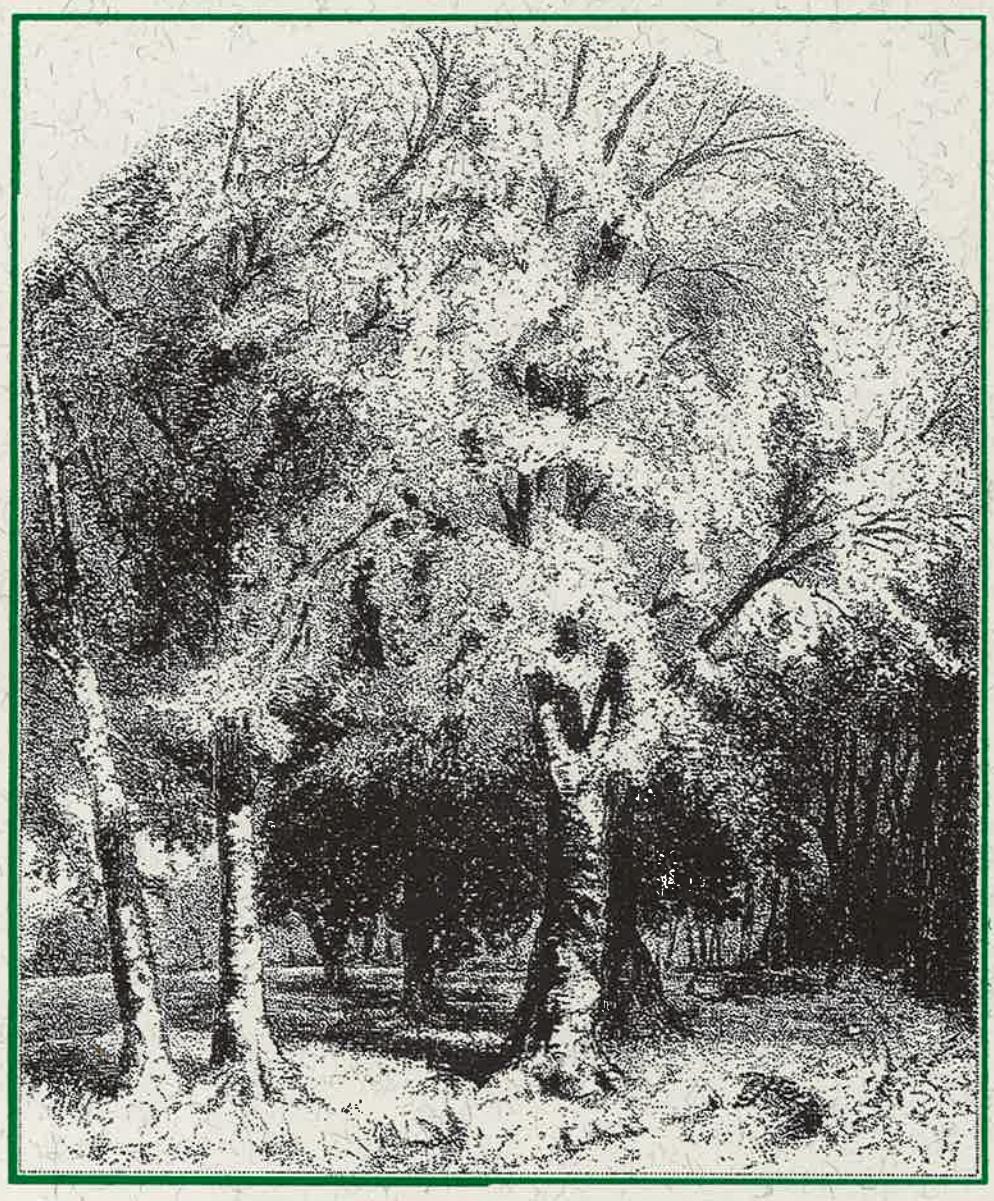
Watershed Forest Ad Hoc Task Force

POLICY RECOMMENDATIONS
for the watersheds of
New York City's water supply



July 1996

The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION

EXECUTIVE OFFICES
59-17 JUNCTION BLVD., 19TH FLOOR, CORONA, NEW YORK 11368-5107

JOEL A. MIELE, SR., P.E., COMMISSIONER

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October, 1996

Dear Colleague:

These *Policy Recommendations for the Watersheds of New York City's Water Supply* represent the culmination of months of thought and discussion among the participants in the Watershed Forest Ad Hoc Task Force. Participants have included loggers, landowners, foresters, environmentalists, farmers, governmental officials, technical agencies, and business people - both upstate and downstate.

I am delighted to present to you this "Green Book" that describes the important relationship between forests and water quality. The "Green Book" includes general information on the state of the watershed forests, Task Force positions on various issues and recommended strategies. As you can tell from the numerous participants in the Task Force proceedings, the maintenance of a large forested land cover will require the cooperation of many people and the coordination of a variety of efforts.

As with many of the other watershed protection efforts in the region, we need to apply science and practical solutions to devise an effective strategy to protect forested land. If we desire a rural environment to promote water quality and maintain a way of life, then we must support a strong rural economy. Proper forest management, education, and other strategies hold great promise for supporting a forested landscape.

The recommendations included herein are a beginning - let us all remain flexible and focused to protect our treasured Catskill forests.

Sincerely,

Joel A. Miele, Sr., P.E.

Watershed Forest Ad Hoc Task Force

POLICY RECOMMENDATIONS
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New York City's water supply

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July 1996

Acknowledgment is extended to the many dedicated individuals who traveled to Liberty, New York over the course of last year to attend meetings and contribute to a prolific discussion of forest-related issues. Their technical expertise and local perspective greatly enhanced the scientific merit and grass-roots integrity of the Task Force. They have waited patiently and eagerly for the completion and distribution of this Green Book.

STATE OF NEW YORK

GEORGE E. PATAKI
GOVERNOR

June 1996

Dear Task Force Members:

I would like to extend my congratulations to the Ad Hoc Task Force on Forestry in the New York City Watershed on the release of "Policy Recommendations for the Watersheds of New York City's Water Supply."

The protection of New York's natural resources and the health of its citizens are two of the most important responsibilities of our government. Equally important is the preservation of the economic vitality of New York's businesses and communities. The consensus achieved by the Task Force is further proof that the concerns of environmental and public health protection are compatible with economic development.

The Task Force's recommendations are a blueprint for improving the economic future of forest landowners and the forest products industry. Most importantly, it will be done in ways that are harmonious with the continued protection of the drinking water supply of nine million New Yorkers.

I encourage the Task Force members and other interested parties to continue this partnership and work toward the possible implementation of the realistic and practical solutions identified by the Task Force.

Very truly yours,

George E. Pataki

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EXECUTIVE SUMMARY

The forests covering most of the Catskill/Delaware watersheds filter water and produce timber. This working landscape has provided a forest-based economy for local communities and a high quality water supply for nine million consumers in the New York metropolitan region.

Watershed residents and New York City recognize the link between water quality protection and traditional open space land uses. Farmers were the first to develop the locally managed Watershed Agricultural Program which supports the use of voluntary best management practices to protect water quality while helping to sustain the economic viability of the farming industry. However, the scope of the Watershed Agricultural Program is limited to reducing or eliminating nonpoint source pollution from the agricultural portion of the watershed's open space.

Therefore, forestry representatives, including landowners, foresters, timber harvesters and forest industry, together with New York City and State agencies, have formed the Watershed Forest Ad Hoc Task Force. The Task Force offers an opportunity complementary to the Watershed Agricultural Program to maintain open space land uses on approximately 90% of the Catskill/Delaware watershed land area.

Mission statement
of the
Watershed Forest Ad Hoc Task Force:

To improve both the short and long-term economic viability of forest landownerships and the forest products industry to the benefit of local communities in the New York City water supply watersheds in ways compatible with water quality protection and sustainable forest management.

The Task Force has compiled substantial scientific research pertaining to the impact of forest land uses on water quality. In addition, the Task Force has investigated the social, economic and political threats and opportunities facing the future of forest management in the Catskill/Delaware watersheds. Having achieved a common understanding, the Task Force has prepared five position statements pertaining to the watershed forest land.

Position statements
of the
Watershed Forest Ad Hoc Task Force:

Well-managed forests provide the most beneficial land cover for water quality protection.

Existing forest management activities are a negligible nonpoint source of pollution; however, more extensive use of best management practices will further reduce sediment and nutrient loading from forest management activities.

High property tax rates discourage stewardship of private forest land.

Retention and growth of primary and secondary forest products manufacturing are essential to a healthy forest-based economy, forest land retention, natural resource protection, and sound forest conservation and management.

Existing public forest lands should provide a model for sound resource management that complements private stewardship.

Based on these findings, the Task Force offers fourteen recommendations to maintain the forested landscape of the Catskills, encourage sustainable forest management, and protect water quality in New York City's water supply watersheds. From a long-term perspective, many of these recommendations fall within the area of preventative measures. This means that if public funds are invested now, future water quality and economic problems may be avoided.

The Task Force has weighed both the magnitude and need for public funding against the returns on those investments. While alternatives for reducing or eliminating nonpoint source pollution from forest management activities may exist, the Task Force strongly believes that the locally managed, voluntary approach described in this document will keep significant public investments to a minimum.

INTRODUCTION

High property taxes and utility rates, suburban sprawl, depressed local economies, and most of all, the need for clean water--these conditions bring together a diverse group of individuals within the Catskill/Delaware water supply system.

Watershed landowners, local industry, timber harvesters, government agencies, environmental organizations and others recognize their common interest in a healthy and prosperous forest-based economy. They share the belief that well-managed forests provide the most beneficial land cover for water quality protection and rural economic viability.

Strong and diversified local industries create private sector, free markets for locally-grown forest products. These markets provide and retain economic incentives for landowners, thereby promoting sound ecological conservation and management of private forest land, natural resource protection, long-term forest health and sustainability, and the provision of essential products, benefits, jobs and economic contributions to the watershed and surrounding communities.

