

FOREST MANAGEMENT PLAN
For The
CARROLL COUNTY FARM
Ossipee, New Hampshire
1979

ACKNOWLEDGEMENTS

The author acknowledges the assistance provided by Arthur Morrill, State District Forester, and Tom Miner, Chief of Forest Management, Division of Resources and Economic Development, for the collection of field data and their input into the preparation of this report.

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OWNERSHIP

The Carroll County Farm consists of approximately 700 acres of forest land and 70+ acres of open land. The acreage is owned by the County and is managed as an active farm. Revenue is generated through the sale of forest and farm crops.

LOCATION

The County Farm property is located in the Town of Ossipee. The property abuts the west side of Route 28 for a distance of about 4,300' and extends to the Wolfeboro/Ossipee town line. Two small parcels totalling 46 acres extend along the east side of Route 28 for a distance equal to 3,700'+/-. The acreage abuts both sides of Route 171 beginning at the entrance to the Farm complex. The frontage on the south side of Route 171 is equal to about 3,400'. The frontage on the north side is about 2,200'+/-.

BOUNDARIES

The boundaries of this tract are marked in some areas with walls. The remainder are blazed and painted. In the future an effort should be made to properly blaze and paint all exterior lines. Iron pipes should be set at all corners. Well marked boundaries are essential to the management of this parcel. In addition, the problem of timber trespass can be minimized.

TOPOGRAPHY

The majority of the topography is gentle to moderate slope. This condition lends itself to forest management activities with a minimal amount of erosion problems.

SOILS

The principal soil groupings found on this acreage include Millis, Woodbridge, Paxton and Gloucester.

The Millis series consists of well drained soils that formed in deposits of glacial till. These soils have a loamy cap 18-36 inches thick over a firm sandy pan layer. Permeability is moderate above the pan layer, slow through the pan. Wood crop production is fair for white pine and northern hardwoods.

The Woodbridge series consists of moderately well drained soils formed in deposits of loamy glacial till. A firm pan layer is 18-36 inches beneath the surface. Permeability is moderate above the pan layer and slow in the pan. Wood crop production is good.

The Paxton series consists of well drained soils formed in deposits of loamy glacial till. These soils have a firm pan layer at a depth of 16-36 inches. Permeability is moderate above the pan layer and slow in the pan layer. Wood crop productivity is good for upland oaks and northern hardwoods. These are excellent soils for farming and for timber production.

The Gloucester series consists of excessively drained soils formed in deposits of stony sand glacial till. Stones are very common on the surface. Permeability is moderately rapid. Available water capacity is low. These soils are not highly suited for timber production.

See Appendix A for soils map and description.

TRACT HISTORY

County Forester involvement in the County Farm dates back to 1942. At this time a sustained yield management plan was prepared by the Extension Service. This plan included the preparation of a forest type map and a timber cruise.

Cutting records are non-existent between the time the basic plan was developed and the early 1960's. The farm manager has conducted an annual firewood cutting operation. Accurate cutting statistics are available only for the period 1973 to the present.

The first recorded timber sale involving private consulting forestry assistance dates back to November 1963. A harvest operation was conducted primarily in compartment #4. A timber sale prospectus prepared by Stanley Coville, Forester for the New England Forestry Foundation, indicates the following timber was marked for harvest:

Hemlock and Spruce	76,000 board feet
White Pine	30,000 " "
Maple and Beech	15,000 " "
Birch	<u>4,000</u> " "
	125,000 board feet

The actual harvest was reported to be: 131,275 board feet for a value of \$2,680.00. This sale was marked by Arthur "Gibb" Dodge, Carroll County Forester, and sold and

supervised by Stan Coville.

It is difficult to assess the extent of firewood removed on an annual basis. A guesstimate would indicate 50-100 cords of hardwood cut yearly.

In 1968-1969 a cruise was conducted to update the timber volume. This project was conducted under the direction of "Gibb" Dodge. Howard Dickinson, private consulting forester, Conway, NH, was hired to perform the cruise. He was assisted by David Weathers, Technician, Soil Conservation Service. This cruise encompassed the total woodland acreage except compartments 7A and 7B, and the Bickford Lot purchased about 1975 from Fred Bickford. See Appendix B for the results of this cruise.

In 1970 Peter Pohl, Assistant Carroll County Forester, prepared a timber sale in the western portion of compartment #4, compartment #3, and the eastern half of compartment #6. The timber was sold and supervised by Stanley Coville, Forester, NEFF. This sale resulted in the harvest of 586,000 board feet. It generated \$18,516.78 of income, or an average of \$31.60 per thousand board feet. This harvest was completed in 1971.

Cutting statistics for the period 1973 to 1978 indicate a total of 1,093 cords of firewood and 75,780 board feet of softwood harvested. The cordwood was valued at about \$53,000. A majority of the lumber was used in the construction of several farm buildings. See Appendix C for a breakdown of volume by years.

In July 1978 Peter Pohl, Carroll County Forester, met with the Carroll County Commissioners to discuss the forestry operations at the County Farm. Peter discussed some concerns particularly in the area of hardwood utilization, cords of firewood harvested, and the need to recruise the acreage in order to assess the forest resources at the farm.

Peter agreed to proceed with a timber cruise with assistance to be provided by Arthur Morrill, State District Forester. The Commissioners requested this help in writing from Mr. Theodore Natti, State Forester. The cruise was scheduled for the fall and winter of 1978-1979. Upon completion of the cruise, Peter would prepare a management plan with specific recommendations for the management of this acreage.

RESOURCES - TIMBER

The 1978-1979 cruise was based upon 262 points. Each point represents approximately 1/5 of an acre so that a total of 52 acres or 7% of the total forest land was measured in order to derive the timber volumes as recorded in Appendix B.

A 10 factor prism was used to measure the points. The timber type map was used as a base map. The area was laid out in a grid. The cruise lines were 330' apart with the sample points 330' apart. The field data was analyzed using the University of New Hampshire's INVENT computer program. The charge for this service was \$.35 per point.

A serious discrepancy was detected in compartment #1 when the 1978-1979 cruise data were compared with the 1968-69 figures. No cutting had been conducted in this compartment during the period 1968-1979. It was concluded that an error in computation had been made. In order to reconstruct the timber volume in compartment #1 for the period 1968-69, the 1978-79 data were taken and discounted using a 4% growth rate. This resulted in a more realistic volume estimate for this compartment.

The analysis of the cruise data for compartments #1-#6 using the corrected figure for compartment #1 indicates the following:

	<u>1968-69 Cruise</u>	<u>1978-79 Cruise</u>	<u>Net Gain</u>	<u>Net Loss</u>
<u>Sawtimber</u>				
Hardwood	897,076 bd.ft.	663,700 bd.ft.	--	233,376 bd.ft.
Softwood	2,168,810 bd.ft.	2,467,200 bd.ft.	298,390 bd.ft.	--
<u>Pulpwood</u>				
Hardwood	1,491 cds.	1,417 cds.	--	74 cds.
Softwood	175 cds.	204 cds.	29 cds.	--

It is evident from these figures that despite a harvest of 634,780 board feet of softwood during the period 1968-1978 there has been a net gain of 298,390 board feet. The softwood pulpwood picture has also increased.

The dramatic change that has occurred is in the hardwood situation. The significant increase in firewood cutting since 1973 (see Appendix C) indicates that the hardwood sawtimber has dropped from 897,076 board feet in 1968-69 to 663,700 board feet in 1978-79, resulting in a net loss of 233,376 board feet which is equal to about 466 cords. Since very little hardwood sawtimber was harvested during the period 1968-1979, it is obvious that the majority of this potential sawtimber quality hardwood was cut and sold as cordwood. The hardwood pulpwood or cordwood picture has remained relatively stable. In 1968-69 there was an estimate of 1,491 cords of hardwood and in 1978-79 there were 1,417 cords - a loss of 74 cords. Thus the harvest of low grade cordwood has basically equalled the growth.

It is important to emphasize that during the cruise all hardwood 8" in diameter capable of making at least a pallet quality log was recorded as sawtimber. The remaining hardwood was classified as firewood or pulpwood quality.

In conclusion the estimated total volume of timber on the Carroll County Farm property (699 acres) as of February 1979 is as follows:

	<u>Sawtimber (bd.ft.)</u>	<u>Pulpwood (cords)</u>
Hardwood	752,800	1,903
Softwood	<u>2,789,800</u>	<u>273</u>
TOTAL	3,542,600	2,176

This estimate for sawtimber is +/- 14%; the estimate for pulpwood is +/- 21%.

