

An Ecological Evaluation of Pound Ridge, N.Y.

**SPONSORED BY CONTRIBUTIONS TO
POUND RIDGE UNITED FOR PLANNING**

COMMUNITY DESIGN ASSOCIATES(CODA)
is a merger of educators and
research scientists who contend
that while growth is inevitable
it need not destroy the character
of towns like Pound Ridge.

- CODA TEAM -

AN ECOLOGICAL EVALUATION of
POUND RIDGE, NEW YORK 1973

→ Their solution is environmental
planning - to use land according
to the capacity of its natural
ecosystems. These provide man's
food, pure water and air, and
enrich his life with restful,
esthetic surroundings.

To CODA, valid environmental
planning calls for the synthesis
of many professional disciplines,
and a realistic look at the
impact of development technology,
the automobile, and contemporary
living patterns on land. Ecology,
economics, social and esthetic
attitudes, property rights, and
the American legal process are
aspects that should be fully
explored and weighed by townspeople.

→ CODA's analytic framework is an
overview of a town's natural and
man-made features. And because
vital ecosystems depend on the
dynamic interaction of many complex
factors - climate, geology, soils,
vegetation, wetlands, wildlife-CODA
perceives these as a 'whole', in
the context of scientifically valid
geographic boundaries.

In April 1973, at the request of
Pound Ridge United For Planning,
CODA designed a town-wide
Environmental Planning Study of
Pound Ridge in five progressively
integrated phases: An Ecological
Evaluation(1), A Population
Determination(2), A Development
Plan(3), An Economic Analysis(4),
A 'Model' Zoning Ordinance(5).

The graphic results of phase 1
were exhibited in Fall 1973. These
and CODA's preliminary written
report were made available to the
Town Government in December 1973.
Both were subsequently finalized
for this publication.

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COVER: CODA's field team - Jim Murphy,
Helen Sussmann, Tony Dominski (l to r).
From May to September 1973, their home
and office was the Ed Marschner barn
on Long Ridge Road. Photo, Lisl Steiner

Using our 1,2, and 3 acre zoning as the yardstick, Pound Ridge could triple from 4,000 to 12,000 persons. Nobody knows when. If our present lack of environmental protection continues, will Pound Ridge be recognizable?

The 'cluster zoning' authorized by N.Y. State Town Law 281 preserves open space, but with no legal requirement that this be chosen for its exceptional ecology. County regulations dictate well and septic standards, but they do not control the cumulative abuses of land which can render victimized properties unbuildable for health reasons. Our local Water Control Law prohibits only direct pollution of water by debris, illegal chemicals and thermal influents. It cannot legally stop the filling-in of wetlands which purify as well as store water, nor halt roads and structures that devastate the soils and vegetation integral to our hydrological cycle.

Large lot zoning is not reliable - and never was related to specified ecological factors. Modern waste and water treatment facilities could satisfy the health and welfare concerns that were the legal justification for large lot zoning, and thereby vastly increase the population potential of Pound Ridge. Once such technology is substituted for natural systems in residential developments, it will be hard to legally defend the ecological complex that has made Pound Ridge both a regional water source and a beautiful place to live.

Environmental Planning aims to predetermine a town's maximum population on the basis of the capacity of its overall ecology. Land is developed in varying densities, according to its environmental value, and within the context of a town-wide Development Plan. This makes sense. But will Pound Ridge support the comprehensive, and astute, professional analyses needed to make it work? Ecologically? Economically? Legally? With a fair deal for everyone's private property investment?

CODA's Ecological Evaluation, keyed to 35mm color slides of four outstanding data maps, is a major step towards helping townspeople find the answers. It was financed by private contributions to Pound Ridge United For Planning (PRUP), a private non-profit organization started in December 1972, and restructured in Fall 1973 as an environmental research and educational Trust. PRUP is sponsoring CODA's entire 5-phase Environmental Planning Study, and informed public dialogue, to help insure a sound environmental future for Pound Ridge.

Growth may be inevitable. But if we think and act together we can influence the way Pound Ridge grows. First we must know what to save and why, in time to save it.

The Trustees
Pound Ridge United For Planning

July 1974



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POUND RIDGE IN PERSPECTIVE

Pound Ridge, during the last century, has changed from an agricultural landscape to an affluent suburb of New York City. This change has occurred so gradually that, at best, townspeople were only mildly concerned with the future of the town. No pressure existed to cause them to feel their way of life was seriously threatened.