New York City, faced with increasing pressure to maintain the outstanding quality of its water supply, favors traditional watershed land uses such as forestry and agriculture utilizing best management practices. Likewise, forestry and agriculture require large tracts of open space to remain economically viable. Any trend towards increased development reduces the acreage available to pursue farming or forestry as an enterprise.

For these reasons, both New York City and watershed communities have a vested interest in reducing the economic pressures on landowners to subdivide and develop their forest land. Larger parcels of well-managed forests contribute to a vibrant local economy and are essential for maintaining the traditional open space landscape of the Catskill/Delaware watersheds.

Recognizing that open space contributes to both water quality and a rural economy, New York City is working with watershed landowners and other representatives through a Watershed Forest Ad Hoc Task Force. This grass-roots Task Force has found that well-managed forests provide the most beneficial land cover for water quality protection while creating economic opportunities within the watershed and surrounding region.

Characteristics of the Catskill/Delaware watersheds:

The New York City water supply system is an engineering feat of vast proportions. Each day it reliably provides on average 1.34 billion gallons of high quality drinking water to approximately eight million residents of New York City and one million residents of Westchester, Putnam, Orange and Ulster counties (USEPA, 1993). The 1,580-square mile Catskill/Delaware watersheds, located West of the Hudson River, contribute approximately 90% of New York City's water supply (NYCDEP, 1990).

The population of these watersheds consists of nearly 70,000 permanent residents located in portions of Delaware, Greene, Schoharie, Sullivan and Ulster counties (NYCDEP, 1993). Forest-based recreation, such as hiking, hunting and fishing, attracts thousands of tourists each year, predominantly from New York City but also from other Northeastern cities.

Forests constitute 75% of the total land area in the five Catskill/Delaware watershed counties (Alerich and Drake, 1995). These forests are characterized by steep slopes and deep, V-shaped valleys. The Catskill mountains are the remains of a high plateau deeply carved by water erosion. The bedrock, chiefly sandstone and shale, is of sedimentary origin. Soils are exceedingly stony, acidic, and of medium to low fertility (Stout, 1953).

The watershed forests are commonly referred to as Northern hardwoods (Alerich and Drake, 1995). The principal species include beech, sugar maple, red maple, white ash, black cherry, yellow birch, and red, white and chestnut oak (NYSDEC, 1981). Hemlock, once plentiful, now grows mainly in ravines; white pine and red spruce can be found growing at higher elevations (Eyre, 1980).

Unlike the early successional softwood forests of the Pacific Northwest and the Southeast, the Northern hardwood forests of the Catskills do not depend on clearcutting or planting for regeneration. Rapid and prolific natural regeneration results in a variety of species in each forest stand, a sharp contrast to plantation monocultures found elsewhere.

Thus, the forested landscape of the Catskills supports a stable forest industry. According to the NYSDEC (personal communication, 1996), at least 27 primary producers within the watershed counties process approximately 61.2 million board feet of softwoods annually from sources both within and outside the watershed. These companies employ approximately 384 workers.

In addition, at least 34 secondary producers, some of which include primary producers, are located within the watershed counties. The USDA Forest Service reports that annual removals of all growing stock from the watershed counties exceed 17 million cubic feet and that total sawtimber removals exceed 59 million board feet (Alerich and Drake, 1995). These removals are processed within the watershed, throughout the Northeast, and also exported to Canada, Europe and Asia.

Timber harvesting is conducted by loggers both within and outside the Catskill/Delaware watershed boundaries. The NYSDEC is in contact with approximately 33 timber harvesters residing in the region and estimates that these numbers may represent only one fourth of the total operators (personal communication, 1996). More than 130 timber harvesters have expressed their interest in logging within the watershed region.

The Watershed Agricultural Program as a model:

The Watershed Forest Ad Hoc Task Force builds upon the experience of the Watershed Agricultural Program. This locally managed, fully funded, voluntary program represents the first successful partnership between New York City and watershed landowners (WAC, 1994).

When New York City proposed watershed regulations for agriculture in September 1990, local farmers expressed the view that these regulations would force their industry out of business. Over the course of one year, farmers and New York City worked through an Ad Hoc Task Force to recommend alternatives to proposed agricultural regulations.

The resultant Watershed Agricultural Program protects water quality without compromising the economic viability of farming as an enterprise (WAC, 1994). Participating farmers receive technical assistance and full funding to develop a Whole Farm Plan and implement best management practices. This demonstrates a successful local partnership.

However, the Watershed Agricultural Program contains no provision for farm woodlot or forest management. Considering that farmers comprise one of the largest categories of forest landownerships in the watershed, creating partnerships with forest landowners provides an opportunity complementary to Whole Farm Planning.

If forest landowners were provided with technical and financial assistance to develop long-term forest management plans and implement voluntary best management practices, this would demonstrate water quality protection while creating a prosperous forest-based economy. Combined with the Watershed Agricultural Program, a locally managed, fully funded, voluntary forest program will help maintain traditional open space land uses in the Catskill/Delaware watersheds.

WATERSHED FOREST AD HOC TASK FORCE

In December 1994, a **Watershed Forest Ad Hoc Task Force** was formed based on the experience of the farmers in fostering a successful partnership with New York City. Membership in the Task Force is open to any person, group or organization interested in the mission of the Task Force and willing to contribute to the fulfillment of its goals.

Mission:

- *To improve both the short and long-term economic viability of forest landownerships and the forest products industry to the benefit of local communities in the New York City water supply watersheds in ways compatible with water quality protection and sustainable forest management.*

Goals:

1. *Identify problems and opportunities facing the forest interests in the watershed.*
2. *Develop the scientific basis and knowledge for these goals through appropriate research.*
3. *Produce a plan for coordinating and integrating public and private sector initiatives, policies and education to promote forest-based economic growth and maintain water quality and quantity.*
4. *Formulate and review management options to promote forest-based economic growth and help protect water quality and quantity in the watershed.*

Organizational structure:

The Task Force adopted operating guidelines vesting its management in a Policy Group, Executive Steering Committee, and three elected officers: a Chair, Vice-chair and Secretary/Treasurer. Program development responsibilities are divided into committees and advised by a Technical Support Group.

Both the Policy Group and Executive Steering Committee consist of representatives having a direct ownership or professional interest in the watershed. The **Policy Group** has the authority to enter into grants and cooperative agreements with other organizations in order to fulfill the mission and goals of the Task Force. The **Executive Steering Committee** has the authority to recommend resolutions to the Policy Group for decision but not the authority to reconsider or reverse any Policy Group decision.

The **Technical Support Group** consists of experts and advisors appointed at-large by the Policy Group to provide scientific underpinning, education and research assistance, and other technical advice as requested by the Task Force.

Program development:

One of the first tasks accomplished by the Task Force was to identify and rank 22 research and education priorities (see Appendix) and assign them to either a **Forest Management and Water Quality Committee** or a **Land Use and Economics Committee**. These committees are responsible for developing individual projects which will comprise a watershed forest program.

The Task Force supports a watershed forest pilot program that is complementary to Whole Farm Planning. This pilot program would receive full funding from several sources; include voluntary participation by watershed landowners, forestry consultants, timber harvesters and industry; hold voluntary participants harmless from enforcement actions related to forest management activities for which best management practices have been implemented; and be coordinated and administered locally by the existing institutional arrangements in the Catskill/Delaware watersheds.

Positions and recommendations:

The Watershed Forest Ad Hoc Task Force has compiled substantial scientific research pertaining to the relationship between forest land uses, water quality, and economic viability, in addition to investigating the social, economic and political threats and opportunities facing the future of forest management in the Catskill/Delaware watershed region.

For the purpose of developing projects and initiating a pilot program that is complementary to Whole Farm Planning, the Task Force offers fourteen recommendations to maintain the forested landscape of the Catskills, encourage sustainable forest management, protect water quality, and enhance local economic opportunities. These fourteen recommendations are based on the following position statements which are described in the following pages.

Well-managed forests provide the most beneficial land cover for water quality protection.

Existing forest management activities are a negligible source of nonpoint source pollution; however, more extensive use of best management practices will further reduce sediment and nutrient loading from forest management activities.

High property tax rates discourage stewardship of private forest land.

Retention and growth of primary and secondary forest products manufacturing are essential to a healthy forest-based economy, forest land retention, natural resource protection, and sound forest conservation and management.

Existing public forest lands should provide a model for sound resource management that complements private stewardship.

TASK FORCE POSITION:

Well-managed forests provide the most beneficial land cover for water quality protection.

Forests are a renewable natural resource. Well-managed forests provide the most beneficial land cover for watershed protection (Lake Champlain Management Conference, 1994) and may actually improve water quality by enhancing the natural pollutant storage capacity of a healthy watershed ecosystem (MDC, 1995).

According to current research, forests may reduce sediment, nutrient and other pollutant loadings by as much as 85% by minimizing soil erosion and filtering watershed runoff (Welsch, 1991). Filtered sediments become incorporated in the forest soil, while nutrients and other pollutants are used for tree growth and other forest processes (Bormann and Likens, 1994).

It is widely recognized that streams draining forest land usually contain water of higher quality and greater biological productivity than streams draining watersheds comprised of other land uses (SAF, 1995). This is partly because riparian forests provide a physical barrier to minimize streambank erosion, which is a major source of sediment found in watercourses leaving undisturbed forest land (Welsch, 1991). The riparian forest canopy and roots also provide shade for maintaining stream temperatures, enhancing fish and wildlife habitat, and increasing biodiversity (Bormann and Likens, 1994).

The Task Force has compiled scientific research indicating that properly managed forests are ideal to protect and maintain high water quality, including source water in the Catskill/Delaware watersheds. Unlike many other public water purveyors, New York City does not own the majority of land in its water supply watersheds (USEPA, 1993).

On the contrary, more than 90% of the timberland in the Catskill/Delaware watershed counties is privately owned (Alerich and Drake, 1995). This means that a continuous supply of high quality water to New York City, in addition to a sustainable supply of timber to local industry, are dependent upon the compatible watershed use and proper management of privately-owned forest land.

Furthermore, forestry requires large tracts of undeveloped land to be economically viable (Northern Forest Lands Council, 1994). The Task Force believes that as increased development reduces the open space available to pursue forestry as an enterprise, management of the watershed forests will become a highly sensitive land use issue.

