



NATURAL AREA - JACK PINE RIDING MOUNTAIN NATIONAL PARK

Project MS 114

by

N. Bruce

**FOREST RESEARCH LABORATORY
WINNIPEG, MANITOBA
INTERNAL REPORT MS-15**

**DEPARTMENT OF FORESTRY
JANUARY, 1966**

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
WORK COMPLETED IN 1965	1
Vegetation Plot Establishment	1
Type Map of the Southern Half of the Natural Area . .	1
Type Ages	2
WORK PROPOSED FOR 1966	2
REFERENCES	4

NATURAL AREA - JACK PINE, RIDING MOUNTAIN NATIONAL PARK

by N. Bruce

INTRODUCTION¹

The Riding Mountain Natural Area was established in 1939 by A. L. Best and is probably one of the finest virgin jack pine stands in the Manitoba-Saskatchewan Region. The area, encompassing some 57 acres, lies within subdivision 574, Twp. 19, Rge. 17, W.P.M. Prior to 1961 work in the area had been limited to the original stand sampling. Since 1961 the area has been surveyed and three major forest cover types have been recognized. Five 1/5 acre permanent sample plots have been established in each forest cover type. Height and diameter of all living trees in the sample plots have been taken and a regeneration survey of each plot has been carried out.

WORK COMPLETED IN 1965

Vegetation Plot Establishment

Twenty permanent one-milacre sub plots were established in each permanent sample plot to record vegetation. Plots were randomly located and the north east corner of each was marked with a numbered aluminum stake.

Type Map of the Southern Half of the Natural Area

During the fall of 1965 compass lines were run in a north-south direction in the southern portion of the area. These lines were established at 2-chain intervals and a forest cover type map was made. This survey corrected the omission of a two-chain-wide strip from the original map. The revised map of the Natural Area, showing the loca-

¹

For further details, the reader is referred to the progress reports prepared for this project (Sims 1962, 1963, and Bruce 1965).

tion of the 15 permanent sample plots, appears on the following page.

Type Ages

Permanent sample plot ages were determined from increment cores from 5 trees of each coniferous species present on the plots. The borings were taken at stump height where possible.

Table I gives the percentage of trees by species in each age-class for the jack pine, jack pine-spruce and the jack pine-white spruce types. No jack pine occurs under the age of 80 years in any of the types; this species varied from 81 to 160 years of age. White spruce ranged from 21 to 130 years of age and black spruce from 31 to 130. These species dominate the lower age classes in the jack pine-white spruce and jack pine-spruce types. Little white and black spruce is present in the jack pine type. The uneven age distribution of the mature jack pine indicates that minor disturbances occurred early in the life of the stand, noticeably in the 1840's.

WORK PROPOSED FOR 1966

In 1966 as much as possible of the remaining work outlined in the 1962 progress report prepared by H. P. Sims will be completed.

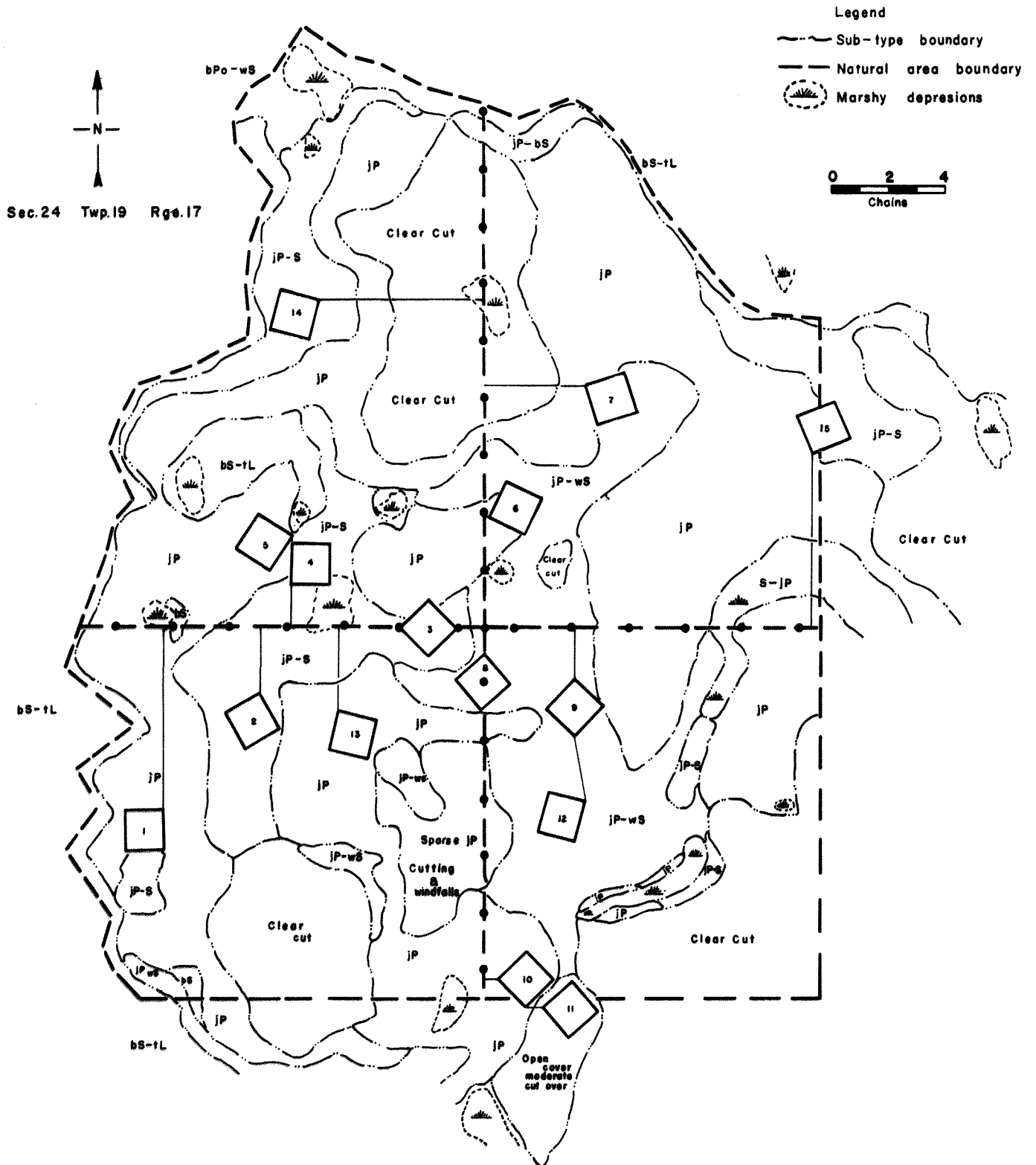
The original boundary will be relocated to omit heavily cut portions of the area. Total crown canopy of all dominant, co-dominant and intermediate trees in each plot will be determined using a 25-dot Hilborn model moose horn. Studies will also include:

1. Vegetation:- On each plot vegetation will be listed by layer communities and an ocular estimate of cover-abundance made according to Braun-Blanquet's scale.

MS - 114

Jack Pine Natural Area
Riding Mountain National Park

Revised 1965



All lesser vegetation will be examined on 20 randomly located permanent subplots located in the permanent sample plots. All species on each subplot will be listed and an ocular estimate of their cover-abundance will be made using Braun-Blanquet's scale. Photographs from permanent photo stations will be taken of representative vegetation subplots.

2. Site:- A soil pit will be dug on each plot and the profile described, using soil horizon designations approved by the National Soil Survey Committee of Canada in 1960. Descriptions will include horizon depths, structure, texture, colour, pH, stoniness, organic matter content, depth to water table, presence of CaCO_3 , and occurrence of roots. A sample of each horizon from one pit per site will be obtained for the purpose of carrying out mechanical analyses, organic matter tests, pH tests, and colour comparisons with the Munsell colour chart.

Site will be classified in the field according to Hills' system using moisture regime and pore pattern. Local climate, topography, slope, and aspect will be recorded.

3. Additional Studies:- In addition to studies proposed in the project plan, the following will be considered:

- (a) Matching of different vegetation species with microtopography and soil profile characteristics.
- (b) Rooting studies on areas adjacent, but similar, to the natural area.
- (c) Stem analysis of trees outside the natural area to determine growth characteristics.

TABLE I

Percentage of trees by species, age class and type, jack pine natural area,
Riding Mountain National Park

Type Age Class	Jack Pine			Jack Pine- Spruce			Jack Pine- White Spruce				All Types				Total			
	jP	wS	bS	jP	wS	bS	jP	wS	bS	bF	jP	wS	bS	bF				
21-30					2.0			2.0							1.6			1.6
31-40			3.4		5.9	2.0		2.0	2.0				3.1	2.3				5.4
41-50		3.4			3.9	2.0		6.1	2.0				4.6	1.6				6.2
51-60					2.0	5.9		4.1					2.3	2.3				4.6
61-70					5.9	5.9		6.1	2.0				4.6	3.1				7.7
71-80					3.9								1.6					1.6
81-90				2.0	5.9	3.9		4.1		2.0	0.8	3.9	1.6	0.8				7.0
91-100	6.9	3.4			3.9		8.2	8.2	2.0		4.6	5.4	0.8					10.8
101-110	17.2			7.8	3.9		4.1	4.1			8.5	3.1						11.6
111-120	24.1		3.4	13.7			14.3	2.0			16.3	0.8	0.8					17.8
121-130	6.9		3.4	5.9	2.0		6.1				6.2	0.8	0.8					7.8
131-140	10.3			5.9			8.2				7.8							7.8
141-150	17.2			3.9			10.2				9.3							9.3
151-160				2.0							0.8							0.8
All ages	82.8	6.9	10.3	41.2	39.2	19.6	51.0	38.8	8.2	2.0	54.3	31.8	13.2	0.8				100

REFERENCES

- H. P. Sims. 1962. Natural area - jack pine, Riding Mountain National Park.
Canada, Dept. Forestry, For. Res. Br. Unpubl. 62-8.
- H. P. Sims. 1963. Natural area - jack pine, Riding Mountain National Park.
Canada, Dept. Forestry, For. Res. Br. Unpubl. 63-MS-28.
- N. G. Bruce. 1965. Natural area - jack pine, Riding Mountain National
Park. Canada, Dept. Forestry, For. Res. Br. Unpubl. 65-MS-15.