Although significant parcels of agricultural land remain today, the regional pressure to accelerate development of Pound Ridge is enormous. It is among the few remaining thinly populated, quasi-rural areas within commuting distance of New York Connecticut Megalopolis bordering Long Island Sound. In fact, compared to neighboring communities, Pound Ridge is an island community soon to face the enormous pressure of highly skillful developers.

The people of the town are becoming aware of the trend towards development and what it means to them as citizens of the town and as individual home and land owners. The basic question which repeatedly challenged CODA's professional team in the summer of 1973 was: "How can the townsfolk control the town's growth and still not infringe on what they consider the basic rights of individual property ownership"?

This question is on the mind of many people in regions undergoing rapid development.

The regional pressure to further develop Pound Ridge is enormous because it offers a suburban environment within

within commuting distance of Bridgeport, Stamford, and New York City. In many of the surrounding towns, development is proceeding at a fast pace, as it is in Pound Ridge itself. New York, Connecticut, Vermont and other states are rapidly evolving laws which are reinterpreting the formerly accepted "rights of land ownership". The purpose of these laws is to assure the conservation of natural resources which form the key links in human life support systems - food, air, and water as well as providing for a heterogeneous environment, rather than wall-to-wall people. This later point is particularly important for that significant number of people with a low tolerance for crowding.

The government of Pound Ridge apparently assumes that rapid housing development on the larger parcels of land will occur. The belief has been expressed that the over-riding limiting factor controlling the growth in the near future is the availability of water from individual wells and the disposal of domestic sewage via septic tanks and leach fields. The threshold these factors might put on the population of Pound Ridge, could be circumvented by a town commitment to public water supply and public sewage disposal. Should this commitment be made population projections will be greatly increased and any semblance of agricultural - rural aesthetics in the town will be largely diminished, if not lost entirely.

One can easily imagine the least desirable course of events: The population of Pound Ridge will grow with houses on 2-3 acre lots. New residents will be glad to have their

homes in the town, but will resist "indiscriminate" development of remaining lands. As the population continues to increase, more restrictive control of remaining land may occur; as well as less and less opposition to cluster housing, condominiums and an expanded business center.

Two things could alter this process: 1) citizen action at both the personal level and at the level of local government, resulting in a rising concern for decreasing rural character, more education, and more careful and knowledgeable scrutiny of development alternatives. 2) increased legal action at the state level especially as it involved implementation of the Environmental Plan for New York State.*

These combined activities could result in effective pressure for conservation and development along ecologically sound lines (minimal destruction) with a reinterpretation in the rights of individual land ownership. The overall result would be long term preservation of a unique rural environment for future generations.

*Environmental Plan for New York State. Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12201, June, 1973

THE ROLE OF NATURE IN THE URBANIZED LANDSCAPE

Arguments for the preservation of natural land in regions undergoing urbanization are often based on aesthetic and emotional considerations and on the need for recreation areas, wildlife preserves and parks. These are legitimate and powerful reasons, but more fundamental arguments for the preservation of nature stem from an understanding of nature's dynamic processes. The term, 'preservation' often carries emotional meanings of closed or forbidden entry, but we use it here to mean, to keep alive or in existence.

The following pages report new findings that forests and other wildlands play a more important role than previously realized in providing a quality environment in populated regions. This is the basic ecological premise which permits the establishment of ecological planning in developing suburban areas such as Pound Ridge. Results from an experiment in forest cutting illustrate the importance of determining and understanding all of the responses of an ecosystem before wise decisions about land use can be made. Finally, we discuss how the process of development largely fails to use this information with a consequent loss of natural functions, with added costs to society, and with decline in the quality of urbanized life.

The Function of Undisturbed Forest Land

The first step in understanding the function of forests is to realize that they are one of the most complex units of nature. To the untrained eye, they appear relatively static. In reality, they are sites of intense activity. Each year, millions of gallons of precipitation, trillions of calories of energy and vast tonnages of gasses flow into each square mile of forests to be used, altered and dispersed.

Thousands of species of plants, animals and microbes use part of this water, energy and chemical elements, to live and reproduce. They regulate the flow of energy, nutrients and water through the forest.