Given that watershed land uses have significant impacts on both water quality and quantity (MDC, 1995), residents in New York City need to understand that proper management of privately-owned watershed forests will maintain the outstanding quality of their water supply. At the same time, residents of watershed communities need to understand that properly managed private forest land will create and sustain local economic opportunities.

For these reasons, the Task Force believes that it is important to promote public awareness regarding the beneficial roles of watershed forest land, in addition to the significance of long-term forest management and planning.

RECOMMENDATION #1:

- *Educate the general public regarding the relationships between watershed land uses, forest management, water quality protection and rural economic viability. Education and outreach, including press releases, informational materials, and roundtable discussions sponsored in local communities, will enable town planning boards, local officials and citizen advisory committees to better understand forest-related issues.*

RECOMMENDATION #2:

- *Promote the use of carefully-crafted conservation easements on working landscapes that protect private landowners and helps their heirs or successors to maintain their forest land in an economically viable manner; provide water quality protection; support a healthy forest-based economy; and allow the continuation of traditional open space land uses which maintain the forested landscape of the Catskill/Delaware watersheds.*

TASK FORCE POSITION:

Existing forest management activities are a negligible nonpoint source of pollution; however, more extensive use of best management practices will further reduce sediment and nutrient loading from forest management activities.

Forestry consists of the principles and practices used to manage forests for multiple uses, including timber harvesting, watershed protection, fish and wildlife habitat, aesthetic amenity, and public enjoyment (SAF, 1993).

According to current research, properly managed forests contribute the least amount of nonpoint source pollution per acre of any land cover (Lake Champlain Management Conference, 1994). As a result, forest management activities are generally rated as a minor nonpoint source of pollution throughout the Northeast (Irland and Connors, 1994).

Water quality impacts which do occur from forest management activities typically involve minor disturbances and are of relatively short-term duration (Brown and Binkley, 1994). Furthermore, water quality impacts do not arise from the actual removal of trees, even within clearcut areas (SAF, 1995).

Nonpoint source pollution occurs from the improper construction of roads, skid trails or landings to accommodate timber harvesting and other forest management activities (Stednick and Kern, 1991). Nutrient and sediment loading may result when landowners, foresters, loggers and industry fail to properly use or implement appropriate best management practices, or BMPs (Lynch and Corbett, 1990).

Forest management activities, including timber harvesting, can and do occur without degrading New York City's water supply. In addition, these activities are widely dispersed in time and location (NYSDEC, 1993) and differ from those practices conducted in other parts of the country.

Unlike the Pacific Northwest and the Southeast forests, where the principal economic species include early successional softwoods, the Catskill forests consist of Northern hardwoods. Many of these species do not depend on clearcutting or planting for regeneration. Typically, timber harvesters target specific trees within a forest, leaving some forest cover to reduce erosion, provide seeds, and protect seedlings. Rapid and prolific natural regeneration results in a variety of species in each forest stand, a sharp contrast to plantation monocultures found elsewhere.

Compared to other watershed land uses, the water quality benefits of forest management activities clearly outweigh potential impacts. New York State's 1991 Priority Water Problem List failed to identify silviculture as the primary source of water quality problems on any water body in the watershed (NYSDEC, 1993). Likewise, timber harvesting activities were listed as a secondary source of sediment on only one segment of one water body. Episodic water quality impacts which do occur may be reduced or eliminated through the proper use and implementation of BMPs (Lynch and Corbett, 1990).

New York State's Timber Harvesting Guidelines include operational, vegetative or structural BMPs which prevent or minimize soil erosion and sedimentation from logging roads, skid trails, landings and stream crossings (NYSDEC, 1993). Greater use of voluntary BMPs by loggers and industry, along with increased landowner enrollment in long-term forest management plans, will protect water quality by reducing potential nutrient and sediment loading (Irland and Connors, 1994).

RECOMMENDATION #3:

- *Expand the Trained Logger Certification Program throughout the Catskill/Delaware watersheds to improve the quality of timber harvesting and provide greater water quality protection. This voluntary program is supervised by New York Logger Training, Inc., which is a consortium of timber harvesters and forest industry supported by government and educational institutions.*

RECOMMENDATION #4:

- *Develop a user-friendly field manual for landowners, foresters, timber harvesters and industry to better illustrate New York State's Timber Harvesting Guidelines. This BMP field manual will address specific water quality issues in the Catskill/Delaware watersheds and encourage greater use and implementation of BMPs.*

RECOMMENDATION #5:

- *Strengthen current education and outreach efforts to private forest landowners to promote greater awareness of water quality considerations and encourage the creation and implementation of long-term forest management plans that are economically viable and protect water quality.*

RECOMMENDATION #6:

- *Conduct a watershed-wide post-timber harvest survey to characterize the relationship between water quality and timber harvesting and evaluate the use and efficacy of New York State's Timber Harvesting Guidelines. Under the supervision of the Task Force, this up-to-date survey focusing specifically on the Catskill/Delaware watersheds will quantify the extent of water quality problems associated with forest management activities.*

RECOMMENDATION #7:

- *Provide timber harvesters and landowners with regulatory and economic incentives to implement BMPs. Specifically, a "hold-harmless" mechanism is recommended for persons who effectively implement New York State's Timber Harvesting Guidelines, but as a result of weather events or other circumstances clearly beyond their control, potentially face an enforcement action for sedimentation or stream disturbance (Vermont's Acceptable Management Practices provide one example which should be investigated).*

TASK FORCE POSITION:

High property tax rates discourage stewardship of private forest land.

A large percentage of the forest land in the Catskill/Delaware watersheds is privately-owned and managed (Alerich and Drake, 1995). The three largest categories of private forest landownerships include farmers, non-industrial, and industrial/commercial (NYSDEC, 1981).

Farmers and non-industrial forest landowners predominate, yet non-industrial forest landowners, in particular, have a variety of reasons for their private ownership, including recreation, residency, investment or income (Decker *et al.*, 1983). These personal reasons for ownership determine the extent that private forest land contributes to the local economy and water quality.

Private forest landowners are motivated significantly by the economic viability of forestry as an enterprise (Canham, 1992). If the costs associated with timber harvesting and real property taxes exceed the income potential from the forest land, then forestry is not considered to be economically viable. In other words, long-term forest management becomes increasingly profitable when lower property taxes and higher stumpage prices prevail (Canham, 1992).

According to current research, long-term trends indicate that property taxes will continue to increase at a greater rate than timber values (Canham, 1992). In New York State, property taxes have doubled over the last ten years and now average three to four times higher than neighboring states (Canham, 1992).

In the Catskill/Delaware watersheds, where forestry ranges from marginally economically viable to very profitable, the average forest land tax rates are higher than most other parts of the state (McCall, 1992).

The Task Force believes that this pattern of taxation discourages the preservation of private forest land. If rising land values for residential, commercial or industrial development significantly outweigh the value of land for forestry, this results in greater fragmentation of landownerships, conversion of forest land to other uses, less investment in forestry, relative instability in landownership tenure, and timber harvests that are conducted with less management and long-term planning (Canham, 1992).

Property taxes are perhaps the single largest impediment to maintaining forests as a long-term watershed land use (Northern Forest Lands Council, 1994). Local governments rely heavily on property taxes, which are based on land values and other public services. Given that a majority of the property tax burden is attributed to school taxes (NYS Board of Real Property Services, 1994), farmers and forest landowners are burdened disproportionately relative to the services they receive.

Fortunately, forest landowners owning 50 acres or more and willing to commit to a long-term forest management plan are eligible for tax relief under Section 480-a of the New York State Real Property Tax Law (RPTL 480-a). This program provides up to an 80% reduction in property taxes in exchange for a rolling ten year commitment to a NYSDEC-approved forest management plan (NYSDEC, 1990).

On a statewide basis, RPTL 480-a attracts less than 5% of the total eligible landowners (ESFPA, 1994). Frequently cited reasons for not participating include the lack of state reimbursement to local governments, the amount of state oversight involved in the program, and the ineligibility of certain forest lands (Canham, 1992).

As a result, local resentment for RPTL 480-a has grown so that forest landowners are finding themselves squeezed by the burden of rising property taxes and maintaining neighborly relations (ESFPA, 1994). Some of these forest landowners live in towns and school districts benefited by taxes paid by watershed utilities and encasements, whereas other landowners receive no benefits yet live in towns supplying the water and making the utilities and encasements valuable.

Of particular significance is the impact that RPTL 480-a has throughout the Catskill/Delaware watersheds. Several watershed counties have a larger number of enrolled parcels compared to other parts of New York State and suffer a large tax shift caused by these enrollments (McCall, 1992).

In addition, watershed landowners having less than 50 acres of forest land receive no benefit from RPTL 480-a. Collectively, these landowners pay higher taxes on thousands of acres of forest land vital to the purity of New York City's water supply, in addition to bearing the cost of complying with watershed regulations.

Lacking a comprehensive reform of the New York State real property tax system, enrollment in RPTL 480-a represents an important alternative for private forest landowners (Canham, 1992). Greater enrollment by private landowners in a long-term forest management program provides increased assurance that these properties will continue to be forested under the requirements of the program.

For these reasons, the Task Force supports a voluntary program that improves the economics of forest landownership. This will encourage private forest landowners to maintain their property in a forested condition, thereby maintaining the high quality of New York City's water supply.

RECOMMENDATION #8:

- *Reform the current New York State forest tax law (RPTL 480-a) to provide reimbursement to local governments, greater flexibility for forest landowners, and expanded eligibility for certain forest lands.*

RECOMMENDATION #9:

- *The New York State legislature should consider alternative means of financing local governments and school districts.*

RECOMMENDATION #10:

- *Establish a system of incentives to encourage woodlot owners (watershed landowners having less than 50 acres of forest land) to maintain their forest land.*

TASK FORCE POSITION:

Retention and growth of primary and secondary forest products manufacturing are essential to a healthy forest-based economy, forest land retention, natural resource protection, and sound forest conservation and management.