GENERAL RECOMMENDATIONS

The following general recommendations are made in an effort to increase the forest management activity on the County Farm:

1. All exterior boundary lines need to be reblazed and painted. Corner posts should be set at each corner. This will minimize the possibility of timber trespass.
2. During the timber cruise, it was evident that most of the forestry activity has been carried out without a specific plan in mind. Some work has been accomplished in compartments #2, 3, 4, 5 and 6; however, no compartment has been completed. It is strongly recommended that the County Forester and the Farm Manager meet periodically to discuss and plan the forestry activities for the ensuing year. The following course of action is suggested:
 - a. A joint decision between the County Forester and Farm Manager should be made as to which compartment to intensively manage.
 - b. A road system should be laid out to facilitate access for timber and cordwood removal. Technical assistance for access road lay out and construction is available from both the County Forester and the Soil Conservation Service. Federal funds for access road construction are available from the Agricultural Conservation Program (ACP). The road building can be performed by the farm crew.
 - c. The County Forester should mark all sawtimber and cordwood to be removed in any harvesting operation. If future timber sales are to be performed by an independent logging contractor, a private consulting forester should be hired to sell the marked timber and supervise the logging operation. This procedure has been followed in the past two timber sales.
 - d. The next forest management activity to perform is the precommercial weeding and thinning of young forest stands 14-30 years of age. There

are several blocks of small diameter hardwoods and white pine in need of this treatment. The cost share program subsidizes the treatment of these sites. It is recommended that a private consulting forester be hired to treat these areas. The total cost equals about \$50-\$55 per acre. The federal cost share program contributes \$38 toward the total cost of treating an acre. It is essential that trained personnel do the release work in these forest stands rather than prison help. Poor choices in crop tree release would seriously erode the potential of these areas. A guesstimate of 50-70 acres are in need of this treatment.

- e. White pine stands commercially thinned in the past are regenerating into inferior quality hardwood stands, mainly red maple. This is not a unique situation and is in fact common. Natural re-establishment of white pine on heavy soils is difficult. To maximize the possibility of natural regeneration, commercial logging activity should coincide with a white pine seed crop. The logging should occur in July and August with efforts to scarify the soil to prepare a seedbed. If natural seeding efforts fail, replanting these sites with white pine seedlings coupled with chemical control of hardwood competition is very important if one is to be successful in perpetuating white pine on the property. If regeneration is unsuccessful this area will revert to mixed hardwood and hemlock.
- f. The forest resources on this acreage have been a significant source of revenue and construction material at the farm. The question has been raised as to how can the income potential from the woodland be increased without jeopardizing the sustained yield concept.

Several suggestions include setting up a shingle mill. There is a substantial demand for white pine shingles and shakes. The investment in equipment is a relatively small one. I guesstimate \$3,000 - \$5,000 worth of equipment would be needed. Revenue realized from a thousand board feet of white pine logs sold roadside is about \$125-\$130. Income generated from a thousand board feet of white pine converted to 40 bundles of shingles is \$350-\$400.
















A second method of increasing yield is to have the farm crew conduct most of the future sawtimber sales. The previous timber sales in 1963 and 1970 allowed us to harvest the majority of the old growth and diseased trees. These areas can be periodically thinned by the farm crew. This would more than double the revenue realized by selling logs roadside.

A general rule of thumb is to conduct harvest operations on 15 year intervals. This would indicate a repeat cut in compartments #3, 4 and 6 about 1985. Cutting activity should occur in compartments #1, 2, 7A, 7B and the Bickford Lot. These areas have been relatively untouched. Specific compartmental recommendations follow this section of the report.

- g. The harvest and sale of firewood represents a significant source of revenue. It is recommended that only poor quality trees not suited for sawtimber be harvested for fuelwood. The tops from sawtimber quality trees should also be salvaged for cordwood. It is recommended that the total annual cordwood harvest be limited to 150-200 cords. This figure can be revised after the completion of the next scheduled cruise.
- h. In order to monitor the forest resources on this acreage, it is important to plan a recruise of the area approximately every ten years. I suggest another cruise in 1988-1989.
- i. A final thought deals with the importance of record keeping. It is imperative that accurate cutting records be kept in order to monitor the true impact of the forest practices carried out at the farm. Cutting records including sawtimber, pulpwood and cordwood harvests by compartments are essential.

This information coupled with cruise data will permit the County Forester to adjust the allowable cut in order to insure a sustained yield of multiple products from this acreage.

KEY TO COMPARTMENT MAPS

	Compartment bounds (approximate)
	Timber type and/or management area bounds (approximate)
	Stone wall
	Wire fence
	Brook
	Intermittent brook
	Swamp
	Pond
	Road
	Woods road
	Power line
	General selective cut
	Clear cut
	Hardwood TSI
	Softwood TSI

SCALE: 1 inch = 330 feet

SPECIFIC COMPARTMENT RECOMMENDATIONS

Compartment #1

Compartment #1 consists of approximately 103 acres. There are about 10 acres of commercial white pine 80-100 years old, about 23 acres of mixed hardwood consisting of white birch, maple, beech, oak and ash 50-100+ years old and 70+ acres of mixed white pine and hardwood 70-100 years old.

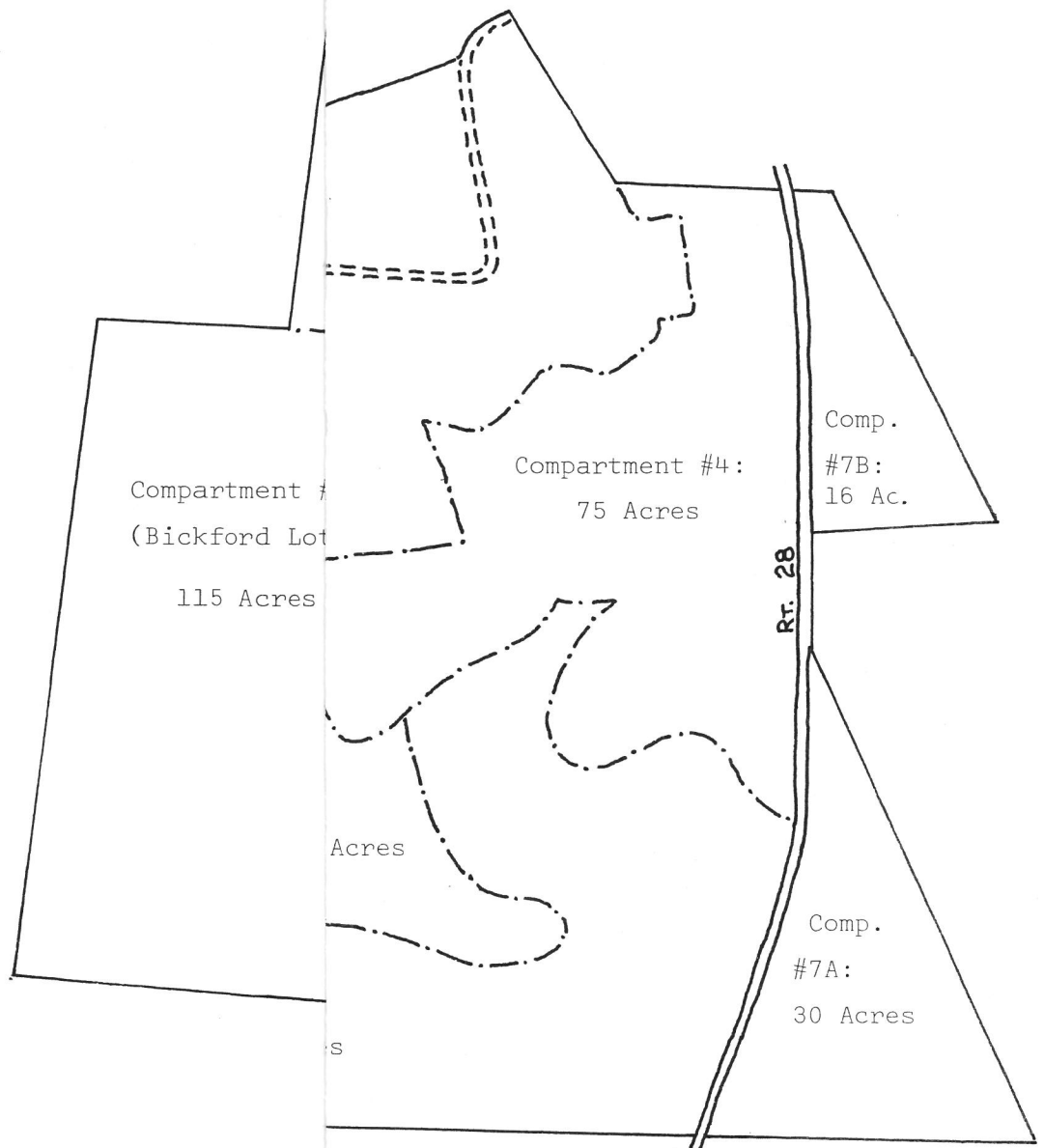
The 1979 cruise revealed the following volumes:

Hardwood sawtimber	148,700 board feet
Softwood sawtimber	423,300 board feet
Hardwood pulpwood	440 cords
Softwood pulpwood	70 cords

It is suggested that an improvement harvest be carried out throughout this area. All overmature, diseased and poor quality sawtimber and pulpwood should be cut. In the past there has been resistance on the part of the County Commissioners to log this area because of the spring house. Proper layout and construction of the access road to this area should eliminate the concern for the water supply.