Each forest may thus be considered as a unit of landscape, an ecosystem, interacting with surrounding ecosystems and requiring a regular input of solar energy. By manipulating forest ecosystems, man can have important effects on outputs and, by so doing, have strong effects on his own welfare.

The remarkable thing about nutrient cycles in a mature forest ecosystem is that they are very tight. Although large quantities of nutrients move around freely within the system, very little is lost in drainage water. Each year there are small net losses of nutrients like calcium, sodium and magnesium. At first glance it appears that the forest ecosystem is running downhill, but these net losses are made up by weathering, the chemical breakdown of rock particles within the ecosystem, which results in freeing nutrients from the rock and making them available to the

vegetation and soil. Natural ecosystems have made nutrient recycling a fine art.

Water Filtration

One of our most important findings is that the forest ecosystems regulates the chemistry of water percolating through it, even though the chemistry of rainfall is very variable. The chemistry of water draining from the ecosystem determines, in a large measure, the chemical quality of water moving to streams or to the groundwater.

The capacity of ecosystems to regulate stream water chemistry is related in part to the nutrient holding capacity of the soils. Soil organisms, such as earth worms, significantly contribute to this relationship by making burrows and churning the soil both of which facilitate movements of water through the soil.

The exchange capacity, texture and nutrient content of the mature forest soil is often the result of developmental processes occurring over hundreds or even thousands of years. These processes are slowly building up organic matter, silt, and clay which contain electronegative exchange sites and accumulate stores of nutrients. These constituents are concentrated in the upper foot or two of most soils. This is a matter of great importance. It points out that when we needlessly bulldoze or compact soils or blacktop land surfaces, we are destroying or disrupting ecosystem conditions that have taken hundreds or thousands of years to develop. Nutrient stocks are lost and filtration capacity of the land is diminished.

Soils under forests and other wildlands may be regarded as an extremely important filtration system between polluted rainfall and the water supply (streams and groundwater). Rainfall measurements indicate that the amount of nitrate (a naturally occurring compound of nitrogen which is also one of the end products of automobile exhaust) is increasing in the rainfall. The addition of nitrate to streams and lakes can contribute to their eutrophication or the accelerated growth of unwanted organisms with a consequent loss of water quality.

In Pound Ridge, our nutrient budget data indicate, however, that nitrate is now being held within the forest ecosystem and is not yet reaching surface and groundwater supplies.

Rainfall over all of Pound Ridge and the rest of the northeastern United States is now a mixture of weak sulfuric and nitric acid. Our data suggest that acid rain results from an increase in air pollution that has occurred within the last fifteen years and is likely to increase further. This is a serious problem but our data indicate that for the time being Pound Ridge's forest ecosystem is functioning to remove much of the acid from infiltrating rainwater. Consequently, the acidity of stream water draining from our forest is about 30 times less than rainwater.

Air Filtration

As the soil serves to remove pollutants from water, the vegetation within the ecosystem removes pollutants from the air.

Many ecological studies have shown that vegetation has the ability to partially remove a variety of pollutants from the wind stream passing through it. These include dust and particulate matter, which may contain a variety of pollutants, and a number of gaseous pollutants such as ammonia, sulfur dioxide, ozone, chlorine and hydrogen flouride. Sulfur budgets for our ecosystem suggest the vegetation may be especially efficient in removing sulfur from the air stream.

Erosion Prevention

Forests also have phenomenal capacity to maintain stable soil surfaces, to control erosion, and to produce sediment free water.

Approximately one million gallons of water falls each year on each acre along the Atlantic seaboard. This water has a huge potential to wear away the land, to destroy ecosystems, and to pollute surface water supplies with sediments. Yet, the rates of erosion for completely forested watersheds are typically low for a variety of eastern deciduous forest, i.e. less than 20 tons/per square mile per year. As a result of this regulation of erosion, water flowing to streams and groundwater from forested or other well vegetated lands is virtually sediment free and can be used by man at minimum treatment costs.

Limits of Natural System

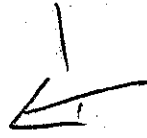
Natural ecosystems do not have unlimited capacity to absorb pollutants. They can probably absorb and tolerate a

modest amount of pollution, and continue to function more or less normally for a period of time. Eventually, they will come into equilibrium with pollution loads and thus lose their storage function, or the ecosystem may drastically change due to pollution-induced damage. Thus, natural ecosystems should not be seen as a license for additional pollution, but rather as a temporary natural sponge, while we work toward achieving the lowest possible pollution of air and water.