The forest products industry accounts for nearly 6% of New York State's total manufacturing and contributes $4 billion directly to the state economy (ESFPA, 1995). Private forest landownerships provide a renewable source of raw wood material and fiber for many industries located within the Catskill/Delaware watersheds and the surrounding region.

Unlike the Adirondacks, landowner patterns in the Catskills are not industry-dominated (Alerich and Drake, 1995). This means that the local forest industry in the Catskill/Delaware watersheds is dependent upon a steady supply of timber from private forest landowners.

Sustainable forest management begins with private forest landowners making knowledgeable decisions that are economically viable (SAF, 1993). However, due to staffing and budget constraints of existing programs, forest landowners currently have inadequate access to technical assistance and stewardship incentives for developing long-term forest management plans.

Greater economic advantages could be realized by communities in the Catskill/Delaware watersheds and the surrounding region where local ordinances, high utility rates and transportation costs unnecessarily restrict the expansion of forest industry activities, but do not necessarily raise the standard of living.

Increased regional economic activity within the forest products industry will expand the private sector and provide free market financial incentives for landowners to retain their forest land and improve their management activities. This promotes conservation, sound ecological management of forest land, natural resource protection, long-term forest health and sustainability, and the provision of essential products and benefits to society.

Furthermore, strengthening and expanding the local forest products industry will provide, directly and indirectly, important jobs and significant contributions to the local and regional economy.

Increased support for primary and secondary manufacturing within the watersheds and the surrounding region will help encourage the retention of raw wood material and fiber by creating strong and diversified local markets for the full range of forest products. Funding incentives to upgrade existing manufacturing facilities and encourage new value-added industry will help to sustain these competitive markets and provide greater economic returns to watershed forest landowners.

Therefore, the Task Force believes that opportunities for retention and growth of forest products manufacturing will help to stabilize landownership patterns, reduce high-grading, increase stumpage prices and enhance the desirability of long-term forest management plans.

RECOMMENDATION #11:

- *Provide technical and financial assistance to private forest landowners interested in long-term forest management plans to help preserve forestry as an enterprise and ensure a continuous supply of high quality timber for local manufacturing.*

RECOMMENDATION #12:

- *Foster an improved business climate that addresses utility rates, transportation costs and local harvesting ordinances. Specifically, provide information, services, and technical assistance to forest products industries regarding processes, products, markets, marketing, complying with state and federal regulations, new uses of forests and wood, value-added manufacturing and use of under-utilized, abundant tree species to help retain, strengthen and expand these industries.*

RECOMMENDATION #13:

- *Promote the inclusion of working landscapes, including forestry and related industry, in the Economic Development study that will guide the Catskill Fund for the Future as well as the financial opportunities offered by the Fund.*

TASK FORCE POSITION:

Existing public forest lands should provide a model for sound resource management that complements private land stewardship.

The Catskill/Delaware watersheds consist of extensive ownerships of forest land by both New York City and New York State, including 80% of the Catskill Forest Preserve (Brown, 1985). New York City ownerships are maintained for watershed protection but also offer limited opportunities for timber harvesting and recreation.

The 272,000-acre Catskill Forest Preserve exists under constitutional protection and is limited to recreational uses and open space management (VanValkenburgh, 1985). This means that timber harvesting is not permitted on State-owned land within the Catskill Forest Preserve.

However, additional New York State lands include Reforestation Areas and Wildlife Management Areas (NYSDEC, 1985). These publicly-owned forest lands are managed for a variety of uses including timber harvesting, recreation, fish and wildlife habitat, and soil and water protection.

The Task Force believes that the forested landscape of the Catskill/Delaware watersheds presents a unique opportunity for demonstrating how a vibrant local economy can be renewed and sustained while protecting water quality and other natural resources that are vital to all residents of New York State.

Specifically, publicly-owned forest lands, where appropriate, could serve as an effective model for showcasing new timber harvesting technologies and other forest-based opportunities such as outdoor recreation and tourism.

RECOMMENDATION #14:

- *New York State and New York City-owned forest lands, where appropriate, should serve to demonstrate new harvesting technologies, ecosystem management, biodiversity enhancement, outdoor recreation, and public awareness though interpretive education.*

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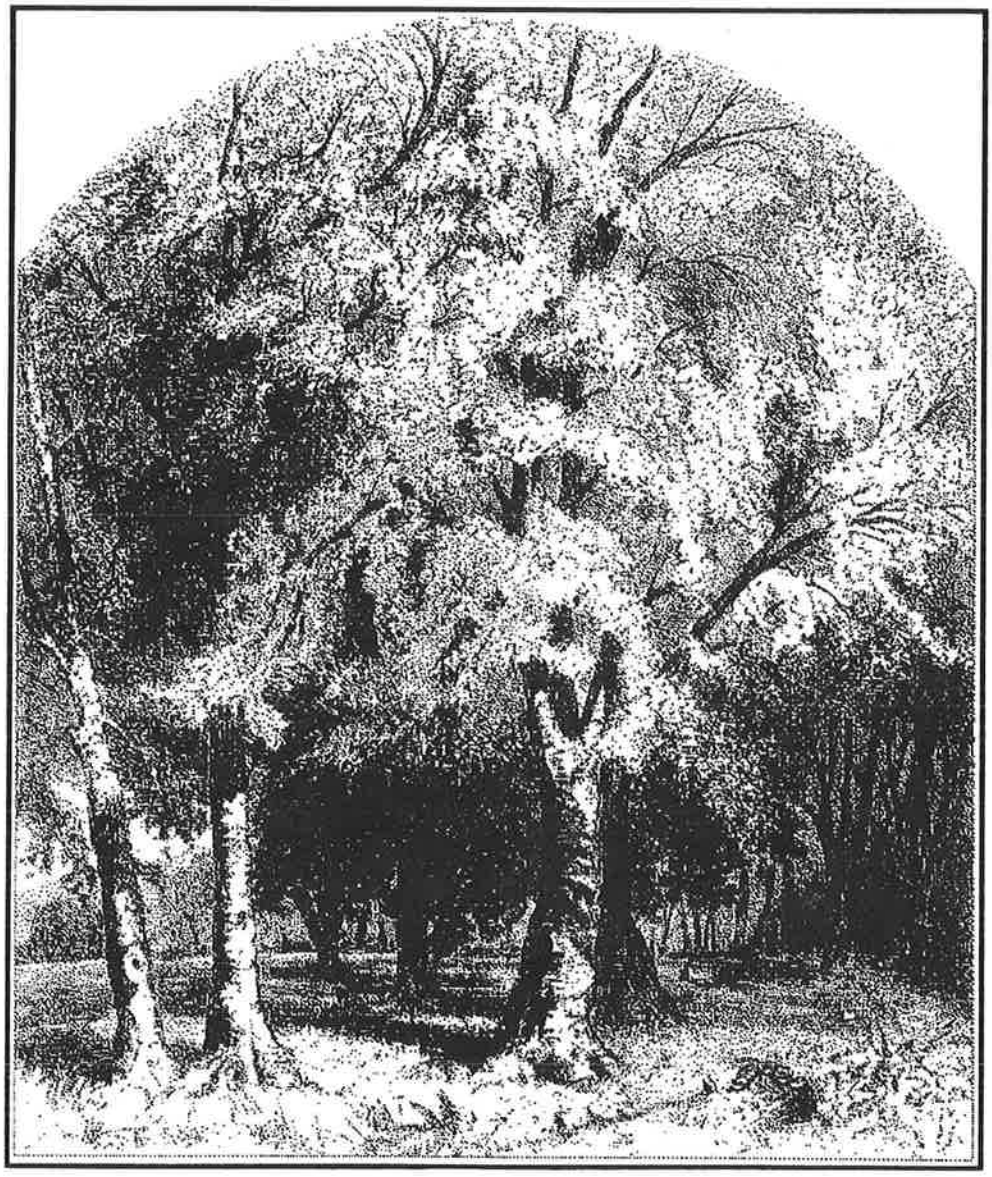

APPENDIX

Membership rosters:

Reference materials:

Tables:

Figures:

Maps:

POLICY GROUP

Charles Johnston, Chair ..... forest industry
Karl Connell, Vice-chair ..... private forest landowner
Beverly Peters, Secretary/Treasurer ..... timber harvester/private forest landowner

Mike Arnold ..... timber harvester
Cliff Asdale ..... forestry consultant
Clayton Brooks ..... Coalition of Watershed Towns
Sherret Chase ..... at-large representative
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Kevin King ..... Empire State Forest Products Association
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Lynette Stark ..... NYS Governor's Office
Dave Taylor ..... farmer/private forest landowner
Margaret Warren ..... Forest Practice Board/Region 3
Luke Watson ..... timber harvester
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Nancy Wolf ..... Environmental Action Coalition
Michael Zagata ..... NYS Department of Environmental Conservation

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Richard Coombe ..... Watershed Agricultural Council
Charles Johnston ..... Johnston & Rhodes Bluestone Company
Kevin King ..... Empire State Forest Products Association
Aaron Robinson ..... Robinson Sawmill Works
Larry Schaefer ..... Schaefer Logging
Dinnie Sloman ..... Catskill Forest Association
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Carolyn Summers ..... NYC Department of Environmental Protection
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Wayne Zipperer ..... USDA/Forest Service

RESEARCH AND EDUCATION PRIORITIES

1. Relationship between forest management activities and water quality (begin with review of existing literature).
2. Relationship of the Catskill forest industry to the regional economy, including spatial dynamics of supply/demand.
3. Timber harvesting to protect ecosystems and water quality ("new forestry" practices).
4. Demonstration forests to illustrate sustainable forest and farm woodlot management practices that are economically viable and protect water quality.
5. Water quality monitoring to establish scientific benchmarks (re: forest management guidelines).
6. Review existing tax laws, subsidy and cost-share programs for landowners (SIP, FIP, ACP, etc.) and property assessment procedures.
7. Logger certification and training workshops.
8. Practical applications of ecosystem management to preserve private property rights.
9. Efficacy of silvicultural BMPs to reduce soil erosion/water quality impacts in the NYC watershed.
10. Forest land ownership trends and factors influencing their decision making.
11. Scientific basis for forestry-related regulations and/or restrictions.
12. Public relations, education and communication techniques to effectively reach private forest landowners, NYC dwellers and the downstate urban sector.
13. Comparison of alternative land uses (subdivision/development, farming, forestry, forever wild, etc.) and their effects on water quality.
14. Role of riparian forests as vegetative buffer strips for streambank stabilization.
15. Environmental audit guidelines for sustainable forest and woodlot management.
16. Pathogen contamination (*Giardia* and *Cryptosporidium*) from wildlife.
17. Informational materials to promote the environmental and economic benefits of the Catskill forest industry.
18. Stormwater management and facility improvement planning.
19. Agroforestry cropping systems as nutrient and/or erosion control practices.
20. Natural resource inventory of Catskill region (wildlife, habitat, forest stands, etc.).
21. Centralized comprehensive mailing list of private forest landowners in the Catskills/NYC watershed, including demographics, acreages, ownership trends and management practices.
22. Complimentary "code of ethics" and "bill of rights and responsibilities" for landowners, foresters, loggers and industry.

