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**SECTION 480a  
NEW YORK STATE'S APPROACH TO  
FOREST TAXATION**

**A Public Policy Review**

**By  
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SECTION 480a --

NEW YORK STATE'S APPROACH TO FOREST TAXATION --

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by Roy Fox and Cynthia McGaw<sup>1/</sup>

Introduction

During the past decade, owners of forest land in New York have been faced with increasing costs in all aspects of wood fiber production. Those who own land primarily for the production of forest products have felt not only increasing energy and labor costs in management, but also the rapid rise of property taxes. These pressures are believed by some to be great enough to force certain land owners out of forest management, resulting in a potential loss of the more valuable timber products. While timber will still grow in an unmanaged stand, practices such as thinning, pruning, carefully planned harvesting and reforestation often result in a forest of higher quality trees, thus more valuable timber products, and help to foster a healthier future forest. Also, the managed timber holding may provide a better basis for mitigating soil erosion, wildlife habitat damage and other environmental impacts sometimes associated with opportunistic harvesting of unmanaged forests.

In 1974, the New York State Legislature, amending the Fisher Act of 1926, enacted Section 480a of the Real Property Tax Laws. This act provides tax relief to forest land owners who desire to manage their lands for wood fiber production. Section 480a reached its final form in 1976 and the first tracts received tax exemptions on the 1978 tax rolls. During the first two years 96 properties, with over 47,000 acres, participated in the program.

This paper concerns itself primarily with owners of small woodlots. First, we will focus on the intent of 480a as perceived by various groups. The major aspects of the program are then summarized, especially in terms of individual forest owners' responsibilities and commitments. Specific methods for calculating the tax exemption for an individual property are illustrated. Monetary and nonmonetary considerations which each forest

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owner must make when considering enrollment in 480a are described. The overall costs of enrollment are shown for hypothetical situations. Finally, the effectiveness of 480a will be looked at from the general, state viewpoint.

To evaluate 480a, we have used the following model. When a tax incentive program is enacted, the state decision makers are assumed to have in mind some part of the population they wish to have enrolled in the program. The intent of the legislators, administrators, and public goals should determine the characteristics of this population and the changes in their behavior expected due to the incentive. The incentive should then be in a form and of a size which result in a maximum number of enrollees from the population intended. Possible areas of change within 480a as well as other approaches are discussed in reference to these general state objectives.

#### Views of 480a

The Fisher Act, predecessor of 480a, contained a statement indicating that the act was designed for "reforestation of idle lands". Section 480a, on the other hand, contains no direct statement of intent, though many individuals and groups who have been involved with the new law hold relevant opinions on why tax relief is needed for forest lands and, more specifically, why the form of Section 480a should be effective.

To reliably determine the differences in perception due to differences in point of view, key informants involved in the process that led to the adoption of 480a were interviewed. Such policy changes occur via interaction of several networks of people, each with a particular point of view on the issue. Interviewing a member of one network will result in additional names in that and other networks. When further interviews in the various networks add few names to the list of key participants, closure has been reached. A sample from each network then allows for a reliable characterization of that group's perception.

Many of the more adamant proponents of Section 480a saw three major reasons for such an act. The first was to protect land which is currently producing timber from encroachment by other uses. They emphasized the overall value of the continued existence of commercial quality private forest land. In part, it was feared that some owners currently managing their land for wood products would sell to others not interested in continuing sound forest management practices. Thus, the land may be subject to occasional high grading, taking only the prime trees, leaving behind a stand of poor quality and species composition. Or the forest may be completely harvested with no thought given to future harvests.

Second, an opportunity was seen to bring idle forest quality land into production, along with improving management on all timber lands. In other words, it was felt that many owners of land capable of producing quality wood products need encouragement to manage it. Privately owned nonindustrial forest lands are largely an under-utilized resource in New York State with a potential to meet some of the increasing demand for forest products. Those to be certified under Section 480a would

have a genuine interest in continuing forest production and improving the quality of the timber stand on their property. This could prevent deterioration of the timber base now attributed to bad practices.

Finally, Section 480a was seen as a means of modernizing the Fisher Act in line with current state goals. Land already under Fisher may elect to remain or switch to 480a. No new land will be certified for the Fisher Act. Under the 1926 act, the stumpage yield tax was proportioned  $\frac{2}{3}$  to the town and  $\frac{1}{3}$  to the school district. This is no longer in line with the overall allocation of tax dollars between these jurisdictions. Section 480a distributes the yield tax revenue to the applicable taxing jurisdictions in the same proportions as revenues from other sources. A management plan was not required under Fisher, nor were harvests required until the stand volume averaged 40,000 board-feet per acre for softwood and 20,000 board-feet per acre for hardwood. These figures exceed the potential for many New York sites, resulting in little incentive to harvest and leaving many overmature stands. There was no incentive to improve the quality of any stand or make a secure commitment to good forestry. These problems are addressed in 480a via the required management plan and penalties.

Many people closely associated with the forest industry feel that the absolute size of this economic sector will decline. Reasons for this include increases in the costs of holding land (i.e., taxes and inflation) in an endeavor which results in great cash flow problems for the small owner. Tax increases may be more rapid for forest owners than others at this time because of statewide revaluation which will bring assessments for all land uses to their full market value. Rural lands (vacant, forests, farms) have been valued at a lower percentage of full market value than other uses in the past. Forest owners, it is reasoned, may no longer be able to find the funds to pay both the costs of management and the large increases in taxes on an annual basis. It is feared that many will reduce or discontinue expenditures on management as a result. Others considering management may not wish to assume an additional burden, while some may sell their land to owners not interested in wood fiber production. The end result will be a smaller amount of high quality timber available for future harvest.