Areas stocked primarily with white pine should be logged during the summer months prior to a seed crop to enhance the chance that natural white pine regeneration will get established and insure a continuation of this valuable crop.

There were no appreciable areas that qualified for weeding and thinning work.



Compartment #
(Bickford Lot)
115 Acres

Compartment #4:
75 Acres

Comp.
#7B:
16 Ac.

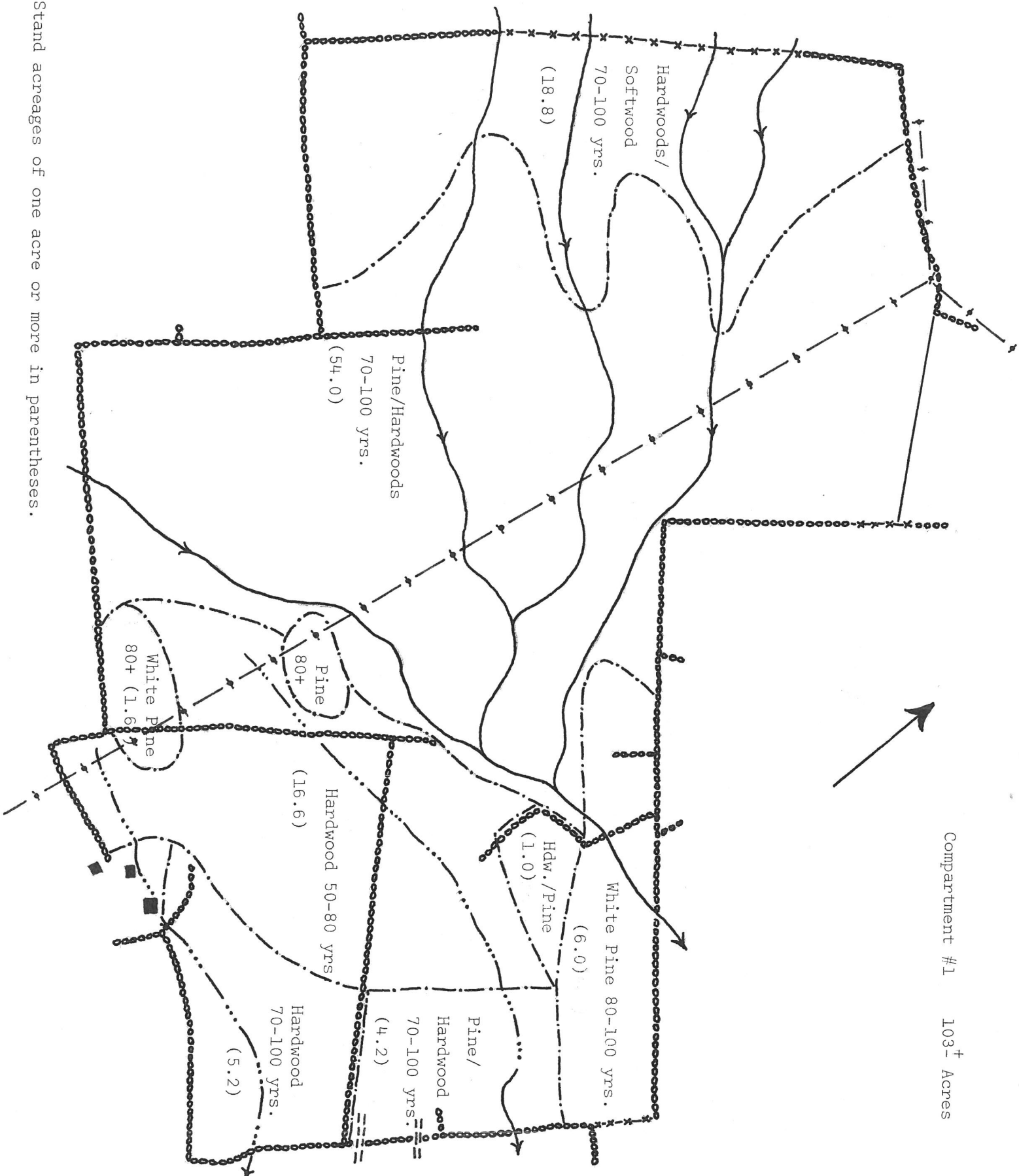
Acres

Rt. 28

Comp.
#7A:
30 Acres

s

Compartment #1 103+ Acres



Stand acreages of one acre or more in parentheses.

Compartment #2

Compartment #2 has received some cutting in the past. A hardwood area approximately 7-8 acres in size was clearcut for¹ cordwood 10-15 years age. A 1-2 acre area was clearcut to provide space for the new administration building. This is located in the southeast corner of this compartment and involved the total removal of .8 acres of 20-30 year old white pine and about an acre of commercial white pine. In the spring of 1979 a small island of white pine .5+ acres in size and extending into the field on the north side of Route 171 was clearcut to expand the field. Approximately 20,000 board feet were removed. This harvest was not deducted from the 1979 timber volumes. The 1979 cruise revealed the following volumes:

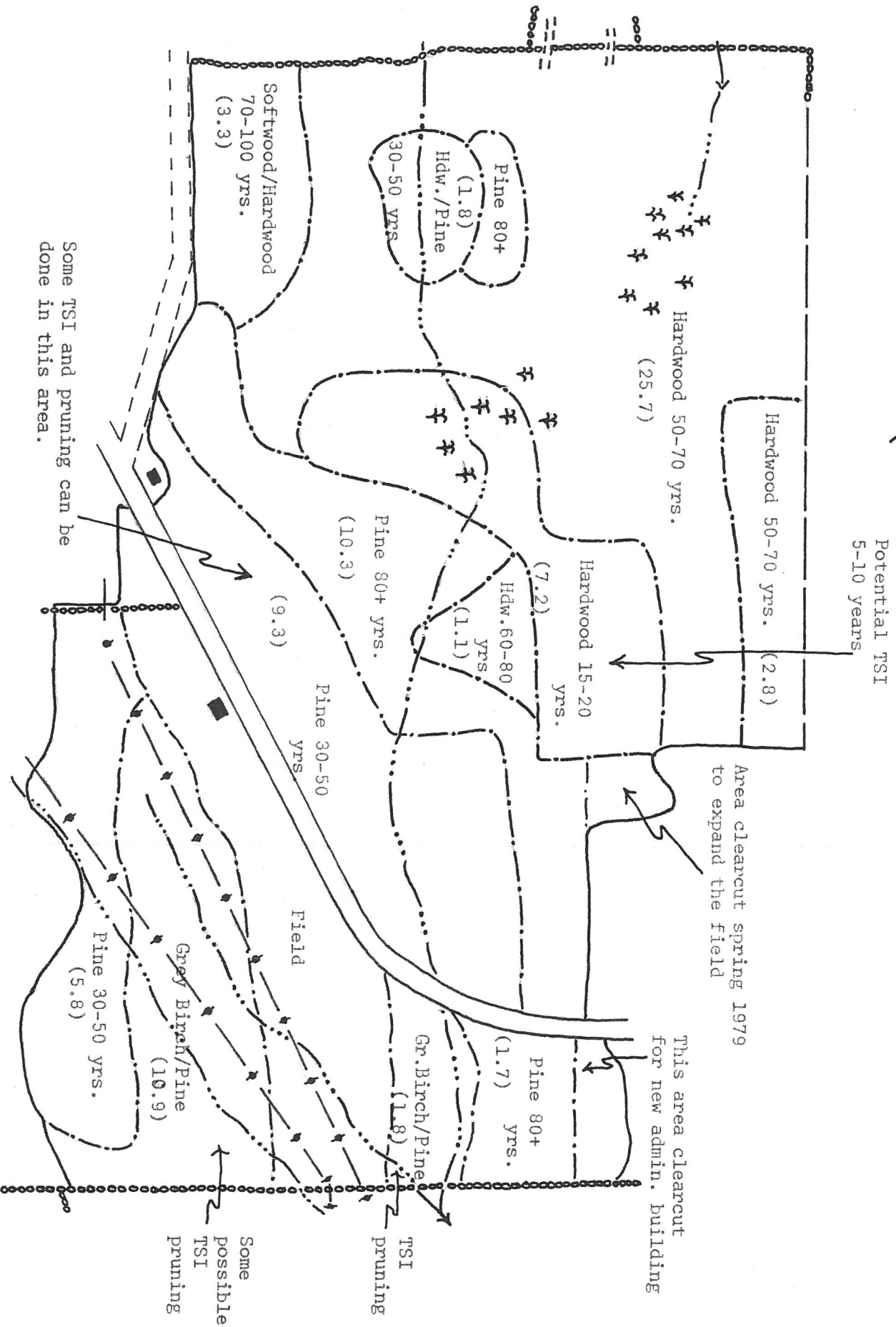
Hardwood sawtimber	72,200 board feet
Softwood sawtimber	424,300 board feet
Hardwood pulpwood	83 cords
Softwood pulpwood	53 cords

The compartment contains approximately 13 acres of 80+ year old commercial white pine, about 15 acres of 30-50 year old white pine, about 38-40 acres of hardwood 50-80+ years old, 8 acres of 14-20 year old hardwood, and the remaining 15-18 acres is in brush and grey birch with white pine understory.