The enormous stabilizing force of natural ecosystems is best seen by contrast. In areas undergoing urbanization where excessive destruction of natural ecosystems is usually combined with careless construction techniques that needlessly accelerate erosion processes, erosion rates several thousand times greater than those expected from a mature forest are not uncommon.

This brings us back to the principle that all ecosystems are interconnected and massive erosion of upland construction sites results in serious degradation of aquatic ecosystems like streams, lakes and reservoirs. Sediments derived from erosion can change the physical character of streams channels causing increased flooding. They can cause the filling of natural ponds and reservoirs. Finer sediments can reduce water quality affecting public water supplies and recreational uses. Turbid water, resulting from increased erosion can reduce light penetration into natural waters. This in turn can reduce plant photosynthesis and lower dissolved oxygen

supplies leading to changes in the natural flora and fauna. Pollutants normally filtered out by soil and vegetation might find their way directly into water supplies. Since all the streams draining Pound Ridge are feeders of reservoirs, this is of special significance.



THE HYDROLOGIC CYCLE IN POUND RIDGE

The landscape of Pound Ridge is a natural product of four closely intertwined life-supporting elements: soils, vegetation, water and climate. Of these, climate is the prime mover. Rock weathers into soil and soil spawns forests, all in concert with the rhythms of climate, which brings rain and snow in various quantities according to the season. In turn soil and forest act on rain and snow by retaining some moisture and allowing some to pass on to streams. Of the water retained, most is taken up by the roots of trees and smaller plants and evaporated from the surfaces of leaves.

All water not lost by evaporation flows downhill on or near the surface of the ground or infiltrates directly downward to the water table; both paths lead ultimately to a stream at some point lower in the watershed.

Thus all precipitation not evaporated shows up as surface streamflow, and all streamflow originates from precipitation within the watershed. Underground rivers, except for man-made aqueducts, do not exist in this region.

Each of these processes of water movement has its own rhythm, strongly determined by the properties of vegetation and soil.

Evaporation is confined largely to the growing season. During this time water held by capillary action in small pores within the soil is drawn on heavily by plants' root systems. As a result most rainfall replaces this soil water and very

little is free to percolate downward to the water table.

Direct runoff, that portion of rainfall which flows near the surface of the ground, is limited to water in excess of that which the soil can absorb and allow to pass on to greater depths. It occurs only during a storm and for about a day after, and during periods of rapid snowmelt. Direct runoff is responsible for the rise in streams in the spring and after a storm, and for floods after a particularly heavy rainfall or thaw.

Although forests cause much water to be lost by evaporation, the loosely packed layer of decaying leaves and other organic matter in forest soils absorbs moisture at a higher rate than in other soils, and thereby reduces direct runoff and consequent flooding.

Water which the soil can absorb, but is in excess of that which the soil can retain is passed downward by gravity to the water table, i.e., the upper surface of soil or bedrock which is saturated with water. This process is known as recharge. The situation is rather like a bathtub full of sand -- the capacity of the tub to hold water is diminished by the volume of sand, with water limited to the pores between sand grains. If the water level is below the top of the sand layer it is not apparent that the tub holds water, but nonetheless, it does, since water is confined by the bottom of the tub. Sand above the water level also holds some water against the force of gravity, as verified by its wetness to the touch.

The situation in nature differs from that of a bathtub principally in two ways:

1. Bedrock, the confining layer, contains cracks and fissures to a depth of several hundred feet and can therefore store water, although usually in much smaller quantities than in the soil.
2. The confining layer slopes toward the watershed's valley. Hence, the water table slopes in the same direction and the ground water travels in the direction of the slope. On the upland the lower relatively unweathered soil layers usually consist of glacial till, an amalgam of compacted and unsorted sands, gravels, silts, and clays which restrict the flow of water to such an extent that downslope progress is no more than a few feet per day. Some soils also contain an especially compact layer known as hardpan, which acts as a semi-confining layer and causes seasonally high water tables. The valleys are often filled with porous, loosely packed deposits of sand and gravel in which water flows more readily - on the order of hundreds of feet per day, despite the gentler slopes.

Where the water table intercepts the surface of the land in a depression, a lake, stream, or swamp is found, depending on the shape and size of the depression. Where the water table is at or near the surface of the land for all or part of the year the land is called a wetland.