The decisions on forest product management made by the owner would seem to take account of two basic considerations. First would be the tradeoffs between timber harvesting and any other values derived from the land. Second would be whether the net gain in timber value exceeded the opportunity cost of the time and money invested in management in order to realize the gain. If an individual could invest funds, be it in a savings account or some other investment, and earn more than the increased timber value brought about by management, why manage? But many people note that because private investments are taxed, are influenced by risk, do not reflect the preferences of future generations, and are understandably concerned more with the short run, there may be a divergence between desirable levels of private and social investments. Society must be concerned with the long run and programs such as 480a are ways of addressing this divergence. The problem comes when increased social investment in, say forestry management, must come from taxpayers who prefer the shorter run and higher rates of return. It is argued, however,

that preserving the productive capacity of a resource such as forests should have priority over more destructive uses. 2/

The property tax system does not automatically adjust to take into account the special cash flow problems faced by the owner of a long term crop such as timber. The tax system may hurt forest owners, especially in areas where forest lands are placed in a category with open or vacant lands and taxed based on the assessor's evaluation of what the market sees as "highest and best use" for the land. The annual tax burden which many of these uses can carry is well above that of a crop such as timber which may take over thirty years to yield a marketable harvest. Over-assessment may not be considered a problem when land can actually be put into the more lucrative use. But the market tends to value a greater quantity of land for the higher assessed uses than is really demanded. But since the higher valued use is still expected by the owner, capital investment for the lower valued use, timber production in this case, are not maintained. 3/ A uniform tax exemption for forest land was hoped to reduce such problems.

Local governments can be assured of fairly constant but lower tax revenues from forest lands with an act such as this. The tax burden is shifted to nonforest owners and forest owners not in 480a. Overall, many of the people picking up the tax shift receive benefits via esthetics and the like. Whether this shift is desirable has been debated. Payments to local governments are often examined in terms of the owner's ability to pay and the services rendered to the owner. The services required for land in forests are fewer than for land in many other uses. While some services may be demanded, forests add very little to the demand for police, fire protection, roads, sewers, and education. The service rendered to forest land is low and perhaps its tax burden should reflect this. An owner's ability to pay is a bit more difficult to assess. Revenues derived from forest ownership are seldom yearly and occur mainly at the time of commercial harvests. Thus, one may easily be talking of thirty to fifty year gaps between major revenue years. On this basis, then, forests generate very little in the way of an annual ability to pay. However, many owners maintain forests for reasons other than timber production. 4/ Also, the owner may realize a capital gain on both the value

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2/ For the development of the economic logic of some of these points, see E. J. Mishan, Cost-Benefit Analysis, Praeger Publishers, New York, N. Y., 1976, pp. 205-211; and John V. Krutilla and Anthony C. Fisher, The Economics of Natural Environments, Johns Hopkins University Press, Baltimore, Maryland, 1975, pp. 19-78.

3/ Allee, David J., 1978. Land Use Planning and Property Tax Reform. Cornell Agricultural Economics Staff Paper No. 78-10.

4/ For discussion of timber ownership patterns and the underlying reasons for ownership, such as recreational opportunities, scenic value, isolation, etc., see: Brown, Tommy L., Daniel J. Miller, Bruce T. Wilkins, 1977. "Rural Nonfarmed Lands and Their Owners in Five Central New York Counties", Search - Agriculture (New York State College of Agriculture and Life Sciences, Ithaca, N. Y.) 7(4):1-24.  
[continued on next page]

of the land and timber. While the cash is not in hand until the time of a sale, the gain is nevertheless present and it is argued that it should be taxed.

Many local assessors see no major effect on the problems associated with forest land assessment as a result of 480a. The tax benefit is merely an exemption which serves as a piecemeal approach to the problem without really attacking the root. Section 480a changes nothing in the way land is assessed. No guidelines for assessments based on the productivity of land or other timber related values are provided. Thus, forest land assessments can continue their rapid increase in some areas resulting only in larger exemptions for those enrolled in the program in such areas.

#### Specifics of 480a

Any landowner with fifty or more contiguous acres of forest land which is to be devoted to wood fiber production may apply for certification. The land must be stocked sufficiently to produce a merchantable crop within thirty years. Along with the application, a fifteen year management plan, a site map, and a twenty-five dollar application fee must be presented to the Department of Environmental Conservation (DEC) for approval. The DEC may prepare the management plan for a landowner of less than 200 acres at a minimal cost if DEC so agrees. (In many areas this is not likely because of DEC's heavy workload.) Such a management plan must stress forest crop production but may include other compatible uses if so described in the plan.

The application must then be filed at the County Clerk's Office and approved by the local tax assessor prior to taxable status date and listed as exempt on the tax rolls. The landowner commits the property to forest crop production for the next ten years by this process. Every year to follow, the owner must recommit his land for the next ten years in order to obtain a tax savings for that year. If the new commitment is not made, the ten year commitment of the previous year is still binding in terms of the landowner's responsibilities, though no tax exemption is granted. The landowner may recommit the property for a tax exemption at any time, but a complete reapplication must be made if five years have elapsed since the time of the last commitment. The landowner's responsibilities in the agreement are binding even to purchasers and inheritors of the land.

During the time of the commitment, at least ten acres or five percent of the total area needing work (whichever is greater) must receive timber stand improvement annually while meeting other management plan requirements. Up to five standard cords of wood per year may be removed for personal use. Commercial sales of forest products take place only after notification of the proper DEC and tax assessment representatives. Such sales must take place within two years after the date specified by DEC. A six percent yield tax on the stumpage value of the sale must be paid.



The tax exemption received is determined in one of two ways, whichever is the lowest. The results of these calculations depend primarily upon the land assessment and local equalization rate.

The two formulae are:

- 1) Exemption = 80 percent x assessed valuation/acre
- 2) Exemption = (assessed value/acre) - (equalization rate x \$40)

Thus, land assessed at \$100/acre with an equalization rate of .45 would find that equation one gives an exemption of \$80/acre and equation two an exemption of \$82. The smaller is allowed, and the land is assessed at \$20/acre. Figure 1 shows the appropriate formulae for a given equalization rate and assessed valuation. Any combination of assessed value/acre and equalization rate which cross in the upper region will use the first formula. Those combinations in the middle region use the second formula. Combinations in the lower region will find no tax benefit from the program.

