WORK PLAN

STUDY NO. 79 HEAVY IMPROVEMENT CUTTING

Section 30, T49N-R33W

James A. Johnson

October 1972

Work Plan

Study No. 79 Heavy Improvement Cutting
Section 30, T49N-R34W
(1972)

I. Introduction and Objectives:

The cutting unit comprises approximately 88 acres located in the NW 1/4, of section 30, T49N-R33W (See map in Appendix). The 10 C.F.I. plots within the study unit show a gross volume of 8,432.0 b.f. (Int. 1/4 Rule) and a net volume per acre of 6,976.4 b.f. in 1971. This volume includes only merchantable trees. The inventory shows an additional cordwood volume of approximately 12 cords per acre. The stand is badly in need of a harvest to remove the large volume of overmature and highly defective trees. It will be necessary to remove approximately one-half of the gross volume to remove these mature and defective trees.

The objective of this harvest will be for the purpose of continuing the improvement cuttings begun in 1961 for the purpose of improving the growing stock of the whole research forest by a series of annual improvement cuttings.

II. Procedures:

Trees to be harvested will be marked with blue paint. All marked trees will be tallied on Scribner Cumulative tally sheets for the purpose of obtaining an estimate of marked volumes. Cull trees will be recorded separately from the merchantable trees. A sample of cull percent and butt-log grade will be determined on every fifth merchantable tree. This will allow for the calculation of an estimated net volume and value of products harvested. Trees designated for harvest will be predominately cull trees and merchantable

trees in the 35-50% cull classes. Defective low quality pole size trees will also be marked.

All sawlogs harvested will be scaled and graded according to the N.H P.A. log grading rules and identified with a log number for sawmill identification

The north boundary of the sale slopes into the Sturgeon River bottom. Due to the difficulty of logging this slope, tree length logging will be permitted.

TABLE 1A. Study No. 79 Heavy Improvement Cutting (1971 Volumes before cutting)

C.F.I. Plot No.	Board Feet[1] Gross	Board Feet Net	Cords Gross	Cords Net	Cubic Feet Gross	Cubic Feet Net	Basal Area
1329	1998.8	1607.9	5.362	3.564	986.72	802.51	31.77
1449	1882.9	1433.2	4.595	2.151	795.46	553.84	25.81
1523	1726.7	1534.4	2.083	1.806	625.12	578.16	21.17
1541	410.3	306.0	3.528	2.010	396.07	262.62	15.90
1545	2140.8	1586.6	3.132	2.146	770.52	633.96	28.36
1563	1772.3	1533.2	2.154	1.343	610.28	512.73	21.76
1567	2471.0	2259.2	7.616	4.431	1265.67	985.37	42.25
1581	3799.5	3117.2	2.163	1.833	1042.90	935.88	32.13
1585	2361.2	2093.1	4.590	2.808	938.62	771.28	30.96
1589	1877.8	1441.9	2.381	1.842	674.17	598.74	23.96
Totals	20441.3	16912.7	37.544	23.934	8105.53	6635.09	274.07
(unadjusted) Per acre vols.	10220.6	8,456.3	18.772	11.967	4,052.76	3,317.54	137.04
(adjusted)[2] BF. Vols./Acre	8432.0	6,976.4					

[1]Board foot volumes International 1/4 Rule, Variable top, 8" d.i.b. minimum.

[2]Board foot volumes reduced by a correction factor of 17.5 percent.

Post Marking Information

Study No. 79 Heavy Improvement Cutting

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The marking tally indicates an estimated merchantable sawlog volume of 1,212 b.f. net volume (Scribner) per acre; a hardwood pulpwood volume of 2,344 b.f. gross volume per acre and a hemlock pulpwood volume of 1,088 b.f. gross volume per acre. An additional 66 cords of pole size pulpwood trees were also marked.

The sale was advertized on November 25, 1972 with bids received and opened on November 30, 1972. Lorenz Rickert of Baraga, Michigan was the successful bidder and proceeded to commence logging immediately.

TABLE 2A. Summary of Marking Tally Study No. 79 Heavy Improvement Cutting, Section 30, T49N-R33W

Trees Tallied on Scribner Cumulative Tally Sheets

I. Estimated Merchantable Tree Volumes

Species	B. F. Gross[1] Vol. Corrected	B.F. Volume[2] Net	B.F. Net Volume Including 15% Overrun
Sugar Maple	105,848	85,737	98,597
Yellow Birch	15,345	13,197	15,176
Red Maple	2,392	2,009	2,310
Elm	2,524	2,171	2,497
Bass	1,732	1,489	1,712
Ash	264	172	198
Hemlock	1,270	1,092	1,256
Aspen	973	837	962
	130,348	106,704	122,708

II. Estimated Cull Tree Volume

Sugar Maple	150,134
Yellow Birch	39,303
Red Maple	16,566
Elm	330
	206,333 @ 7 ton/M = 1,444 tons

III. Pulpwood Volumes

			cords
Hemlock (sawlog size)	95,832 @ 2.5 cds/M	=	239
Hemlock (pole size)		=	13
Hardwood Pulpwood (pole size) (2.8T/cd. = 123T.)		=	44
Aspen Pulpwood		=	9
		Total	305

(1) Volume table correction factor 17.5% reduction.