These flow processes result in watersheds with the following characteristics of interest to man:

1. Due to the slow advance of water downhill, the upland water table drops very little in relation to elevation above the valley floor during the summer when evaporation is high and recharge is low. Put another way, the storage of ground water is remarkably well-regulated, despite extremes of recharge caused by seasonal evaporation and the vicissitudes of weather.
2. Wells drilled into bedrock intercept the cracks and fissures (with varying degrees of success) such that ground water stored over a wide area is reliably delivered to the well.
3. Septic waste disposal systems laid in a well-aerated soil over glacial till expose the effluent to powerful purifying micro-organisms. Flow away from the system is impeded by the till so that the water takes

long enough in passing to a well intake or stream to be essentially pure upon reaching it. The soil also purifies by filtering out microscopic particles, such as bacteria, not destroyed by soil micro-organisms.

4. During periods of low rainfall, streamflow consists entirely of ground water flow. Since ground water is discharged slowly, most streams flow year-round. The flora and fauna of stream and bank owe their existence to this fact.

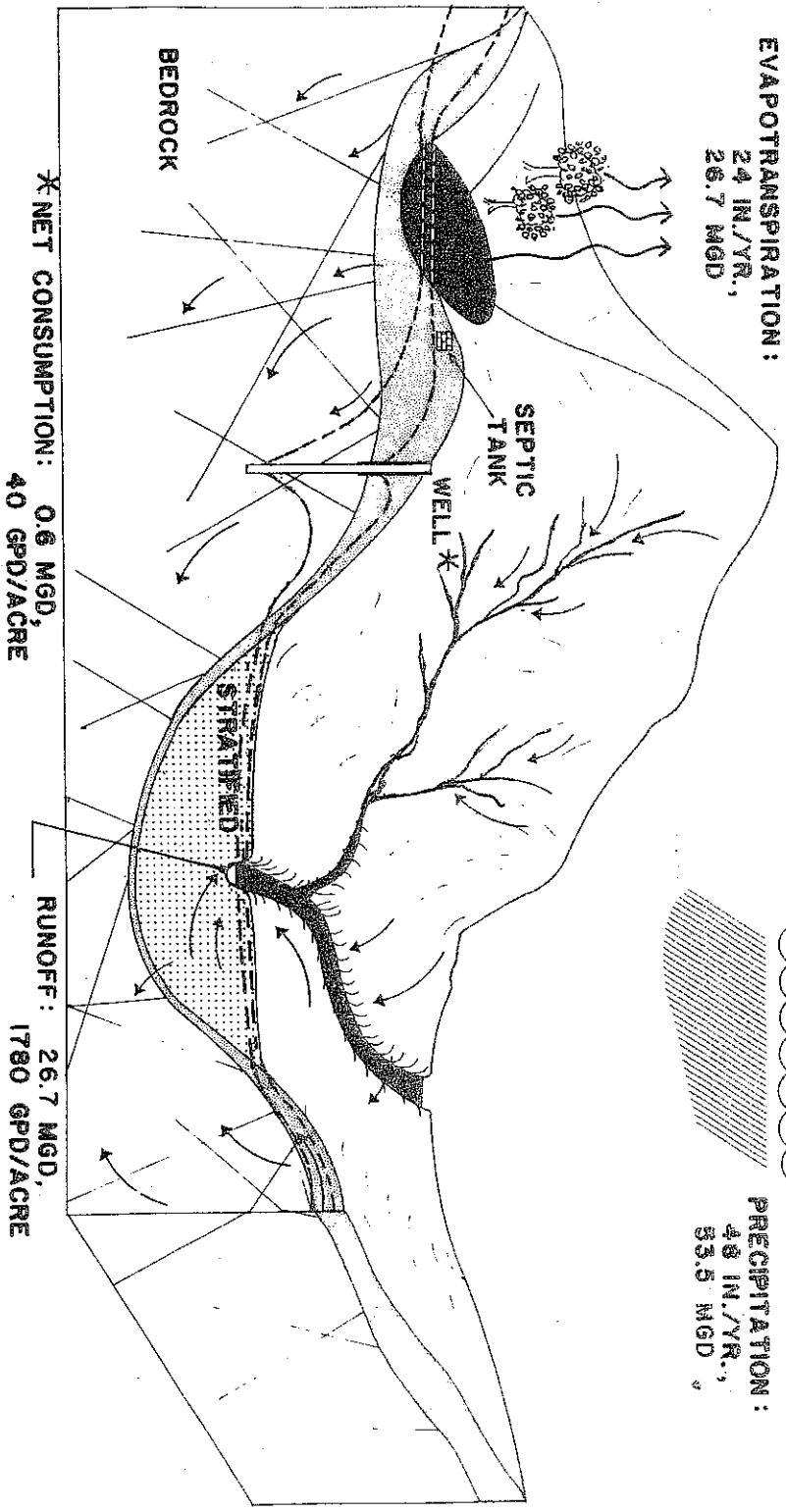
Man has thus been provided with the elements of a biologic-hydrologic life support system, which his wells and waste disposal systems take good advantage of. However, the system has limits, some of which are germane to the course of development in Pound Ridge. The following limits have been or are about to be exceeded in places detailed in the body of this report.