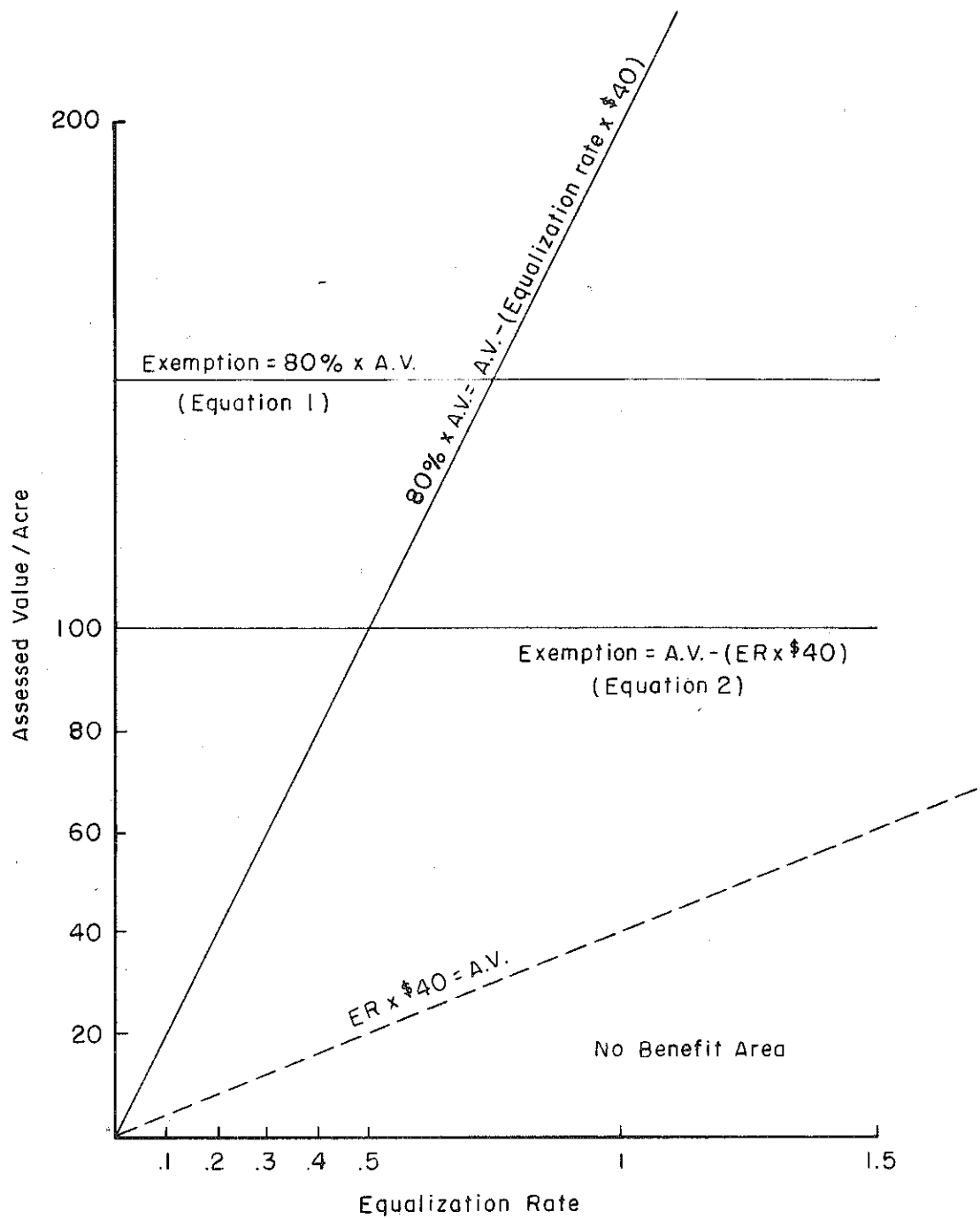
Any conversion from forest crop production as the primary use on all or part of the land or a failure to adhere to the management plan will make the owner subject to rollback taxes. A partial conversion leaving at least fifty acres still under 480a results in a penalty of five times the tax savings on the converted acreage for each year in the program, up to a maximum of ten years. A conversion of the entire tract is penalized two and one-half times the yearly tax savings, over the same time period. Either penalty shall include a six percent annual interest charge.

#### Considerations for Enrollment in 480a

The overall desirability of 480a must be assessed for each individual owner and each particular woodlot. There are both monetary and non-monetary factors to be considered. Some woodlot owners will find the program a welcome relief from burdensome taxation. Others will find the requirements too restrictive or even too expensive to be of any practical help.

Perhaps the first assessment of 480a made by the landowner should be of a nonmonetary nature. This is a program for wood fiber production, securing a crop in such a way as to foster a healthy timber base. Management for recreation, wildlife, aesthetics, or others is not recognized as a primary objective, but must always be subsidiary to timber. If an owner's objectives vary greatly from this, 480a will be of little use. An older owner will want to give special consideration to the fact that a 480a commitment will pass on to the surviving spouse or other heir. The implications of this in terms of financial, time and labor commitments imposed on the heir are important. The initial type and quality of the timber stand must be assessed to give an idea of just how much money and effort will be invested under the management plan. Someone planning on doing most of the management should carefully consider the volume of work and necessary skills required along with a realistic consideration of how long one will be willing and able to carry out this commitment. Regardless of who does the work, the proximity of the owner to land is important either in terms of doing the work oneself or contracting and making sure the work is carried out correctly.