The following recommendations are made to improve the productive capacity of this area:

1. Lay out and construct access road system.
2. A commercial cut should be performed throughout the areas crosshatched in red. All cull quality hardwood should be removed for firewood. Thin stands of commercial white pine. Leave a residual stand of variable diameters 8"-24" in diameter. Attempt to re-establish white pine through natural reseeding if possible.
3. Some white pine thinning and pruning is possible in the areas shaded in green.

Compartment #2 90⁺ Acres



Compartment #3

Compartment #3 consists of about 54 acres. This section includes about 7 acres of 80+ year old white pine, 46 acres of softwood 60-80 years old, and a one acre pond and dump site.

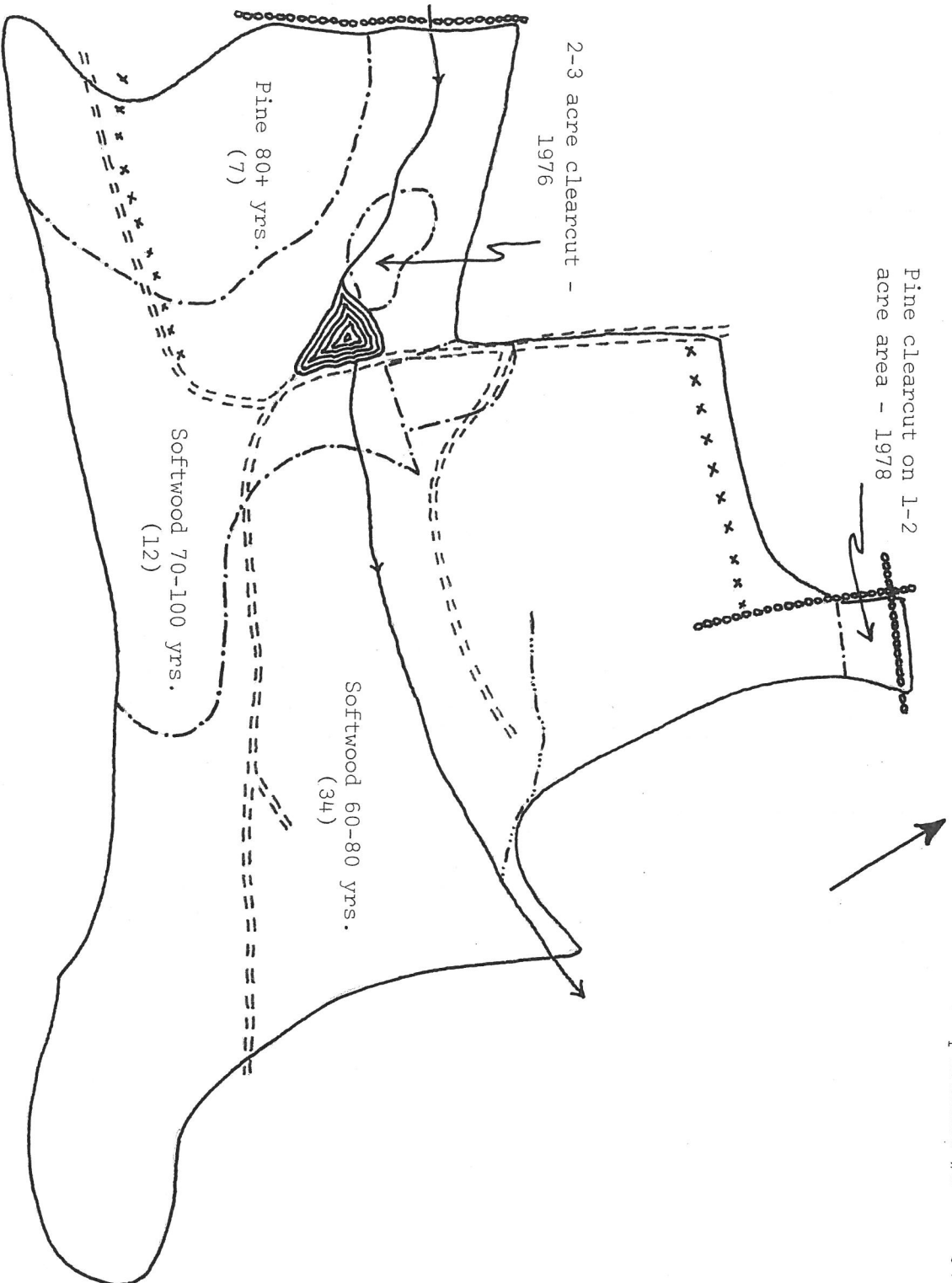
The 1979 cruise revealed the following volumes:

Hardwood sawtimber	43,100 board feet
Softwood sawtimber	336,600 board feet
Hardwood pulpwood	155 cords
Softwood pulpwood	34 cords

This area was included in the 1971 timber sale. The next timber sale is scheduled for the mid-1980's. An access road was upgraded south of the dump extending into Compartment #5. Some softwood clearcutting was conducted on the edge of the pond and in the northeast section of the compartment bordering the field. See sketch map for the location of these areas.

The following recommendations are made to enhance the productive potential of this area:

1. Expand the current road system to provide easier access to the compartment.
2. Conduct a timber sale during the mid-1980's.



Stand acreages in parentheses.

Compartment #4

Compartment #4 is approximately 75 acres in size. The area consists of about 12 acres of hardwood and softwood 30-40+ years old with scattered 80+ year old white pine, 45 acres of 80+ year old white pine, 3 acre swamp, 8 acres mixed mardwood 50-70 years old, 3 acres of pine/hardwood 40-60 years old, and 4 acres of hemlock/hardwood 60-80 years old. The southern section of this compartment was selectively logged in 1963. Much of the remainder was logged in 1971.

The 1979 cruise revealed the following volumes:

