuttings would seem very low, considering the poor root development, slow growth and competing ground vegetation.

TABLE 1. ROOT CUTTING SURVIVAL AND DEVELOPMENT

Source material	Planting method	No. roots planted in 1966	No. with 1966 shoots	No. with 1967 shoots	No. alive in 1967	Per cent survival 1967	No. with new roots	Moisture regime
Triploid	Box	99	27	3	4	4	2	Fresh
	Direct	132	65	28	39	30	18	
MS-146	Box	77	12	13	14	18	0	Mod.
	Direct	121	30	48	53	44	5	Moist
Ministik	Box	55	17	6	7	13	4	Moist
	Direct	241	131	157	148	61	11	

REFERENCES

ANON. 1959. Saskatchewan's forest inventory 1947 to 1956. Saskatchewan Dept. of Natural Resources, Forestry Branch.

GILL, C.B. 1960. The forests of Manitoba. Manitoba Dept. Mines and Natural Resources, For. Serv., Inventory Report No. 10.

HILLS, G.A. 1952. The classification and evaluation of site for forestry. Ontario Dept. Lands and Forests, Div. of Research. Forestry Chron. 28(1):7-22.

ROWE, J.S. 1959. Forest regions of Canada. Canada Dept. Northern Affairs and Natural Resources, Forestry Branch, Bull. No. 123.

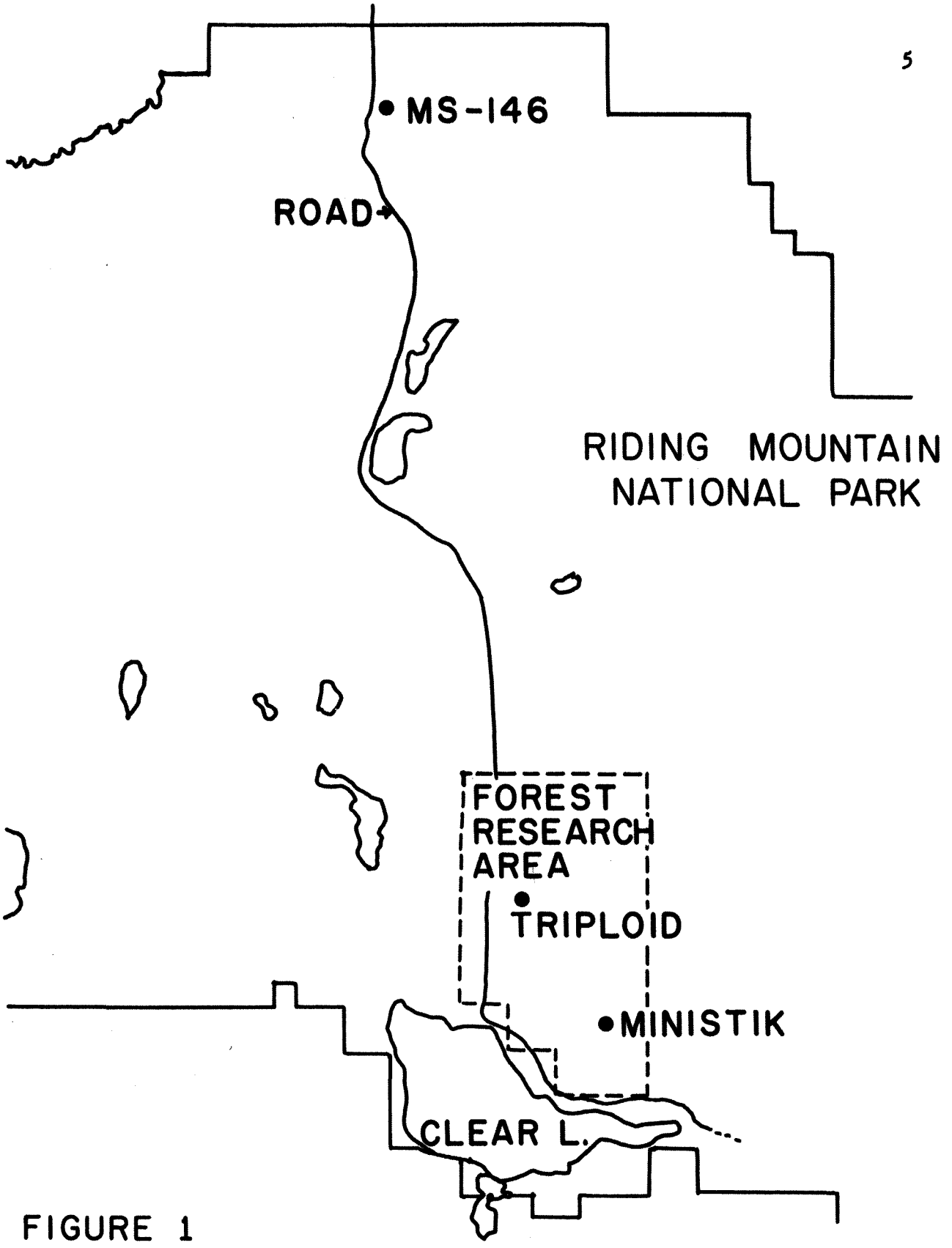

FIGURE 1

Location of root collection areas