Other issues:

- Identify landowner goals, motivations and needs appropriate to timber harvesting and impacts on long-term forest health.
- Identify economic benefits to private landowners to keep forest land in best production and under long-term management.

TASK FORCE OPERATING GUIDELINES

Article I
Name, Mission, Goals

Section 1.1 The name of this association is the Watershed Forest Ad Hoc Task Force (the "Task Force") as adopted at a Task Force meeting held on January 5, 1995 (the "Organizational Meeting").

Section 1.2 The mission of the Task Force, as adopted at the Organizational Meeting and amended at a Task Force meeting held on January 30, 1995 is:

- Improve both the short and long-term economic viability of forest landownerships and the forest products industry to the benefit of local communities in the New York City water supply watersheds in ways compatible with water quality protection and sustainable forest management.

Section 1.3 To accomplish the mission set forth above, the goals of the Task Force, as adopted at the Organizational Meeting, are:

1. Identify problems and opportunities facing the forest interests in the watershed.
2. Formulate and review management options to promote forest-based economic growth and help protect water quality and quantity in the watershed.
3. Produce a plan for coordinating and integrating public and private sector initiatives, policies and education to promote forest-based economic growth and maintain water quality and quantity.
4. Develop the scientific basis and knowledge for these goals through appropriate research.

Section 1.4 The duration of the Task Force shall be until December 31, 1996 unless expressly extended by the Policy Group.

Article II
Membership

Section 2.1 Membership in the Task Force shall be open to any person, group or organization interested in its mission and willing to contribute to the fulfillment of its goals.

Section 2.2 Any person, group or organization wishing to join the Task Force (a "Member") shall notify the Chair in writing, setting forth a contact name, address and telephone number.

Section 2.3 Any Member wishing to resign from the Task Force shall notify the Chair in writing, setting forth the terms of such resignation.

Section 2.4 Members are entitled to receive notice of all Task Force meetings and participate on committees. Members shall have the authority to ratify all Policy Group appointments at meetings called for such purposes. A quorum of one-half of the Members shall be required to perform such ratification. In the event that a quorum is not obtained, a majority of all Members present at the meeting shall be required and documented as such in the the Task Force records.

Section 2.5 Members shall not have the authority to act on behalf of the Task Force unless authorized by the Policy Group. Any Member who fails to adequately perform assigned Task Force duties may be removed by a two-thirds vote of the Policy Group.

Article III
Officers

Section 3.1 The officers of the Task Force shall be a Chair, Vice Chair and Secretary/Treasurer elected by the Policy Group and holding their positions through the duration of the Task Force. Any officer wishing to resign from the Task Force shall notify the Policy Group and Executive Steering Committee in writing, setting forth the terms of such resignation. Elections shall take place promptly following a resignation.

Section 3.2 The Chair shall preside at all meetings of the Task Force and execute all documents and resolutions prescribed by the Policy Group.

Section 3.3 The Vice Chair shall act in the absence or disability of the Chair.

Section 3.4 The Secretary/Treasurer shall keep a record of all meetings and financial statements and shall provide these at the request of the Policy Group or Executive Steering Committee.

Article IV
Management

Section 4.1 The management of the Task Force shall be vested in a Policy Group and Executive Steering Committee (ESC), each consisting of Members having a direct ownership or professional interest in the watershed. The ESC shall act as a nominating committee for all Policy Group appointments, which shall be subject to ratification by a quorum of Members. All decisions of the ESC shall be subject to ratification by the Policy Group

Section 4.2 The Policy Group shall consist of twenty-nine (29) of the following number of representatives, each entitled to one vote: watershed landowners (3), absentee landowners (1), farmers (2), timber harvesters (4), forest industry (5), forestry consultants (2), Forest Practice Board (2), environmental organizations (1), NYC Department of Environmental Protection (1), NYS Governor's Office (1), NYS Department of Environmental Conservation (1), NYS Water Resources Institute (1), Watershed Agricultural Council (1), Empire State Forest Products Association (1), Coalition of Watershed Towns (1), Catskill Forest Association (1), at-large (1). Fourteen (14) representatives shall constitute a quorum.

Section 4.3 The ESC shall consist of the officers and nine (9) of the following Policy Group representatives, each entitled to one vote: forest industry, private non-industrial landowner, timber harvester, NYC Department of Environmental Protection, Watershed Agricultural Council, Empire State Forest Products Association, Catskill Forest Association, NYS Department of Environmental Conservation, NYS Water Resources Institute. Five (5) representatives shall constitute a quorum.

Section 4.4 The Policy Group shall have the authority to enter into grants and cooperative agreements with other organizations to fulfill the Task Force mission and goals. Grants shall be administered by the Watershed Agricultural Council in restricted accounts.

Section 4.5 The ESC shall recommend resolutions to the Policy Group for decision but shall not have the authority to reconsider or reverse any Policy Group decision. Resolutions coming before the Policy Group shall be authorized by a majority vote and rejected by a tie vote. A quorum is required to adopt resolutions as Task Force policy. In the event

that a quorum is not obtained, a majority of all Policy Group representatives present may adjourn the meeting until such time as a quorum can be reached, and proper notice of such adjournment shall be documented in the Task Force records.

Article V
Committees

Section 5.1 The program and administrative work of the Task Force shall be divided into committees designated by the ESC. A written charge of each committee's responsibilities and functions shall be prepared by the ESC for inclusion in the Task Force records. Only Members shall be eligible to participate on Task Force committees.

Section 5.2 Each committee may form sub-committees to complete the work under its charge. Committees and sub-committees shall submit progress reports at the request of the Policy Group or ESC and provide accurate minutes of all meetings for inclusion in the Task Force records.

Section 5.3 A Technical Support Group consisting of experts and advisors appointed at-large by the Policy Group shall provide scientific underpinning, education and research assistance, program development, and other technical advice as requested. The Technical Support Group may form committees or sub-committees devoted to a particular expertise.

Article VI
Meetings

Section 6.1 Policy Group meetings shall be called by the Chair or upon written request of at least five (5) Policy Group representatives. The notice for a Policy Group meeting shall specify the purpose, time and place and provide at least seven (7) days notice to all Task Force Members.

Section 6.2 ESC meetings shall be called by the Chair or upon written request of at least two (2) ESC representatives. The notice for an ESC meeting shall specify the purpose, time and place and provide at least three (3) days notice to all ESC representatives.

Section 6.3 Each committee and sub-committee, including the Technical Support Group, shall provide at least three (3) days notice of all meetings to the Secretary/Treasurer.

Article VII
Miscellaneous

Section 7.1 These guidelines may be adopted or amended only at a duly called meeting by a two-thirds vote of either the Policy Group or Task Force Membership.

Section 7.2 Unless otherwise provided in these guidelines, procedures at all meetings shall be governed by Robert's Rules of Order.

Section 7.3 The death, removal or resignation of any Member shall not result in the dissolution or termination of the Task Force. Dissolution of the Task Force may be authorized only at a duly called meeting by a two-thirds vote of the Policy Group.

NEW YORK STATE TIMBER HARVESTING GUIDELINES

The following guidelines were developed by the New York State Department of Environmental Conservation (NYSDEC), the New York Society of American Foresters, and the SUNY College of Environmental Sciences and Forestry. They have been designed to deal with problems caused during timber harvesting by soil erosion, siltation, and inattention to aesthetics. For these purposes, they include all the silvicultural best management practices (BMPs) recommended for New York State, plus additional aesthetic practices.

- **Keep stream crossings to a minimum and plan them carefully.**

  - Check with the NYSDEC about special regulations that apply to loggers along wild, scenic and recreational rivers.
  - Check with the NYSDEC about permits for crossing classified streams.
  - Cross streams by the most direct route and avoid crossing at bends and through pools.
  - Find crossing sites that have low, stable banks, a firm stream bottom, and gentle slopes along the approaches.
  - Cross at a few carefully chosen places, rather than any place that seems convenient.
  - Use temporary culverts, bridges or runways where stream bottoms or banks would otherwise be damaged, and remove them after use.

- **Protect stream banks by controlling skidding and felling close to the stream.**

  - Avoid cutting trees and destroying understory vegetation growing within 10 feet of the stream bank (this helps keep the stream bank in place and maintains shade over the water).
  - Do not skid up and down the stream channel (a good rule for intermittent streams, too).
  - Keep skidders back at least 50 feet from the water and winch off any logs that lie closer to the bank so they do not stir up the soil and start erosion (for slopes over 10 percent it is good to keep skidders back at least 100 feet).
  - Directionally fell trees so the tops land away from stream (this keeps debris out of the water and skidders farther away from the stream banks).
  - Remove any logging debris that gets into the water so stream flow is not affected.
  - When clearcutting, leave a 50-foot wide uncut strip along both sides of flowing streams, pond and marshes (the shade provided keeps the water cooler).

- **Plan the protection of slopes exceeding 30 percent.**

  - On steep slopes set back roads and trails at least 150 feet from streams, ponds and marshes.
  - Winch logs off steep slopes where possible, and minimize the number of skid trails and the amount of skidder traffic.
  - Log steep slopes during dry weather when soils are dry, or log when the ground is frozen and snow covered.
  - After logging, regrade roads and primary skid trails and install diversion devices as needed.