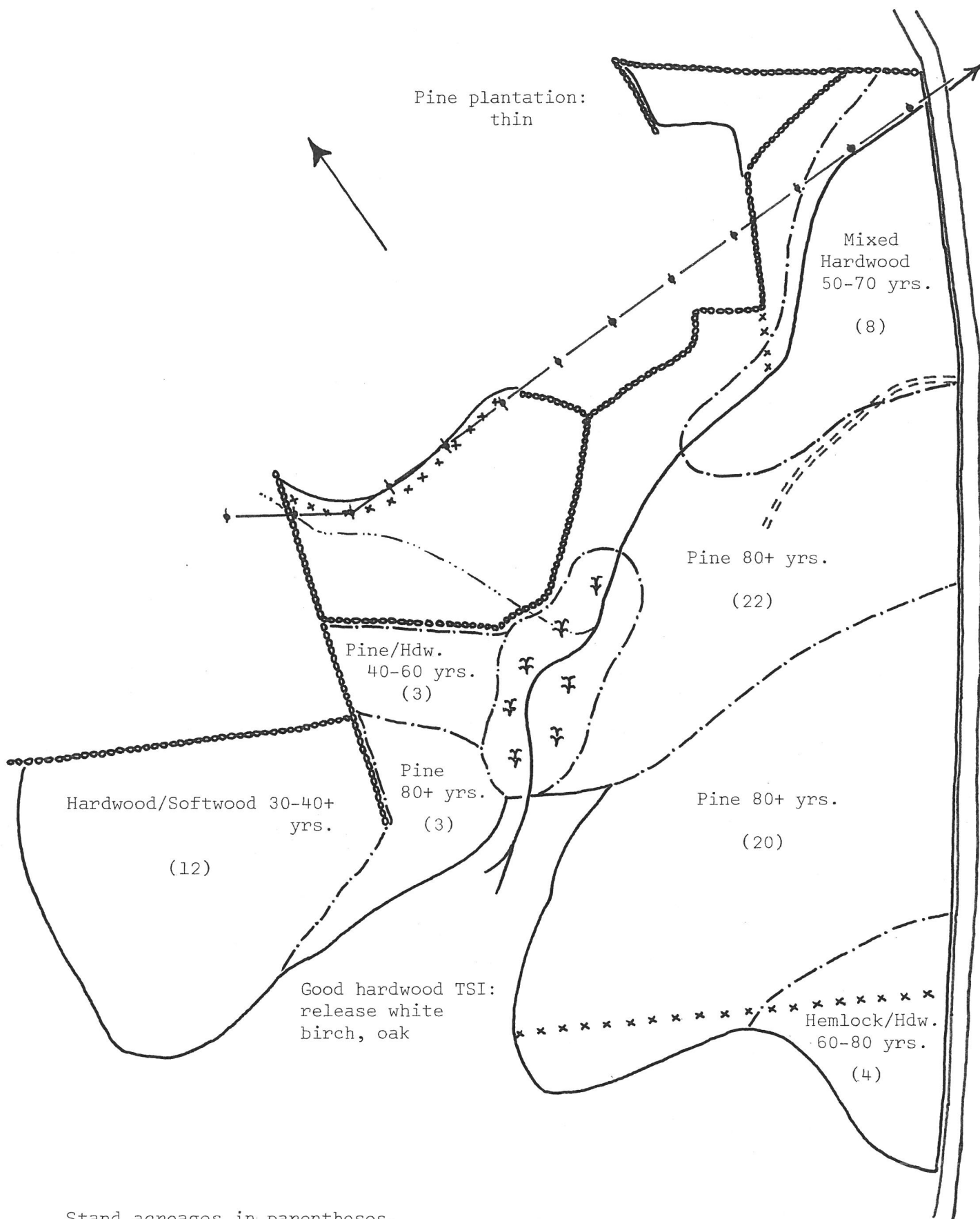
Hardwood sawtimber	59,900 board feet
Softwood sawtimber	624,800 board feet
Hardwood pulpwood	227 cords
Softwood pulpwood	15 cords

Considerable firewood quality hardwood remains throughout this area. Little opportunity existed in 1963 and in 1971 to harvest the pulpwood quality growth.

The following recommendations are made to enhance the productive capability of this area:

1. Lay out and construct access road network to facilitate management activities.
2. Weed and thin the areas crosshatched in orange and in green. This work qualifies for cost share assistance under the federal program.
3. Conduct firewood harvest of cull quality hardwoods throughout the area.
4. Repeat a commercial harvest operation throughout the area after the mid-1980's.

Compartment #4 75⁺ Acres



Compartment #5

Compartment #5 contains 135 acres. This section contains a 6 acre white pine plantation, an 8 acre swamp, 4 acres of 80+ year old white pine, 14 acres hardwood and softwood 40-60 years old, and 103 acres of hardwood 30-70 years old.

The 1979 cruise revealed the following volumes:

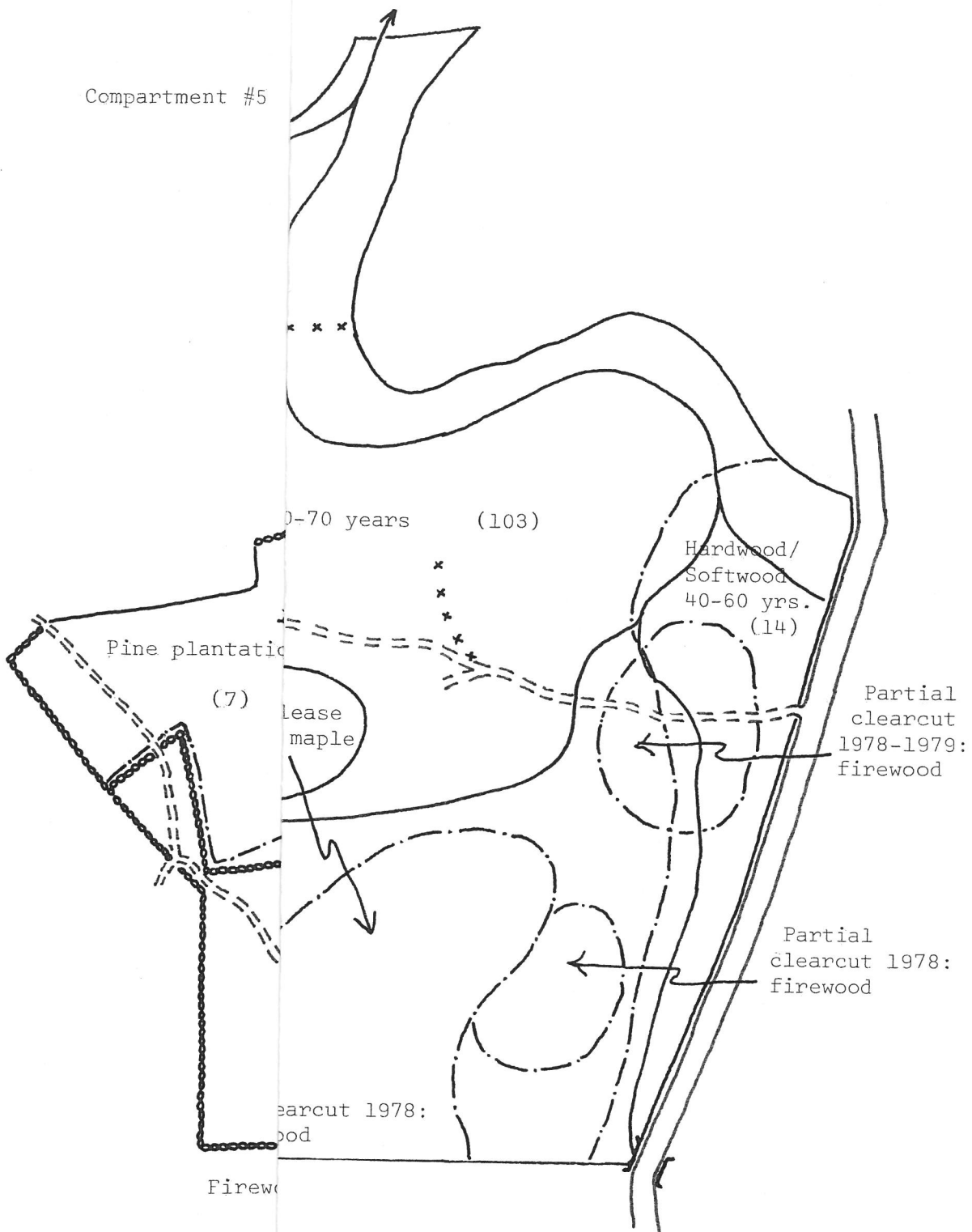
Hardwood sawtimber	264,700 board feet
Softwood sawtimber	268,500 board feet
Hardwood pulpwood	474 cords
Softwood pulpwood	32 cords

This compartment reflects a dramatic reduction in hardwood sawtimber when the 1979 cruise data are compared to the 1969 figures. The hardwood sawtimber volume in 1969 was estimated to be about 455,700 board feet. Most of the hardwood removed was sold as firewood. The hardwood pulpwood (firewood) figures for this unit have remained relatively stable. That is, the growth of the low grade quality has equalled the harvest. The 1969 figures for this compartment were 479 cords; the 1979 figure was 474 cords.

The following recommendations are made to enhance the productive potential of this area:

1. Clearcut heavily weeviled white pine plantation crosshatched in red. This land should be restored to agricultural purposes.
2. Improve and expand existing road system to facilitate access.
3. Complete the firewood cutting operations in areas already partially harvested.
4. Weed and thin mixed pole size hardwood stands. These areas qualify for cost share assistance. A qualified forestry crew should weed and thin these areas.

Compartment #5



Stand acreages

Compartment #6

Compartment #6 consists of about 79 acres. There are about 22 acres of white pine 30-50 years old, 3 acres of pine 70-80 years old, 11 acres of softwood and hardwood 50-80 years old, about 34 acres of hardwood 30-50 years old, a 3 acre field used for agricultural purposes, and 6 acres of grey birch and white pine.