FIGURE 1. APPROPRIATE 480a TAX EXEMPTION FORMULAE FOR VARIOUS EQUALIZATION RATES AND ASSESSED VALUATIONS



Questions which deal with future uses of the land should not be ignored. The development potential of land may be an important asset. Land located in the urban-suburban fringes may face actual development pressures. This is also true of woodlots with frontage on state and county roads or in close proximity to recreational features such as lakes, streams, and winter sports areas. Lands which might reasonably be expected to rise greatly in value may best be withheld from 480a for future sale. While conversion is possible, even after entry under 480a, the penalties are a deterrent, and the rolling ten-year commitment may discourage future buyers. However, 480a may act as a cushion to help relieve some of the tax burden caused by development pressures. This may provide the means necessary for some owners to keep their land in timber.

Timing of 480a is important. Owners with a major commercial harvest in the near future will want to compare any interim savings to the six percent yield tax which will be paid if the harvest comes under 480a. Enrollment of such land might possibly be delayed to avoid the yield tax. The harvested land could then be added to an already enrolled acreage or must be replanted so as to secure a merchantable crop within 30 years to qualify for 480a on its own.

All owners would like to be able to calculate a tax savings from enrolling in 480a. And, for most, this will be possible. However, there are two additional factors to consider. Complying with a 480a management plan may be costly. The magnitude of the tax savings alone is not as important as the savings net of 480a incurred costs. In the broader picture managed lands may produce a greater future income over an unmanaged timber stand. So beyond this simple net tax savings there may be a net addition to income from increased timber value. These total direct monetary figures should be weighed together, say over the life of the first fifteen year management plan.

To do this one must know several items: 1) acres involved, 2) assessed value, 3) equalization rate, 4) tax rate, 5) management plan cost, 6) application fee, 7) cost of complying with the management plan. In any one year, this is sufficient information to calculate that year's benefits. To carry the calculation on into the future one would also have to make an intelligent guess as to a discount rate, some rate of increase for assessed value and tax rate, and an inflation factor for labor costs. Certain assumptions about the value of the timber must also be made. /See appendix for an explanation of growth rates, timber values and costs used in the following calculations./ Even without 480a an owner could manage a woodlot and conduct harvests. The management may be anything from an owner's intuitive feel for forestry to the expertise of a hired professional forester. Under 480a, however, the management must conform to DEC guidelines, which may entail a greater expenditure of resources. Following management plans based on sound principles of forestry should allow one to market a higher quality product. For purposes of comparison, we will assume the owner is not now engaging in management activities. This will allow us to value at market prices the work required under 480a.

Let us look at an example to see how this would all work. Assume we are owners of a woodlot of 100 acres currently assessed at \$100 per acre with an equalization rate of 1. The woodlot is a thirty-five year

old mixed hardwood stand growing on a medium site. The present tax rate is \$50 per \$1000 of assessed value. If trends continue, one might expect an eight percent per year increase in assessed value with a relatively constant tax rate. A discount rate of ten percent is assumed. These figures are meant only to represent a possible situation, and will vary widely across the state and individual woodlots.

Without 480a the present value of the owner's tax bill over the next fifteen years would be \$6615. In fifteen years, given no management, this stand could be liquidated, most likely for pulpwood, bringing in a discounted amount of about \$1700.

With the exemption this woodlot has a present value tax bill of \$1755. Figure 2 shows the present value of this tax bill as the assessment per acre changes with all other values remaining constant. The tax savings in the above case is \$4860 as indicated by the distance between the two lines. For any given situation this same general divergence between 480a and non-480a tax bills would be noted.

But there are now costs being incurred which were not with the unmanaged forest. The expected costs of complying with the management plan are \$4085 /see appendix/. The present value of the net savings is, thus, only \$775. Most likely the managed forest will be worth more at the end of the fifteen years than was the unmanaged, due to some improvement in timber quality. Liquidating the entire stand as one-half sawtimber, one-half pulpwood, for ease of comparison, would bring in a yield with present value of \$3800, or \$2100 more than the unmanaged stand. This includes the six percent yield tax.

At the end of fifteen years, then, this owner has a net gain on the 480a program of \$2875 including the gain on timber value. If the owner decides to withdraw from 480a at this time, that is, to receive no exemption and not follow the management plan, the penalty provision would be invoked. A complete conversion would be penalized at two and one-half times the tax savings in each of the last ten years plus a six percent interest charge compounded annually. For this individual the penalty would be \$26,800 in the year of conversion, which has a present value of \$7,065. This amount more than offsets any interim gain from the 480a exemptions and increased timber value. Total present value of taxes on the land were \$6615 without 480a and with the conversion the owner pays a present value of \$8820 in taxes and penalties, a difference of \$2205. An increased timber value of \$2100 leaves this owner slightly behind doing nothing but liquidating the stock at the end of fifteen years. And the penalty fifteen years hence will be payable in full with the next tax roll.

Unfortunately, these calculations contain a great many variables. We cannot know future assessed values, tax rates or inflation rates. As they change, so do the economics of 480a. In fact, given the same figures but using a \$25/\$1000 tax rate, the present value of tax savings is only \$2250, not enough to cover the costs of the 480a management requirements. At a tax rate much below \$45/\$1000 taxable assessed value, there are no net savings on taxes. But the owner may still wish to use 480a as a way to underwrite management costs which were to be incurred in any case.