- **Carefully locate, design and build all roads and skid trails.**

  - Keep roads and skid trails out of wet and poorly drained spots, and off tops and toes of banks and slopes (this should also keep machines from getting stuck and make skidding and hauling more economical).
  - Provide ways to divert running water off roads and primary skid trails when slopes exceed 10 percent (determine where streams of water will run off during a rain or snow melt, and put in diversion devices to channel surface water off the road or trail).
  - Keep roads back from streams, ponds and marshes (set them back 100 feet on slopes less than 30 percent, and 150 feet for steeper slopes).
  - Do not run ditch water directly into a stream (stop roadside ditches before a stream crossing and divert the water into the woods).

- **Carefully locate landings.**

  - Keep landings out of low spots and poorly drained places.
  - Put landings on gently sloping ground that will give good drainage.
  - Set back landings at least 200 feet from streams, ponds, lakes and marshes to reduce chances of siltation from erosion off landing.

- **If logging along major travel corridors is not screened by a hill, high bank, or other topography, maintain a 100-foot wide scenic buffer strip along the roadside.**

  - Directionally fell trees so the tops land away from the road (this puts the slash further out of sight and reduces the need for top lopping).
  - Use all merchantable products in each tree (people do not like to see unused logs and bolts left lying in the woods, and if you cut them out it automatically lops off many of the large branches, too).
  - Pull down hung-up or partly fallen trees, fell bent over and broken off trees, and use merchantable material in them.

- Use care in skidding to protect understory vegetation (shrubs and saplings make a good natural screen).
- Keep skidders back in the woods and off the right-of-way (this keeps the road banks from getting rutted and helps keep skid trails out of sight).
- Cut lightly within 100 feet of the forest edge by keeping at least 50 square feet per acre of basal area in residual trees, including some big trees (this keeps a forest-like appearance along the road).
- Keep in mind that trees standing directly at the edge of the woods provide the best screening.
- Keep stumps low.

- **Wherever possible, keep landings out of sight and dress up landings and access roads after use.**

  - Put landings behind a hill, bank or land form that hides them from the road, or set landings back into the woods as far as practical (use a set-back distance of at least 200 feet whenever possible).
  - Build access roads somewhat curved (it is harder to see around a curve than up a straight road).
  - Lay out landings so the long axis lies perpendicular to the road.
  - Keep entrances from the road narrow to reduce visibility from the roadside (widen the road once back in the woods).
  - Clear landings after use by burying debris or dragging waste material back into the forest (actually, if you skid out only usable parts of the tree, there won't be much waste at the landing).
  - Back blade landings and access roads so they are smooth, level, and free of ruts and mud holes (this helps them look better and they should rapidly seed into new vegetation).
  - Put in diversion devices at places where water might run down the road and wash off soil into roadside ditches.
  - Regrade and clean ditches along the roadside and close temporary roads.
  - Where needed, seed access roads, landings and ditches (especially where they come close to the highway).
  - Pick up oil cans, lunch wrappers, broken cable and other junk.

- **Comply with New York State's fire laws.**

  - Keep logging debris and log piles back at least 20 feet from the right-of-way.
  - Lop all conifer tops.
  - Check with the NYSDEC for more specific requirements for the town where you are harvesting.

TABLE 1. Total area of forest land for watershed counties, 1993.

	Total acreage	Forest land (acres)	Forest land (%)	Non-forest land (acres)	Non-forest land (%)
Delaware	**925,700**	669,200	72.3	256,500	27.3
Greene	**414,600**	328,300	79.2	86,400	20.8
Schoharie	**398,000**	267,000	67.1	131,000	32.9
Sullivan	**620,700**	486,300	78.3	134,300	21.7
Ulster	**721,000**	582,800	80.8	138,200	19.2
TOTAL	**3,080,000**	**2,333,600**	**75.8**	**746,400**	**24.2**
NYS (total)	**30,223,300**	**18,641,300**	**61.7**	**11,581,900**	**38.3**

- **Forest land** refers to land that is at least 10 percent stocked with trees of any size, or land that formerly had such tree cover and is not currently developed for a non-forest use. The minimum area for classification is one acre.
- **Non-forest land** refers to land that has never supported forests, or land formerly forested but now in non-forest use such as cropland, pasture, residential areas or highways.
- **Note: According to the NYCDEP (1993), 44.5 percent of Delaware County (412,234 acres), 27.6 percent of Greene County (114,478 acres), 8.8 percent of Schoharie County (35,151 acres), 4.5 percent of Sullivan County (27,626 acres), and 10.3 percent of Ulster County (74,534 acres) are located within the boundaries of the Catskill/Delaware watersheds.**
- **Source:** Alerich and Drake, 1995.

TABLE 2. Total area of forest land, by land classes, for watershed counties, 1993.

	Total forest land acreage	Timberland (acres)	Timberland (%)	Reserved forest land (acres)	Reserved forest land (%)	Other forest land (acres)	Other forest land (%)
Delaware	**669,200**	627,100	93.7	42,100	6.3	0	0
Greene	**328,300**	253,500	77.2	74,800	22.8	0	0
Schoharie	**267,000**	266,700	99.9	300	0.1	0	0
Sullivan	**486,300**	456,500	93.9	24,500	5.0	5,300	1.1
Ulster	**582,800**	400,600	68.7	174,300	29.9	7,900	1.4
TOTAL	**2,333,600**	**2,004,400**	**85.9**	**316,000**	**13.5**	**13,200**	**.6**
NYS (total)	**18,641,300**	**15,405,500**	**51.0**	**2,786,500**	**9.2**	**122,800**	**.4**

- **Timberland** (formerly known as commercial forest land) refers to forest land producing or capable of producing crops of industrial wood (> 20 cubic feet per acre per year) and not withdrawn from timber utilization.
- **Reserved forest land** refers to forest land sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute or administrative designation. Includes portions of the Catskill Forest Preserve and also forest land used exclusively for Christmas tree production.
- **Other forest land** (formerly known as unproductive forest land) refers to forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions because of adverse site conditions.
- **Note: The NYS total forest land acreage of 18,641,300 acres also includes 326,500 acres (1.1%) of other noncommercial (i.e. non-timberland) forest land classes.**
- **Source:** Alerich and Drake, 1995.

TABLE 3. Total acreage of timberland, by stand-size classes, for watershed counties, 1993.

	saw timber	pole timber	sapling and seedling	non-stocked	TOTAL
Delaware	417,400	140,500	69,200	0	**627,100**
Greene	134,300	99,700	19,400	0	**253,400**
Schoharie	151,700	79,100	30,600	5,300	**266,700**
Sullivan	280,400	113,700	62,400	0	**456,500**
Ulster	269,500	117,300	13,800	0	**400,600**
TOTAL	**1,253,300**	**550,300**	**195,400**	**5,300**	**2,004,300**
NYS (total)	**8,191,500**	**4,645,100**	**2,539,000**	**30,000**	**15,405,500**

- **Stand-size class** refers to a classification of forest land based on the size class of all live trees in the area.
- **Saw timber** refers to a stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in pole timber or saw timber trees or both, and in which the stocking of saw timber is at least equal to that of pole timber.
- **Pole timber** refers to a stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with live trees with half or more of such stocking in pole timber or saw timber trees or both, and in which the stocking of pole timber exceeds that of saw timber.
- **Sapling and seedling** refers to a stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with live trees with half or more of such stocking in saplings or seedlings or both.
- **Non-stocked** refers to a stand-size class of forest land that is stocked with < 10 percent of minimum full stocking with live trees.
- **Source:** Alerich and Drake, 1995.

TABLE 4. Total acreage of timberland, by ownership classes, for watershed counties, 1993.

	misc. federal	NY state	county/ municipal	forest industry	other private	TOTAL
Delaware	300	24,000	25,400	25,500	552,000	**627,100**
Greene	200	3,800	1,100	0	248,300	**253,500**
Schoharie	0	33,200	2,300	0	231,200	**266,700**
Sullivan	0	12,700	7,000	0	436,800	**456,500**
Ulster	0	700	10,000	0	389,900	**400,600**
TOTAL	**500**	**74,400**	**45,800**	**25,500**	**1,858,200**	**2,004,400**
NYS (total)	**69,900**	**786,600**	**174,300**	**1,219,700**	**13,147,600**	**15,405,500**

- **Ownership class** refers to a classification of forest land based on ownership and nature of business or control of decision-making for the land. It encompasses all types of legal entities (public or private) having ownership interest in the land.
- **Miscellaneous federal** refers to forest land (excluding National Forests) administered by federal agencies.
- **New York State** refers to forest land owned by the state or leased to the state for 50 years or more.
- **County/municipal** refers to forest land owned by counties and local public agencies or municipalities (such as New York City) or leased to them for 50 years or more.
- **Forest industry** refers to forest land owned by companies or individuals that operate primary wood-using plants.
- **Other private** refers to privately-owned forest land (excluding forest industry).
- **Note: The NYS total timberland acreage of 15,405,500 acres also includes 7,500 acres (< .05%) of National Forest Land.**
- **Source:** Alerich and Drake, 1995.

TABLE 5. Total acreage of timberland, by forest-type groups, for watershed counties, 1993.