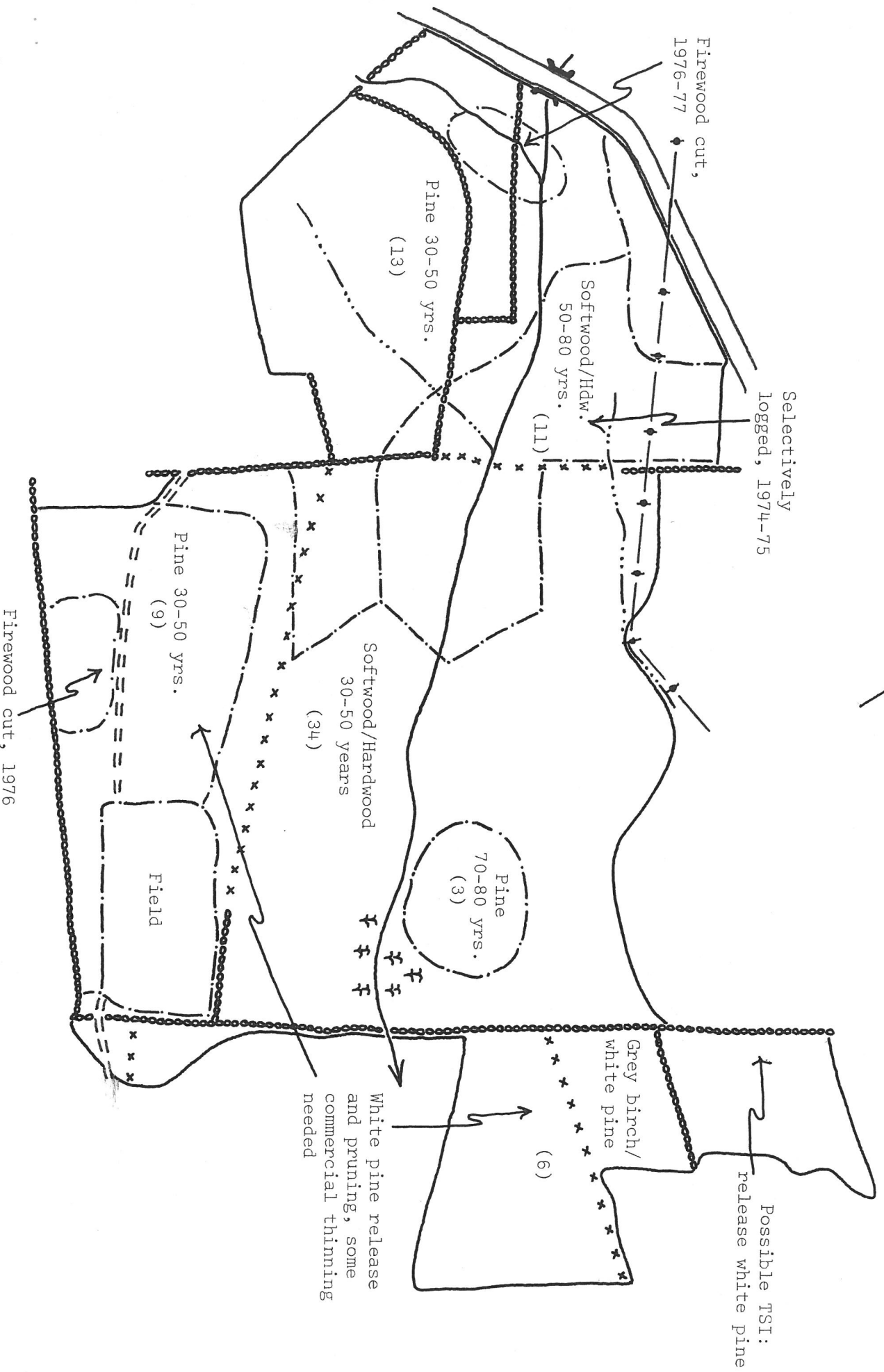
The 1979 cruise revealed the following volumes:

Hardwood sawtimber	75,100 board feet
Softwood sawtimber	389,700 board feet
Hardwood pulpwood	38 cords
Softwood pulpwood	0 cords

This unit has received extensive cutting of firewood since 1976 and some selective logging of softwood and hardwood areas. A comparison of the 1968-69 and the 1978-79 cruises indicates a reduction in the hardwood merchantable board footage of 10,000 board feet, and a sharp reduction in the pulpwood quality hardwood. This sharp reduction in the pulpwood or firewood quality hardwoods indicates some good management decisions were made. See sketch map of this compartment for reference to areas cut for firewood and sawtimber.

The following recommendations are made to enhance the productive potential of this compartment:

1. Improve and expand access road network to facilitate forest management activities.
2. Complete firewood cutting operation throughout uncut areas.
3. The areas crosshatched in green should be weeded and thinned to enhance white pine development. Prune high quality 6-10" diameter crop trees. These areas qualify for cost share assistance. The work should be performed by consulting forester rather than prison help.



Compartments 7A & 7B

These two areas have received no management work at all.

Area 7A consists of about 30 acres of mixed hardwood and softwood. Large scattered pine are located primarily in the southern half of this area.

The 1979 cruise revealed the following volumes:

Hardwood sawtimber	18,500 board feet
Softwood sawtimber	120,400 board feet
Hardwood pulpwood	45 cords
Softwood pulpwood	11 cords

The following recommendations are made to enhance the productive potential of the area:

1. Lay out and construct access road.
2. Selectively cut large mature white pine. Remove firewood quality hardwood.
3. Weed and thin area cross-hatched in orange, under cost share program. Work should be performed by a consulting forester.

Area 7B consists of about 16 acres of mixed hardwood/softwood 40-70 years old.

The 1979 cruise revealed the following volumes:

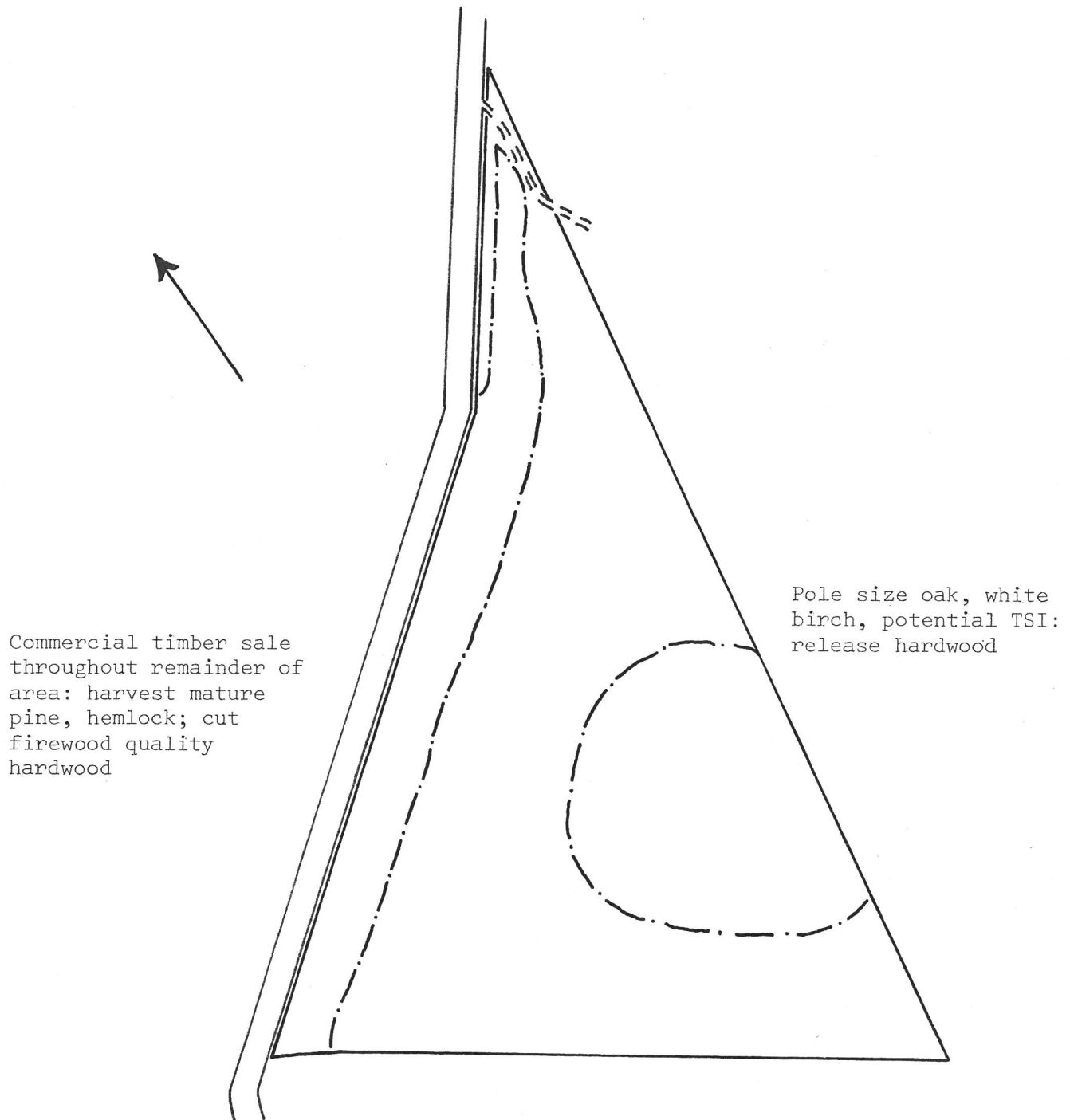
Hardwood sawtimber	37,700 board feet
Softwood sawtimber	59,500 board feet
Hardwood pulpwood	69 cords
Softwood pulpwood	2 cords

The following recommendations are made to enhance the productive potential of the area:

1. Lay out and construct an access road.
2. Plan a selective cutting operation to remove all firewood quality hardwood and overmature diseased white pine.