Table 1 shows various assessing and taxing situations which may exist in New York and the potential tax savings possible with 480a. Comparing these figures with the cost of compliance will give an idea

FIGURE 2. PRESENT VALUE OF THE FIFTEEN YEAR TAX BILL WITH AND WITHOUT 480a FOR THE WOODLOT EXAMPLE IN VARIOUS ASSESSING SITUATIONS

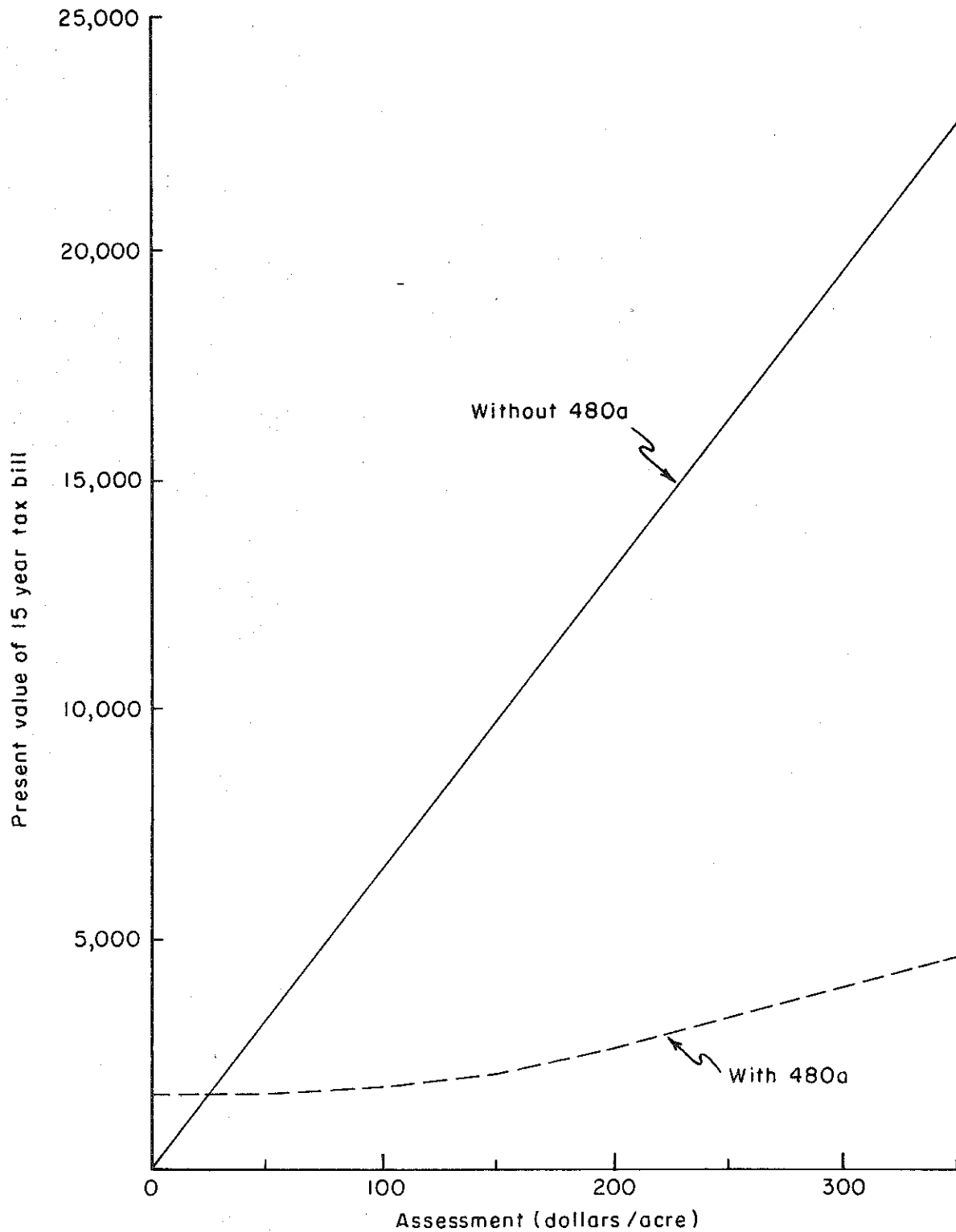


Table 1.

Present Value of Tax Savings  
Appreciation Rate = 0.08  
Discount Rate = 0.10

<u>Tax Rate/\$1000</u>	<u>Assessed Value/Acre</u>				
<u>Assessed Value</u>	<u>50</u>	<u>100</u>	<u>200</u>	<u>300</u>	<u>400</u>
15	491.	1460.	3181.	4772.	6360.
25	818.	2434.	5302.	7953.	10600.
30	981.	2920.	6363.	9543.	12720.
35	1145.	3407.	7423.	11134.	14840.
40	1308.	3894.	8484.	12725.	16959.
50	1635.	4867.	10605.	15906.	21199.
75	2453.	7301.	15907.	23859.	31799.
100	3270.	9734.	21209.	31812.	42399.
150	4905.	14602.	31814.	47718.	63598.

Present Value of Tax Savings  
Appreciation Rate = 0.05  
Discount Rate = 0.10

<u>Tax Rate/\$1000</u>	<u>Assessed Value/Acre</u>				
<u>Assessed Value</u>	<u>50</u>	<u>100</u>	<u>200</u>	<u>300</u>	<u>400</u>
15	327.	1156.	2657.	3986.	5311.
25	545.	1926.	4428.	6643.	8852.
30	654.	2311.	5313.	7972.	10622.
35	763.	2697.	6199.	9301.	12392.
40	872.	3082.	7084.	10630.	14162.
50	1089.	3852.	8855.	13287.	17703.
75	1634.	5778.	13283.	19930.	26555.
100	2179.	7704.	17710.	26574.	35406.
150	3268.	11557.	26566.	39861.	53109.

Present Value of Tax Savings  
Appreciation Rate = 0.08  
Discount Rate = 0.07

<u>Tax Rate/\$1000</u>	<u>Assessed Value/Acre</u>				
<u>Assessed Value</u>	<u>50</u>	<u>100</u>	<u>200</u>	<u>300</u>	<u>400</u>
15	617.	1786.	3852.	5777.	7700.
25	1028.	2977.	6420.	9628.	12833.
30	1234.	3572.	7704.	11553.	15399.
35	1440.	4168.	8987.	13479.	17966.
40	1645.	4763.	10271.	15404.	20532.
50	2056.	5954.	12839.	19256.	25665.
75	3085.	8931.	19259.	28883.	38498.
100	4113.	11908.	25678.	38511.	51331.
150	6169.	17862.	38518.	57767.	76996.