(2) Every fifth merchantable tree sampled for cull percent to obtain net volumes.

TABLE 3A. Study No. 79 Tree Grade Sample

I. Estimated Percent Grades (Butt Log Grade)

Species	Percent Tree Grade (Marking Tally) Grade #1	Grade #2	Grade #3
Sugar Maple	30.4	51.0	18.6
Yellow Birch	73.9	24.9	1.2
Red Maple		100.0	
Elm		100.0	
Bass		100.0	
Ash		100.0	

II. Board Foot Estimated Volumes by Tree Grades

Species	Board Foot Volume(Scribner) by Tree Grade Grade #1	Grade #2	Grade #3
Sugar Maple	29,974	50,284	18,339
Yellow Birch	11,215	3,779	182
Red Maple		2,310	
Elm		2,497	
Bass		1,712	
Ash		198	

III. Log Grade Mix Board Feet (Mix using FFC Research Note No. 2)

Species	Tree Grade	Log Grade Mix (Board Feet Scribner) Grade #1	Grade #2	Grade #3
Sugar Maple	1	14,088	10,191	5,695
Sugar Maple	2		34,193	16,091
Sugar Maple	3		734	17,605
Yellow Birch	1	6,729	2,804	1,682
Yellow Birch	2		3,023	756
Yellow Birch	3		24	158
Red Maple	2		1,571	739
Elm	2		1,698	799
Bass	2		1,164	548
Ash	2		135	63

TABLE 4A. Study No. 79 Heavy Improvement Cutting Estimated Lumber Conversion Value

Species	Net B. F. Scribner (1)	Est. Log Grades	Quality Index (2)	Unit Price Per M. b. f.	Estimated Conv. Value
Sugar Maple	14,088	1	.96	$ 196.80	$ 2,772.52
Sugar Maple	45,118	2	.71	145.55	6,566.92
Sugar Maple	39,391	3	.53	108.65	4,279.83
Yellow Birch	6,729	1	1.31	255.45	1,718.92
Yellow Birch	5,851	2	.90	175.50	1,026.85
Yellow Birch	2,596	3	.67	130.65	339.17
Red Maple	1,571	2	.65	123.50	194.02
Red Maple	739	3	.55	104.50	77.22
Elm	1,698	2	.65	113.75	193.15
Elm	799	3	.54	94.50	75.50
Bass	1,164	2	.80	140.00	162.96
Bass	548	3	.62	108.50	59.46
Ash	135	2	.65	113.75	15.36
Ash	63	3	.55	96,25	6.06
Aspen	962	0	0	106.00	101.97
Hemlock	1,256	0	0	100.00	125.60
	122,708				$17,715.51