	Delaware	Greene	Schoharie	Sullivan	Ulster	TOTAL
White/red pine	41,900	63,000	73,900	86,800	50,400	**316,000**
Spruce/fir	10,100	0	0	0	0	**10,100**
Loblolly/shortleaf	0	9,700	0	0	0	**9,700**
Oak/pine	11,100	14,100	11,100	25,500	47,300	**109,100**
Oak/hickory	41,900	52,200	38,300	114,700	135,400	**382,500**
Elm/ash/red maple	59,800	8,300	5,100	10,300	17,700	**101,200**
Northern hardwoods	457,200	101,000	134,400	209,200	149,900	**1,051,700**
Aspen/birch	5,300	5,100	3,900	9,900	0	**24,200**
TOTAL	**622,100**	**253,500**	**266,700**	**456,500**	**400,700**	**2,004,400**

- **Forest-type group** refers to a classification of forest land based on the species forming a plurality of live-tree basal-area stocking. Forest types sharing closely associated species or site requirements are combined into a major forest-type group.
- **White/red pine** refers to forests in which eastern white pine, red pine, or eastern hemlock, singly or in combination, make up the plurality of the stocking (common associates include red maple, oak, sugar maple, and aspens).
- **Spruce/fir** refers to forests in which red, white, black or Norway spruces, balsam fir, northern white cedar, tamarack, or planted larch, singly or in combination, make up a plurality of the stocking (common associates include white pine, red maple, yellow birch, and aspens).
- **Loblolly/shortleaf** (also called hard pine) refers to forests in which eastern red cedar or pitch pine, singly or in combination, make up a plurality of the stocking (common associates include white pine, paper birch, sugar maple, and basswood).
- **Oak/pine** refers to forests in which hardwoods (usually hickory or upland oaks) make up a plurality of the stocking and in which pines or eastern red cedar contribute 25-50 percent of the stocking.
- **Oak/hickory** refers to forests in which upland oaks, hickory, yellow poplar, black locust, sweetgum, or red maple (when associated with central hardwoods), singly or in combination, make up a plurality of the stocking and in which pines or eastern red cedar make up less than 25 percent of the stocking (common associates include white ash, sugar maple and hemlock).
- **Elm/ash/red maple** (also called elm/ash/red maple) refers to forests in which elm, willow, cottonwood, or red maple (when growing on wet sites), singly or in combination, make up a plurality of the stocking (common associates include white ash, sugar maple, aspens and oaks).
- **Northern hardwoods** (also called maple/beech/birch) refers to forests in which sugar maple, beech, yellow birch, black cherry, or red maple (when associated with northern hardwoods), singly or in combination, make up a plurality of the stocking (common associates include white ash, eastern hemlock, basswood, aspens, and red oak).
- **Aspen/birch** refers to forests in which aspens, paper birch or gray birch, singly or in combination, make up a plurality of the stocking (common associates include red maple, white pine, red oaks, and white ash).
- **Note: The NYS total timberland acreage of 15,405,500 acres consists of 1,954,400 acres (12.7%) of white/red pine, 576,000 acres (3.7%) of spruce/fir, 73,200 acres (.05%) of loblolly/shortleaf, 430,700 acres (2.8%) of oak/pine, 2,104,300 acres (13.7%) of oak/hickory, 5,600 acres (< .05%) of oak/gum/cypress, 1,225,600 acres (8.0%) of elm/ash/red maple, 8,374,600 acres (54.4%) of Northern hardwoods, and 661,100 acres (4.3%) of aspen/birch.**
- **Source:** Alerich and Drake, 1995.

TABLE 6. Summary of RPTL 480-a enrollment trends for watershed counties, 1984-1993.

	certified tracts		%	certified acreage		%
	1984	1993	change	1984	1993	change
Delaware	48	156	**225.0**	12,739	28,421	**123.1**
Greene	0	2	---	0	415	---
Schoharie	0	9	---	0	1,113	---
Sullivan	50	134	**168.0**	32,240	52,938	**64.2**
Ulster	33	66	**100.0**	5,671	9,853	**73.7**
TOTAL	**131**	**367**	**180.2**	**50,650**	**92,740**	**83.1**
NYS (total)	**318**	**963**	**202.8**	**106,306**	**339,562**	**219.4**

- **Certified tracts** and **certified acreage** are taken from NYS Department of Environmental Conservation records.
- **Source:** NYS Department of Environmental Conservation and NYS Board of Equalization and Assessment, 1993.

TABLE 7. Estimated fiscal impact due to RPTL 480-a for watershed counties, 1990.

	equalized exempt value	estimated tax shift	number of parcels	average tax shift per parcel	percent of total tax shift
Delaware	6,290,000	165,427	185	894	7.1
Greene	11,000	289	1	289	0.0
Schoharie	75,000	1973	5	395	0.1
Sullivan	27,766,000	730,246	246	2,968	31.4
Ulster	4,316,000	113,511	56	2,027	4.9
TOTAL	**$38,458,000**	**$1,011,446**	**493**	**$1,315**	**43.5**
NYS (total)	**$88,479,000**	**$2,326,998**	**1,401**	**$1,661**	**100.0**

- **Equalized exempt value** refers to the assessed value of RPTL 480-a exempt parcels divided by the decimal representation of the state equalization rate.
- **Estimated tax shift** was calculated using the average overall upstate full value tax rate.
- **Number of parcels** refers to the total number of parcels of real property enrolled in RPTL 480-a.
- **Average tax shift per parcel** refers to the estimated tax shift divided the number of parcels enrolled in RPTL 480-a.
- **Percent of total tax shift** refers to the estimated tax shift for each county divided by the total estimated tax shift for all New York State counties with parcels enrolled in RPTL 480-a (37 counties in 1990).
- **NOTE: Sullivan County experienced the greatest percentage of total tax shift (31.4%) in New York State, followed by Dutchess County (14.7%) and Orange County (13.9%), not shown. Delaware, Ulster, Schoharie and Greene counties ranked 4th, 6th, 28th and 35th, respectively, in New York State.**
- **Source:** McCall, 1992.

TABLE 8. Real property taxes per acre of private forest land for selected watershed towns, 1995.

county	town	county/town tax per acre	school tax per acre	total tax per acre
Delaware	Andes	5.84-7.92	6.61-8.97	**12.46-16.89**
	Middletown	3.72-4.23	3.20-3.64	**6.92-7.87**
	Roxbury	4.60-6.90	4.20-6.30	**8.80-13.20**
	Walton	9.90	10.97	**20.88**
	Tompkins	2.05-5.25	3.35-6.21	**5.41-11.46**
Sullivan	Neversink	6.38	7.24	**13.62**
Ulster	Denning	10.37	15.61	**25.98**
	Hardenburgh	8.41	8.88	**17.29**
	Olive	6.59-7.78	12.02-13.52	**18.61-21.30**
	Woodstock	11.97	21.05	**33.02**

- **Private forest land** refers to real property type classification code 910 (Private Wild and Forest Lands except for Private Hunting and Fishing Clubs), except for the towns of Middletown (class code 911, Forest Land Under Section 480 of the Real Property Tax Law) and Woodstock (class code 322, Residential Vacant Land Over 10 Acres).
- **County/town tax per acre** may also include fire or special district taxes not exceeding 5% of the amount shown.
- **School tax per acre** may also include library or other special taxes not exceeding 5% of the amount shown.
- **Note: Taxes per acre which are expressed as a range refer to low/high range, except for the town of Roxbury (the low range refers to lands with poor access and steep slopes; the high range refers to lands with public access, easy logging, and moderate terrain).**
- **Source:** Actual tax bills for watershed residents, 1995.

TABLE 9. Summary of private forest land enrolled in RPTL 480-a for watershed counties, 1993.

	number of exemptions	total equalized value of exempt parcels	total equalized value of exemptions	percent of exempt value
Delaware	235	24,203,000	11,388,000	47.05
Greene	3	286,000	145,000	50.76
Schoharie	9	539,000	247,000	45.81
Sullivan	333	70,051,000	39,996,000	57.10
Ulster	91	21,067,000	7,587,000	36.02
TOTAL	**671**	**$116,146,000**	**$59,363,000**	**51.11**
NYS (total)	**2,276**	**$328,209,000**	**$155,093,000**	**47.25**

- **Number of exemptions** refers to the total number of RPTL 480-a exemptions, inluding whole or partial exemptions (this will not equal the number or parcels, since a given parcel may have multiple exemptions).
- **Total equalized value of exempt parcels** refers to the total assessed value of exempt parcels divided by the state equalization rate.
- **Total equalized value of exemptions** refers to the exempt assessed value divided by the state equalization rate.
- **Percent of exempt value** refers to the total equalized value of RPTL 480-a exemptions in relation to the total equalized value of all other exemptions granted.
- **Source:** NYS Board of Real Property Services, 1995.

TABLE 10. Summary of private forest land (property class code 910) and other forest land for watershed towns, 1995.

	watershed acreage			assessed value		
	910	other	total	910	other	total
Andes	0	11,407	11,407	0	3,130,060	3,130,060
Ashland	425	0	425	365,190	0	365,190
Bovina	0	499	499	0	202,743	202,743
Broome	1,160	5,968	7,128	860,200	6,088,214	6,948,414
Cairo	0	5,708	5,708	0	5,705,700	5,705,700
Colchester	1,504	21,729	23,233	22,200	1,150,980	1,173,180
Conseville	0	4,500	4,500	0	1,654,905	1,654,905
Delhi	2,042	578	2,620	1,323,160	462,686	1,785,846
Denning	8,305	41,998	50,303	2,702,186	12,782,175	15,484,361
Deposit	1,920	1,025	2,945	77,315	42,200	119,515
Durham	1,032	217	1,249	13,550	4,498	18,048
Franklin	3,193	836	4,029	677,300	194,475	871,775
Gilboa	0	1,463	1,463	0	56,887	56,887
Halcott	4,378	1,400	5,778	29,680	10,476	40,156
Hamden	757	383	1,140	149,200	96,300	245,500
Hardenburgh	2,071	28,094	30,165	2,419,600	31,390,200	33,809,800
Harpersfield	719	825	1,544	102,800	210,194	312,994
Hunter	6,707	30,378	37,085	5,282,331	21,405,858	26,688,189
Hurley	308	1.038	1,346	4,200	115,786	119,986
Jefferson	469	1,107	1,576	211,700	560,625	772,325
Jewett	1,996	7,588	9,584	1,584,320	6,546,214	8,130,534
Kingston	1,007	1,669	2,676	18,521	54,240	72,761
Kortright	1,014	932	1,946	142,750	137,900	280,650
Lexington	2,403	26,199	28,602	1,511,628	15,796,084	17,307,712
Liberty	0	209	209	0	260,900	260,900
Marbletown	0	200	200	0	4,190	4,190
Masonville	41	437	478	2,225	21,270	23,495
Meredith	518	0	518	276,480	0	276,480
Middletown	0	9,751	9,751	0	7,400,800	7,400,800
Neversink	222	10,742	10,964	5,750	599,559	605,309
Olive	9,654	4,665	14,319	167,160	88,322	255,482
Prattsville	212	0	212	166,000	0	166,000
Rochester	5,349	5,865	11,214	2,237,855	2,855,140	5,092,995
Roxbury	6,114	1,538	7,652	1,551,180	455,997	2,007,177
Shandaken	4,231	52,948	57,179	1,913,800	27,503,242	29,417,042
Sidney	20	50	70	1,700	9,375	11,075
Stamford	902	89	991	208,860	17,500	226,360
Tompkins	6,917	3,291	10,208	188,700	106,836	295,536
Walton	10,241	1,510	11,751	3,673,621	532,788	4,206,409
Wawarsing	326	160	486	12,400	5,088	17,488
Windham	93	5,751	5,844	137,400	6,422,000	6,559,400
Woodstock	626	6,762	7,388	133,250	2,040,973	2,174223
TOTAL	**86,876**	**301,754**	**388,630**	**28,174,212**	**154,814,180**	**186,988,392**