Present Value of Tax Savings  
Appreciation Rate = 0.05  
Discount Rate = 0.07

	Tax Rate/\$1000		Assessed Value/Acre			
	Assessed Value					
		50	100	200	300	400
15		404.	1393.	3170.	4756.	6337.
25		674.	2322.	5283.	7927.	10562.
30		809.	2787.	6340.	9513.	12675.
35		943.	3251.	7397.	11098.	14787.
40		1078.	3716.	8454.	12684.	16900.
50		1348.	4645.	10567.	15855.	21125.
75		2022.	6967.	15850.	23782.	31687.
100		2696.	9290.	21134.	31709.	42250.
150		4044.	13934.	31701.	47564.	63374.

as to whether 480a is worthwhile. A poor growing site reduces the gain in timber value from management. A woodlot initially in good shape could have much lower costs of management. An owner capable of doing most of the required timber stand improvement may write these costs off at a very low rate for reasons such as slack time, benefit of exercise, or enjoyment of the outdoors. The end result is that each potential 480a candidate will need to make an individual assessment of management costs and tax benefits.

#### Assessment

One not only wonders whether 480a is the correct approach for an individual, but also for the state. Are the tax exemptions granted via this program appropriate in magnitude, and are they the correct method of fostering a timber base? While the state's forest potential as a whole is greatly underutilized in a biological sense, taxes may not be the sole or even major cause. Many woodlot owners may not view taxation as a primary concern. Tax relief, then, may have but a marginal effect.

The state may influence individuals' actions either by regulation or by offering incentives or bribes (e.g., tax benefits, direct payments, etc.). Section 480a is an incentive which attempts to secure a greater social benefit for the state from forests. While forests, managed or not, benefit the state via recreational opportunities, wildlife habitat, esthetic values, erosion control, water quality and quantity effects, and employment associated with forests and forest products; and the state may specifically promote any one or a number of these, section 480a explicitly recognizes only commercial forestry as its objective.

Private owners probably fail to incorporate most of these benefits when valuing forest land. It is difficult for a private owner to receive any monetary compensation for, say, the esthetic enjoyment of the land by neighbors and tourists. Public forests provide many of these benefits, also with no direct charge on the user. The diffuse nature of the benefiting group makes it impractical to extract payment in many cases.

Small forest owners, especially, have other reasons for discounting the value of forest land. The risk of fire and pestilence is borne solely by the owner (owners of large tracts may find it practical to insure via preventive measures, maintaining, say, fire equipment, or purchasing insurance policies). The time frame for a timber investment is beyond many individuals' time horizon. Little or no return accrues to an owner while waiting for commercial harvests.

The state, then, may attempt to influence some of these factors to gain some greater benefit. When offering an incentive such as 480a, four things must be considered. First, who is it that needs to be bribed? One must identify the group or groups which require an incentive to bring their behavior into line with the state's goals. Secondly, it may be appropriate for the benefiting group to provide the supporting payments. This simply means that the method and level of finance should approximate the distribution of the benefits. Beyond these two considerations one must look at how to deliver the incentive and of what size it should be. Incentives may be provided through direct payments, matching grants, low interest loans, tax credits, and assessment consideration among others. Obvious connections between the method of delivery and the problem the state is trying to solve should be exploited, while attempting to minimize costs of administration and maintain an incentive to join the program. Overall, one wishes to offer a bribe sufficiently large to attract participants. However, it should not be so large as to result in a poor return when the costs of the program are compared to the value of its effects.

Section 480a has focused on the individual property owner as the group needing to be bribed. The group has been defined by imposing restrictions such as ownership of a minimum of fifty acres and willingness to comply with a management plan, and to meet a ten year commitment. Obviously, this is not the only approach that could be followed. Because the costs of forest management appear to increase with decreasing size, bribing individuals through an aggregation of small forest owners may be more effective. <sup>5/</sup> It may even be that consolidation of action by dispersed ownership might best be done from the demand side. Encouraging timber consumers (eg., mills, purchasing agents, etc.) to coordinate small owners is feasible, as with the programs such as the Landowner Assistance Program developed by the International Paper Company and operating in areas of Maine, Vermont and New York. The Company provides the owner with information on cost sharing programs, advice, professional guidance and a management plan. In return, the forest owner promises to practice good forest management and to offer International Paper the first right of refusal for wood harvested from the property. <sup>6/</sup>

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<sup>5/</sup> Row, Clark, 1978. "Economies of Tract Size in Timber Growing", Journal of Forestry, :576-582.

<sup>6/</sup> International Paper Company (no date), Landowner Assistance Program.



With a strictly wood production goal the appropriate group to be bribed could be limited to only those whose land has the best potential for timber production. This will maximize effectiveness per unit cost of the program. Section 480a refers only to potential in terms of a thirty year marketable crop (which can be something less than a sawtimber harvest) while at the same time arbitrarily limiting acreage to a minimum of fifty acres, regardless of its potential. This last restriction alone eliminates about one-half of New York's private forests.

The incentive provided in 480a comes via a reapportionment of taxes within a taxing jurisdiction. The exemptions are borne by others in the jurisdiction not in 480a. If, however, the benefits accrue to some wider populace via employment in other regions, esthetic pleasure, etc., a broader funding base could be used, perhaps using general state funds to provide the incentives.

As 480a is a property tax exemption, one might look for a connection between tax burdens and a willingness to be in timber production. But there is evidence that many own forests for reasons other than timber production. A tax exemption may not be a sufficient incentive if the owner is willing to carry the tax burden but perceives a conflict with the goals of 480a. An educational program aimed at reducing or eliminating these perceived conflicts and clarifying the costs and benefits of timber production may be a useful approach in bringing this group of forest owners into timber production.

The size of the incentives provided by 480a are related to "excessive" tax burden, as calculated by the two equations for exemption, times the tax rate. The property owner is granted this entire exemption on the assumption that this is the amount needed to make the property economical for timber production. This might only be true of the owner who derives no satisfaction from growing timber on its own nor places a value on the other benefits such as wildlife or recreation. We need to see how much land is entering 480a which would not normally have been in managed timber production. This figure would indicate whether the tax benefit is too small to attract a large percentage of possible participants. However, if land is entering which has already been committed to and will probably stay in managed timber production, then the incentive may be too large or unnecessary.