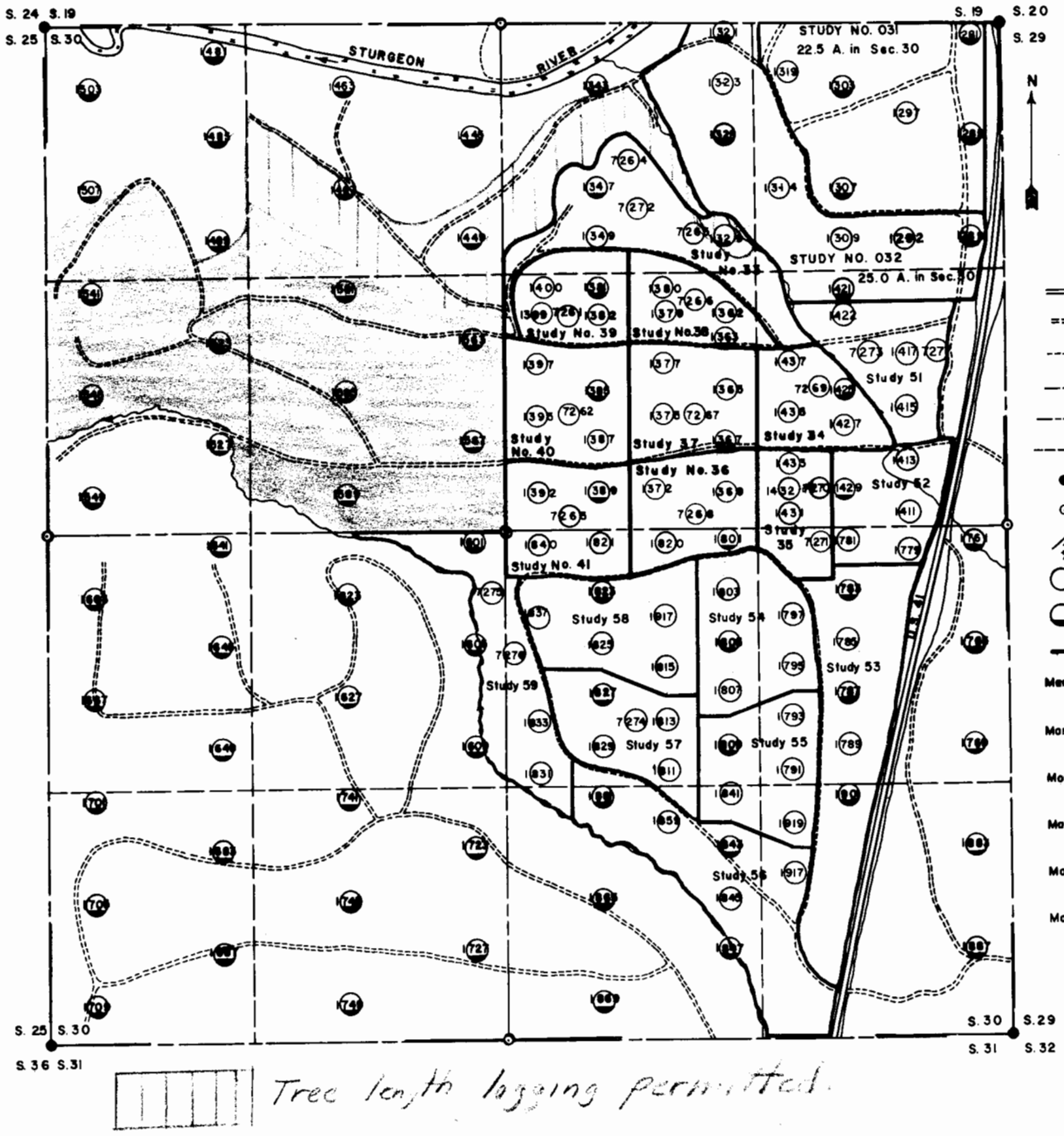
(1) Volumes include 15% estimated overrun.

(2) Quality index obtained from FFC mill scale studies.

(3) Quality index multiplied by current price No. 1c lumber gives unit price per M. b. f.

1972 prices No. 1c lumber:

Sugar Maple	$ 205/M	Basswood	$ 175/M
Yellow Birch	195/M	Elm	175/M
Red Maple	190/M	Ash	175/M



FORD FORESTRY CENTER

MICHIGAN TECHNOLOGICAL UNIVERSITY

Section 30, T49N-R33W

Tree length logging permitted.

LEGEND

- Paved Highway
- Forest Road
- Foot Trail
- Section Line
- Quarter Section Line
- Forty Line
- Section Corner
- Quarter Section Corner
- Rapids
- 1/5 A. Study Plot
- 1/5A. C.F.I. Plot
- Study Boundary

Management Study No. 54 (Economic Selection) Total 10.5 Acres

Management Study No. 55 (50 sq. ft. Basal Area) Total 9.3 Acres

Management Study No. 56 (Economic Selection) Total 17.1 Acres

Management Study No. 57 (50 sq. ft. Basal Area) Total 9.1 Acres

Management Study No. 58 (Silvicultural Selection) Total 11.4 Acres

Management Study No. 59 (Silvicultural Selection) Total 11.8 Acres

STUDY UNITS

Management Study No. 031 (Heavy Improvement) Total 41.9 Acres

Management Study No. 032 (Heavy Improvement) Total 25.9 Acres

Management Study No. 033 (70 sq. ft. Basal Area) Total 13.7 Acres

Management Study No. 034 (70 sq. ft. Basal Area) Total 6.8 Acres

Management Study No. 035 (70 sq. ft. Basal Area) Total 5.8 Acres

Management Study No. 36 (Single Tree Selection) Total 8.2 Acres

Management Study No. 37 (Single Tree Selection) Total 8.2 Acres

Management Study No. 38 (Single Tree Selection) Total 6.0 Acres

Management Study No. 39 (85 sq. ft. Basal Area) Total 6.2 Acres

Management Study No. 40 (85 sq. ft. Basal Area) Total 9.0 Acres

Management Study No. 41 (85 sq. ft. Basal Area) Total 8.6 Acres

Management Study No. 51 (Economic Selection) Total 9.1 Acres

Management Study No. 52 (Silvicultural Selection) Total 8.2 Acres

Management Study No. 53 (50 sq. ft. Basal Area) Total 18.3 Acres

Jan., 1965