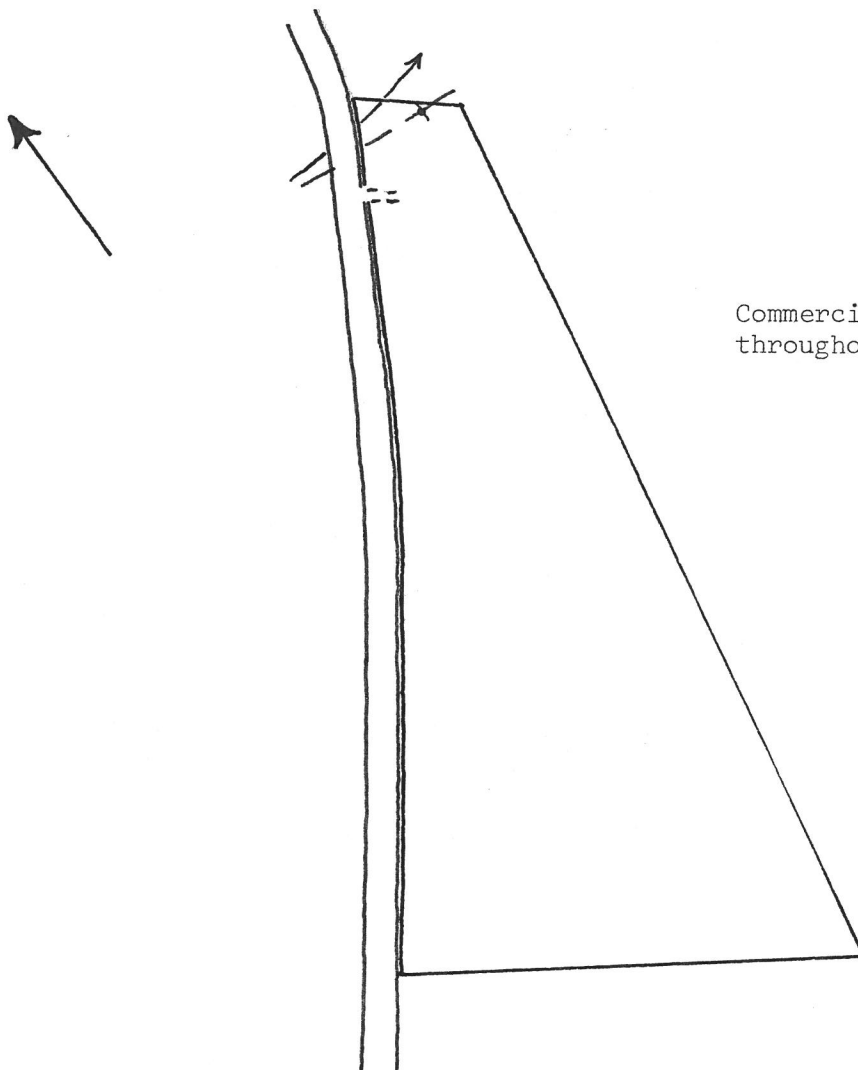
Compartment #7A 30⁺ Acres

Mixed hardwood and softwood 40-60 years old



Compartment #7B 16⁺ Acres

Mixed hardwood and softwood 40-70 years old



Commercial timber sale
throughout this area

Compartment #8

(Bickford Lot)

This acquisition added 115+/- acres to the County Farm. The lot was acquired about 1975 from Mr. Fred Bickford of Sandwich, NH. Prior to its sale to the County, Mr. Bickford conducted an intensive timber sale throughout the merchantable acreage. It is estimated that approximately 70% of the area or 70-80 acres was harvested.

The cutting was strictly a diameter limit, high grading operation. It was apparent that most trees 12" and larger were removed. Cull quality white pine and mixed hardwood remain in the harvested area.

The 1979 timber cruise revealed the following volumes:

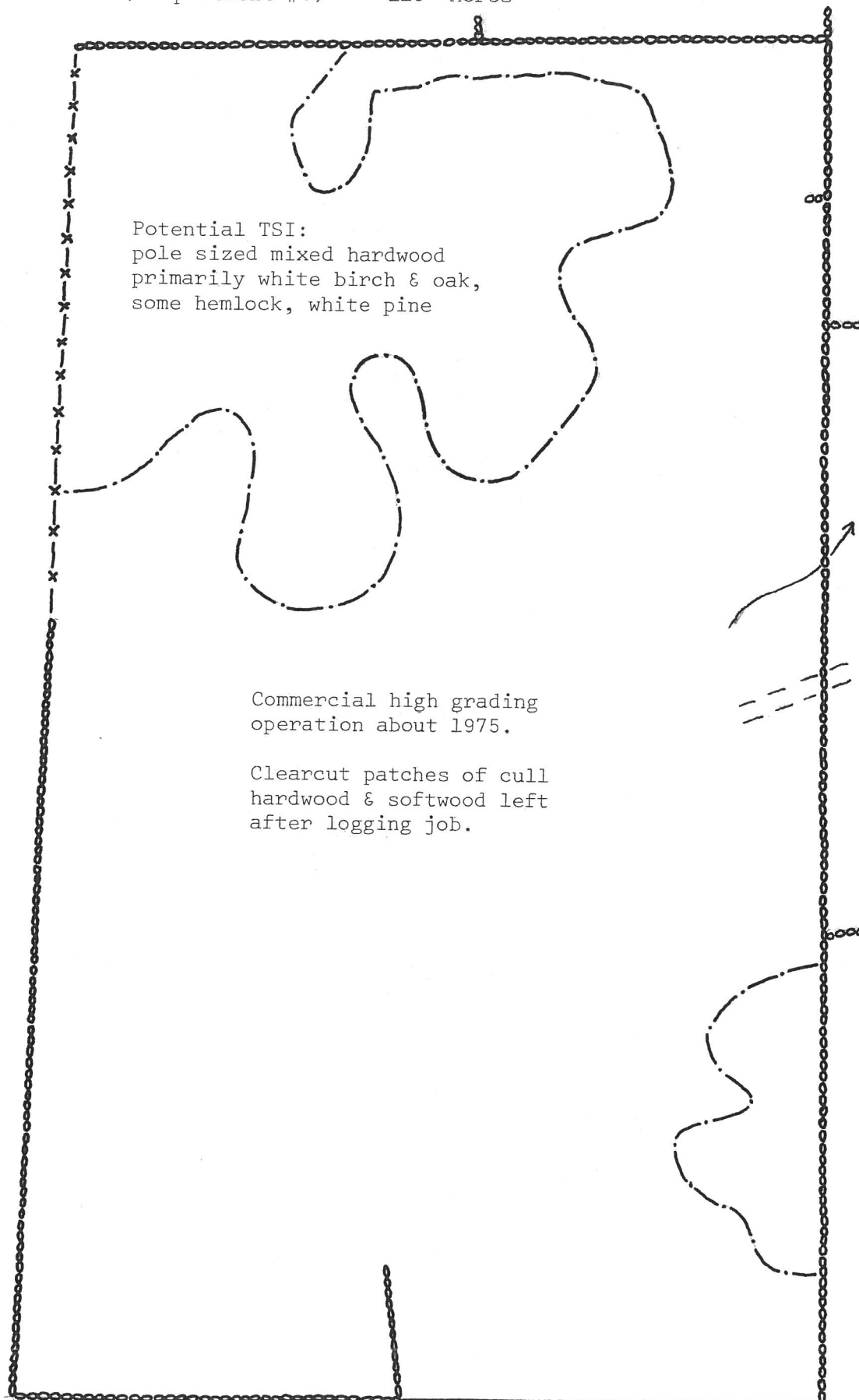
Hardwood sawtimber	32,900 board feet
Softwood sawtimber	142,700 board feet
Hardwood pulpwood	372 cords
Softwood pulpwood	56 cords

The following management recommendations are made to enhance the productive potential of this acreage:

1. Lay out and construct an access road system to facilitate management activities.
2. Clearcut those patches of inferior hardwoods and softwood left after the recent cut. It is important to remove all of this inferior growth and allow natural regeneration to reforest these areas. The present residual stand will develop into larger cull trees, inhibiting the development of more desirable growth.
3. Approximately 20-30 acres of area qualifies for timber stand improvement work under the federal cost share program. This work should be performed by a competent consulting forestry crew rather than the prison help.
4. Once the above recommendations are performed, it will be a wait-and-see situation. Access roads should be water barred, seeded and mowed once a year to provide ready access.