As mentioned earlier, a theoretical argument can be made that the difference between the private level of investment, as reflected in a ten percent discount rate, and the public investment in resource protection, as reflected by a discount rate perhaps as low as two to four percent, is the proper measure of the size of the incentive. Since the incentive is not linked to the cost of management, 480a would not be expected to fit this argument. It is clear that other considerations are involved.

Table 2 shows the distribution of commercial forest land by type of ownership and the distribution for 480a enrolled property for the first year. A much greater percentage of land in the program is owned by municipalities and/or the forest industry than would be expected from the overall state distribution. During its first year roughly 15,000 acres or less than 0.1 percent of commercial forest were enrolled, only 60 percent of which was in private hands. Participation was much

less than other programs such as Agricultural Districts where 172,308 acres, or about 2.5 percent of farmland, enrolled in the first year. However, the Agricultural Districts program had a great deal of lead time and active backing by various agriculturally related groups. The 480a program had a very short initial enrollment time and does not benefit from an active recruitment of landowners.

Table 3 shows the distribution of forests, commercial forest land, Fisher land and 480a land by county for the first two years of the program. It should be remembered that the terms "forested area", "commercial forest land", and "area currently enrolled under Fisher Act" do not imply that management activities comparable to those under 480a are or are not being carried out. Commercial forest land only means that the land is capable of producing fifty cubic feet of wood per acre per year. A larger area of the total in 480a is in suburban and recreational counties such as Delaware and Orange Counties than in more rural counties. Fisher, however, has large areas in the rural, upstate counties. This can be attributed to the higher assessments in the urban-suburban areas and a large portion of forest industry lands primarily in Fisher. A lack of participation, if it should continue, may call for some immediate changes in 480a.

Table 2. Ownership Patterns for New York State's Commercial Forest Land and Land Enrolled in 480a After one Year

<u>Type of Ownership</u>	<u>Commercial Forest Land</u>		<u>Land Enrolled in 480a</u>	
	<u>Thousand Acres</u>	<u>Percent</u>	<u>Thousand Acres</u>	<u>Percent</u>
County & Municipal	123.1	.9	6.7	43.5
Other Government	768.9	5.4	--	--
Industry	1,180.2	8.3	2.5	16.2
Private	<u>12,208.8</u>	<u>85.5</u>	<u>6.2</u>	<u>40.3</u>
	14,281.1	100.1	15.4	100.0

Table 3. Forested Area of New York State Counties of Commercial Quality, Enrolled Under the Fisher Act, and Enrolled Under 480a, as of May 1, 1979

County	Forested Area		Commercial Forest Land		Area Currently Enrolled Under Fisher Act		Area Currently Enrolled Under 480a	
	Thousand Acres	%*	Thousand Acres	%*	Thousand Acres	%*	Thousand Acres	%*
Albany	133.3	40	130.5	39	--	--	--	--
Allegany	411.3	61	408.8	61	1.5	2.3	.1	a
Broome	242.5	53	240.8	53	.7	.1	.1	a
Cattaraugus	528.3	62	467.0	55	2.2	.3	--	--
Cayuga	133.3	30	130.8	29	.2	a	--	--
Chautauqua	348.2	50	346.4	50	.9	.1	.1	a
Chemung	139.0	52	138.6	53	.2	a	--	--
Chenango	300.5	52	300.5	52	1.3	.2	2.3	.4
Clinton	488.6	72	450.2	66	21.4	3.2	--	--
Columbia	208.1	50	203.6	49	.6	.1	.3	.8
Cortland	158.6	49	158.5	49	.1	a	.1	a
Delaware	615.8	66	553.5	59	3.5	.4	6.4	.7
Dutchess	264.6	51	251.1	48	5.8	1.1	.3	a
Erie	206.2	30	203.7	30	.3	a	--	--
Essex	1068.0	92	588.6	50	107.8	9.2	--	--
Franklin	889.7	83	654.8	61	110.1	10.3	2.2	.2
Fulton	245.0	77	173.9	55	7.1	2.2	.5	.2
Genesee	93.5	29	92.2	29	--	--	--	--
Greene	292.0	70	221.0	53	a	a	--	--
Hamilton	1080.7	97	366.8	33	135.5	12.2	--	--
Herkimer	686.0	75	395.2	43	6.0	.7	1.7	.2
Jefferson	351.6	42	314.4	38	.1	.2	--	--
Lewis	622.1	75	561.3	68	8.7	1.1	--	--
Livingston	124.5	30	107.2	26	--	--	2.7	.6
Madison	191.7	45	191.4	45	.7	.2	.2	a
Metropolitan	--	--	--	--	--	--	--	--
Monroe	68.4	16	61.7	14	--	--	--	--
Montgomery	65.2	25	63.5	24	--	--	--	--
Niagara	58.1	17	58.0	17	--	--	--	--
Oneida	390.7	50	357.6	46	.1	a	--	--
Onondaga	165.0	32	161.7	32	.2	a	--	--
Ontario	118.7	28	117.4	28	.1	a	3.1	.7
Orange	253.5	48	238.3	45	--	--	10.5	2.0
Orleans	50.9	20	49.7	20	--	--	--	--
Oswego	389.9	63	389.0	63	.2	a	--	--
Otsego	334.7	52	332.1	51	.7	a	.2	a
Putnam	98.3	66	84.7	57	.5	a	--	--
Rensselaer	246.1	58	243.8	57	.1	a	--	--
St. Lawrence	1241.1	70	315.0	60	98.5	5.6	.3	a
Saratoga	333.7	64	45.7	35	34.7	6.6	--	--
Schenectady	46.9	35	205.0	51	--	--	--	--
Schoharie	215.1	54	109.6	52	.2	a	.1	a
Schuyler	110.6	52	37.8	18	a	a	--	--
Seneca	38.8	18	433.7	48	--	--	--	--