- **Property class code 910** refers to "Private Wild and Forest Lands except for Private Hunting and Fishing Clubs."
- **Other** refers to property class codes 911 ("Forest Land Under Section 480 of the Real Property Tax Law"), 912 ("Forest Land Under Section 480-a of the Real Property Tax Law"), 920 ("Private Hunting and Fishing Clubs"), 930 ("State Owned Forest Lands"), 931 ("State Owned Land (Forest Preserve) in the Catskill Park Taxable Under Section 532-a of the Real Property Tax Law"), or 932 ("State Owned Land Other Than Forest Preserve Covered Under Section 532-b, c, d, e, f, or g of the Real Property Tax Law").
- **Source:** NYC Department of Environmental Protection, 1996.

TABLE 11. Average annual removals of growing-stock volume and saw timber volume on timberland for watershed counties, 1993.

	growing stock (cubic feet)			saw timber (board feet)		
	softwoods	hardwoods	total	softwoods	hardwoods	total
Delaware	1,191,000	4,896,000	6,087,000	4,788,000	18,294,000	23,082,000
Greene	144,000	1,314,000	1,458,000	429,000	3,299,000	3,728,000
Schoharie	96,000	1,309,000	1,405,000	384,000	4,931,000	5,315,000
Sullivan	533,000	3,291,000	3,824,000	1,525,000	12,206,000	13,731,000
Ulster	315,000	3,956,000	4,271,000	923,000	12,475,000	13,398,000
TOTAL	**2,279,000**	**14,766,000**	**17,045,000**	**8,049,000**	**51,205,000**	**59,254,000**
NYS (total)	**42,970,000**	**151,735,000**	**194,705,000**	**153,613,000**	**519,347,000**	**672,960,000**

- **Average annual removals** refers to the net growing-stock volume harvested or killed in logging, cultural operations (such as timber stand improvements), or land clearing, and the net growing-stock volume neither harvested nor killed but growing on land that was reclassified from timberland to noncommercial forest land or non-forest land during the survey period. This volume is divided by the number of growing seasons to produce average annual removals.
- **Growing-stock volume** refers to net volume (gross volume less deduction of cull) of growing-stock trees 5.0 inches dbh and larger from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs.
- **Saw timber volume** refers to net volume (gross volume less deductions for rot, sweep, and other defects that affect use for lumber), by the International 1/4-inch rule, of sawlogs in saw timber trees.
- **Softwoods** refer to coniferous trees (usually evergreen and having needles or scale-like leaves).
- **Hardwoods** refer to dicotyledonous trees (usually broad-leaved and deciduous).
- **Source:** Alerich and Drake, 1995.

FIGURE 1. Total percentage of timberland ownership classes for watershed counties.
(Alerich and Drake, 1995)

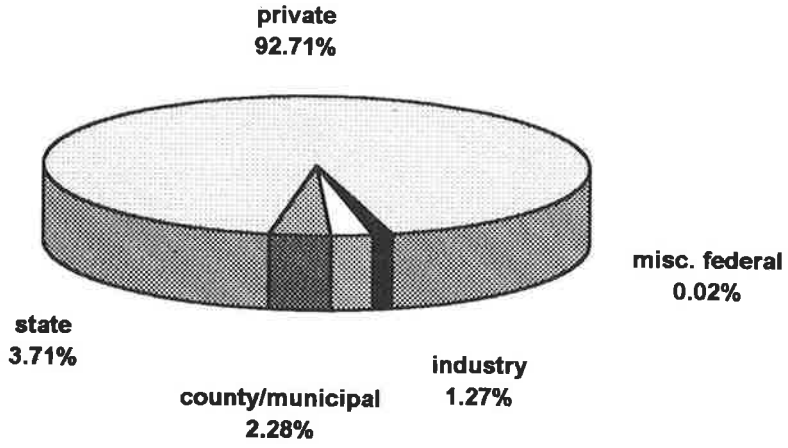
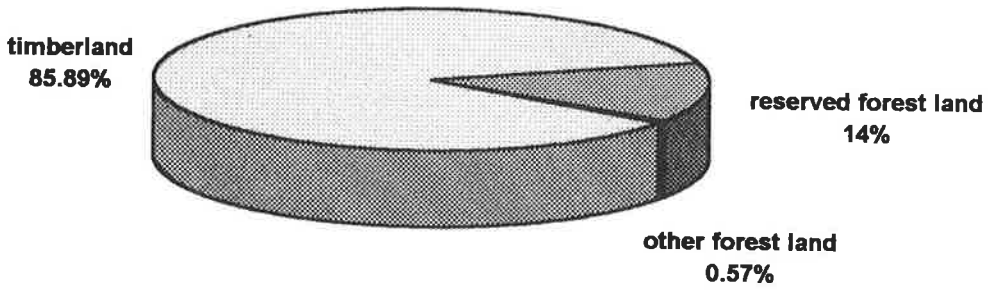


FIGURE 2. Total percentage of forest land classes for watershed counties.
(Alerich and Drake, 1995)



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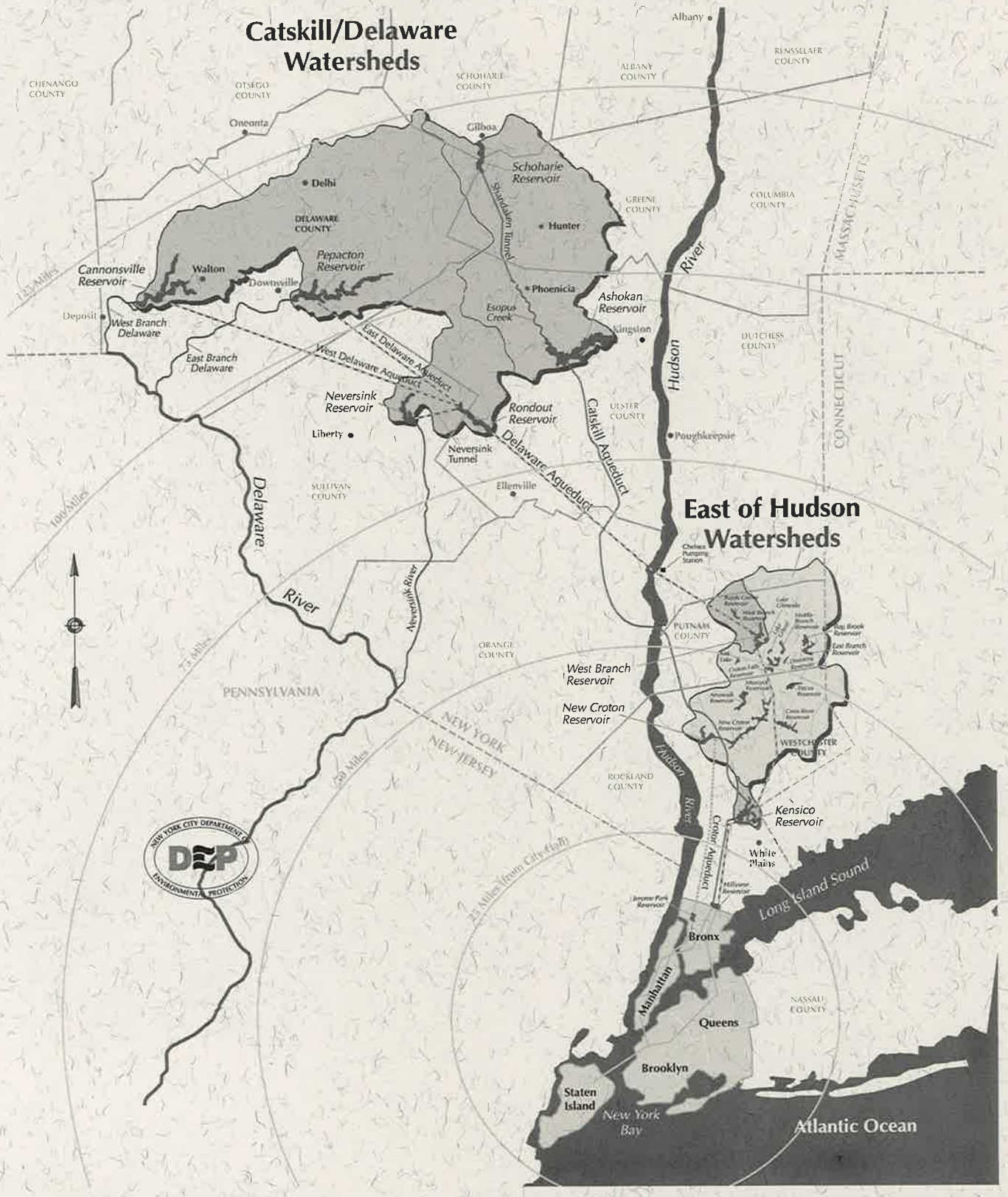

The Watershed Forest Ad Hoc Task Force is a grass-roots consortium of landowners, loggers, forest industry representatives, and interested agencies and organizations. Since December of 1994, the Task Force has held multiple meetings to discuss forestry issues and develop policy recommendations for the watersheds of New York City's water supply.

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