Bickford Lot (Compartment #8)

115⁺ Acres

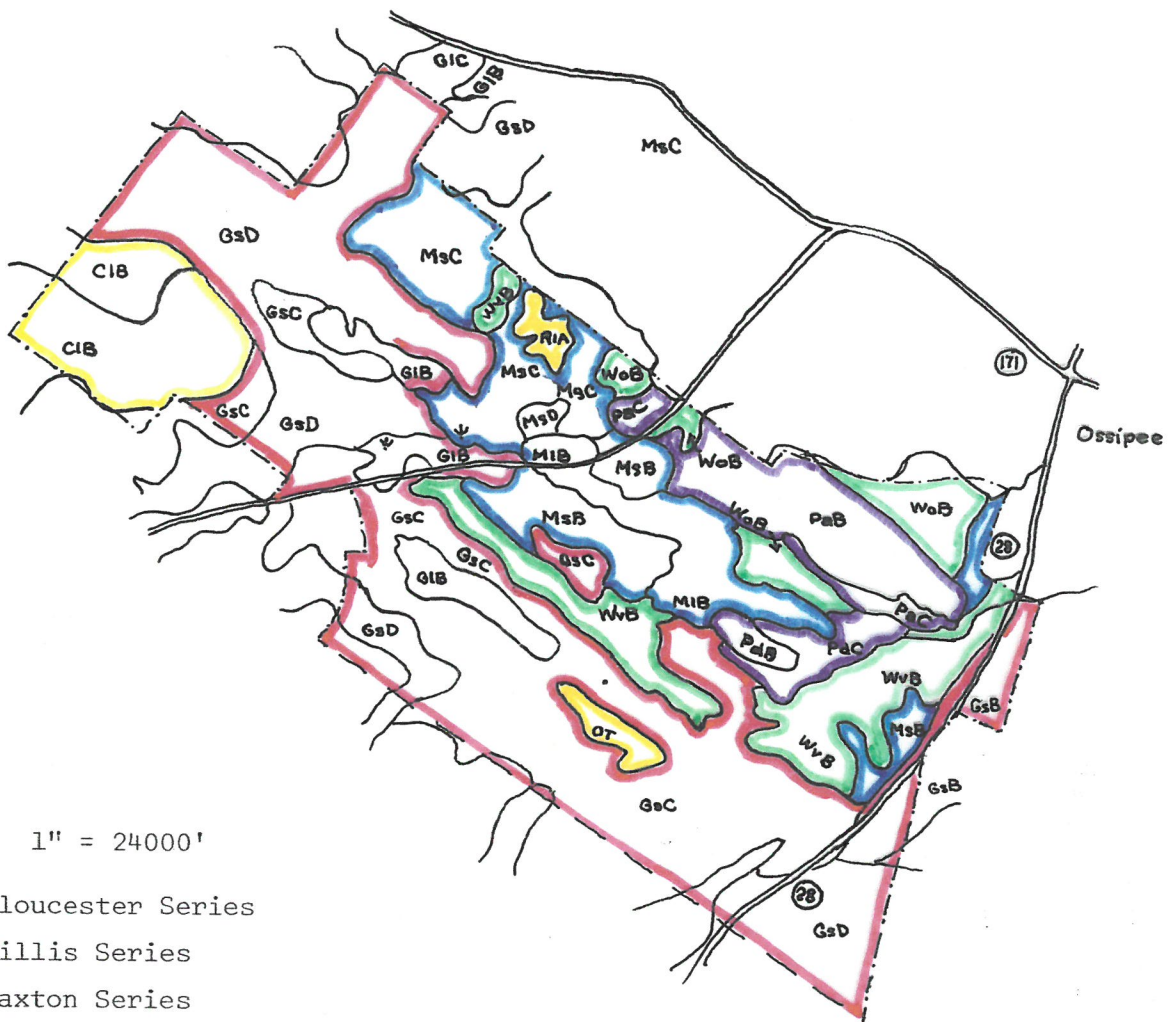


SUMMARY






This management plan presents a current assessment of the forest resources at the County Farm. General and specific compartmental recommendations are included in order to permit more intensive management of this property. As County Forester, I am prepared to assist the Farm Manager and staff with the implementation of these recommendations. It is my opinion that these suggestions must be incorporated if this woodland is to provide a sustained yield of diverse forest products and income. A plan is only as good as its implementation. It is my hope that a concerted effort can be made to implement this plan.

APPENDIX A

Carroll County Farm - Soils Map



Scale: 1" = 24000'

-  Gloucester Series
-  Millis Series
-  Paxton Series
-  Woodbridge Series
-  Other (Charlton, Ossipee and Ridgebury Series)

For detailed descriptions of soils, see the Soil Survey of Carroll County; USDA:SCS & USFS, 1977.

Compartment	Acres	Merchantable Sawtimber Volume - in Board Feet							
		Hardwood		Softwood		Total		Average per Acre	
		1969	1979	1969	1979	1969	1979	1969	1979
#1	103	* 104,476 584,900	148,700	* 279,410 660,900	423,300	* 383,886 1,245,800	572,000	12,095	5,553
#2	92	122,600	72,200	311,200	424,300	433,800	496,500	4,715	5,397
#3	54	43,800	43,100	472,700	336,600	516,500	379,700	9,565	7,031
#4	75	85,500	59,900	481,800	624,800	567,300	684,700	7,564	9,129
#5	135	455,700	264,700	281,500	268,500	737,200	533,200	5,461	3,950
#6	79	85,000	75,100	342,200	389,700	427,200	464,800	5,408	5,884
	538	* 897,076 1,377,500	663,700	* 2,168,810 2,550,300	2,467,200	* 3,065,886 3,927,800	3,130,900	7,468	5,820
#7A	30		18,500		120,400		138,900		4,630
#7B	16		37,700		59,500		97,200		6,075
Bickford Lot	115		32,900		142,700		175,600		1,527
	699		752,800		2,789,800		3,542,600		5,068

1969 Total volume of wood (sawtimber and pulp) = 9,521.6 cords, or 17.7 cords per acre (2 cords = 1,000 bd.ft.)

1979 Total volume of wood (sawtimber and pulp) = 7,883.0 cords, or 14.7 cords per acre
(for the same area: compartments 1 thru 6)

1979 Total volume of wood (sawtimber and pulp) = 9,261.0 cords, or 13.2 cords per acre
(for the entire area: 699 acres)

* The figures in red were derived by discounting at 4% for 9 years the 1978-79 cruise data for this compartment. It is felt the 1969 figures for this compartment are in gross error. No cutting had been done in this area between the two cruises.

Merchantable Pulpwood Volume - in Cords*								
Hardwood		Softwood		Total		Average per Acre		
1969	1979	1969	1979	1969	1979	1969	1979	
415	440	34	70	449	510	4.4	5.0	
244	83	26	53	270	136	2.9	1.5	
76	155	32	34	108	189	2.0	3.5	
154	227	16	15	170	242	2.3	3.0	
479	474	6	32	485	506	3.6	3.7	
123	38	62	0	185	38	2.3	.5	
1,491	1,417	175	204	1,666	1,621	3.1	2.8	
	45		11		56		1.9	
	69		2		71		4.4	
	372		56		428		3.7	
	1,903		273		2,176		3.0	

*This estimate does not reflect the salvagable pulpwood in the sawtimber trees.

APPENDIX C

CARROLL COUNTY FARM

(Recorded) Timber Harvested Between 1969-1978

Year	Compartment(s)	Sawtimber (bd.ft.)		Pulpwood (Firewood) (cds.)	
		Hardwood	Softwood	Hardwood	Softwood
1970-71	3,4,6	27,000 •	559,000		
1973				97	
1974				118	
1975				120	
1976			20,000	204	
1977			23,780	236	
1978			32,000	318	
TOTAL		27,000	634,780	1,093	