County	Forested Area		Commercial Forest Land		Area Currently Enrolled Under Fisher Act		Area Currently Enrolled Under 480a	
	Thousand Acres	%*	Thousand Acres	%*	Thousand Acres	%*	Thousand Acres	%*
Steuben	436.6	48	1085.6	61	.2	a	--	--
Suffolk	199.6	34	167.3	28	--	--	--	--
Sullivan	447.9	71	422.2	67	2.1	.3	9.6	1.4
Tioga	175.2	52	175.2	52	.1	a	.2	a
Tompkins	146.4	48	144.7	46	--	--	--	--
Ulster	535.5	73	383.0	52	3.3	.5	5.8	.9
Warren	523.9	92	339.2	60	57.1	10.1	.3	a
Washington	262.5	49	238.1	45	8.1	1.5	--	--
Wayne	98.6	25	96.9	25	--	--	--	--
Westchester	100.3	35	82.7	29	.1	a	--	--
Wyoming	122.9	32	116.3	30	--	--	--	--
Yates	76.0	35	74.8	34	.1	a	--	--
State	17,169.8	56	14,281.1	47	621.3	2.0	47.1	.2

\*-% of total in county  
a-less than .1

As mentioned before, the fifty acre minimum may be eliminating some potential forest land. If it were removed, by allowing economies of size to work, a more reasonable acreage minimum may establish itself. The cost of acquiring and complying with a management plan will probably still keep out the very small woodlot. In light of other states' experiences using much shorter commitment periods (two to five years) a revaluation of the ten year commitment as a deterrent to abuse of the program might be warranted.

Other general benefits which well managed forest lands may provide are not explicitly recognized by 480a. Direct incorporation of benefits such as managed wildlife habitat, recreation, aesthetics, and water quality and quantity could expand 480a to a multiple use program. Tying the tax incentive to the range of benefits the owner's land provides, especially to other citizens of the state, while still focusing on wood production, could help to maximize the benefits the state derives from forest lands.

With the addition of the Farm Woodland Act in 1978, a limited quantity of forest land may now be included in the farmland receiving an exemption in an Agricultural District. Consideration could be given to allowing even greater forest income for Agricultural exemption certification. Presently up to \$2000 per year of forest product sales can be used to compute total agricultural production on a farm seeking to meet the \$10,000 sales qualification for the farmland exemption. A forested acreage up to the amount of acreage in crops may be included in the land receiving an exemption if contiguous to the farm. All land under the exemption then receives the benefits of use-value assessments and other government actions which favor farmland use. Unlike 480a, no management requirements are stipulated in return for the exemption.

The creation of Forest Districts has been suggested, though they would admittedly bear little resemblance to the Agricultural Districts. Many organizations as well as the market bring farmers together in a region. Thus, a good basis already existed for getting farmers to develop and push their own special assessment districts through the administrative process. This basis for group action is usually lacking for forest owners due to less frequent, unsynchronized harvests, less of an emphasis on forest crop production through state agencies, and few attempts by large scale timber users to unite their suppliers. And in contrast to farming, very few individuals derive their sole income from woodlot products.

Currently, 480a gives a much higher incentive to the more highly assessed urban-suburban forests without regard to whether these are the lands really desired in a program to promote forest production. These lands may be desired as open space, in which case that goal should be addressed directly. A program which emphasizes the long term desirability of rural forests in relation to state goals may be necessary. Forest Districts could promote this since they would usually go through some formal approval process where this desirability could be weighed. They also would tend to be rural in nature due to ownership patterns (as are Agricultural Districts) and could result in greater rural participation in a forest crop production program.

After this look at 480a it appears that the program is but a first step. More study needs to be done on the participation in the program in the coming years. It is likely that some changes will be needed in 480a if the state is to further its objective of improved timber production from private lands. As 480a stands now, it is most attractive to owners of high valued land, much of which is held for non-timber reasons. With all of its stringent requirements, 480a is not likely to draw large acreages of desirable land into commercial forestry. There is little evidence to show that a marginal reduction in the tax bill can change a woodlot into a profitable endeavor, based solely on wood production.

### Appendix

The timber growth rates and stocking levels used in this paper are derived from a simulation "game" developed by James P. Lassoie and Tom Ewing 7/ in 1977. The 1970 U. S. Forest Service Resource Bulletin NE-20, The Timber Resources of New York 8/, formed the basis for the game. Assumed was an average initial stocking of 1000 cubic feet per acre of mixed hardwoods. A poor growing site added 25 ft<sup>3</sup>/acre/year in volume while medium and good sites added 50 and 100 ft<sup>3</sup>/acre/year, respectively.

Values for the timber also came from Lassoie and Ewing's work. Mixed hardwood pulp was assumed to sell for \$37.50/1000 ft<sup>3</sup>, while sawtimber brought \$137/1000 ft<sup>3</sup>. These figures were held constant over the fifteen year growth period as only the relative difference is important, not the absolute magnitudes. We assumed that fifteen years of management would yield a stand of one-half sawtimber and one-half pulpwood. This may overstate the value of the stand, unless initial conditions are very good.

Costs of management come in part from the game. A current cost of \$35/acre for timber stand improvement was used, assuming ten acres would need treatment each year for ten years. The cost of roads were figured in at a current cost of \$1000 for a 100 acre unit. The initial management plan, not part of the game, was figured at \$5/acre when done by a professional forester. Every fifth year an updated plan would be needed, costing \$1.50 per acre. The first year included the \$25 application fee. The recurring costs were adjusted annually at five percent.

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7/ "Formans: A Forest Management Simulation Game For Private Woodland Owners" (in preparation, 1979).

8/ U. S. Northeastern Forest Station, 1970. The Timber Resources of New York, USDA, Forest Resource Bulletin NE-20, pp. 193.