1. Soils high in sand and gravel or over bedrock with large fissures, such as occur in marble and fault zones transmit and store water well. Therefore, they are good places for wells, but poor places for septic systems because the effluent is not retained long enough before reaching a well to be thoroughly purified. This results in polluted ground water. This may also occur in soils on glacial till when septic systems are too close to wells. Similarly, streams and lakes can become malodorous and choked with weeds when fed by septic systems too numerous or poorly placed. Existing public health regulations are not adequate to prevent these occurrences in all situations.
2. Conversely, soils too high in clay or with hardpan do not allow septic systems effluent to drain away fast enough. Contaminated water, therefore, ponds at the surface, causing a nuisance and a public health problem.
3. The storage of ground water is not uniform throughout the watershed, but tends to be less on the upper slopes and ridge-tops. Wells too closely spaced will interfere with one another, causing yields to drop, and may go dry during periods of low recharge.
4. As the forest is cut and replaced with roads, driveways, and other paved or compacted surfaces the

soil's absorptive capacity is lessened and the frequency and severity of downstream floods increases.

As a rule, when the limits of a nature's watersheds are reached, services such as public water, sewerage, and flood control projects must take over, usually at great trauma and expense. The very ecological system which attracted new residents is also lost. When this happens the towns gradually lose their natural beauty and self sufficiency in the increasingly monotonous, overdeveloped suburban landscape. Only careful planning based on ecological and hydrologic principles can assure that the limits are not to be exceeded.

Illustration A



CODA GRAPHIC

LEGEND:

- IN./YR. inches per year
- MGD million gallons per day
- GPD/ACRE gallons per day per acre

Most of Pound Ridge's water comes from rainfall - an average of 53.5 million gallons daily. Half is absorbed by vegetation or evaporates from surface waters. Almost another half drains into soils and eventually finds its way to rivers and underground rock formations. Only 0.6 million gallons per day are consumed. Natural water resources depend on maintaining soil constituents which nourish and in turn are nourished by vegetation, wildlife and the ever-regenerating cycle of nature. Of special importance are soil beds of wetlands and aquifers which store and purify large quantities of Pound Ridge's regionally vital water resources.

THE HYDROLOGIC CYCLE

The hydrologic data on Pound Ridge was obtained from the library at the
 Yale University

POUND RIDGE VEGETATION Slide B

Pound Ridge has a diverse landscape with many distinctive vegetation types within its 15,000 acres. In mapping these types we have defined 9 plant communities on the basis of species, composition, community age and stature and substratum, whether aquatic, wetland or upland. The nine plant communities are as follows:

- 1) old field
- 2) successional forest
- 3) oak forest
- 4) mixed hardwood forest
- 5) hemlock-mixed hardwood forest
- 6) hemlock forest
- 7) conifer plantation
- 8) pond or streamside vegetation
- 9) wetland - sedgeland or swamp forest vegetation.

Descriptions of the characteristic species composition of these vegetation types and relationships between these plant communities and the species list for each association are given. These species lists are general in that more associated plants can always be added to such a list of flora, but they are specific in their definition of characteristic tree, shrub, and herb found in each classified vegetation type. It is hoped that these lists will also be helpful for educational purposes as a guide to those plants which will most likely be encountered in each of these Pound Ridge plant associations.

*Old Field Yellow Map Areas, Slide B

Vegetation mapped as "old field" was once primarily upland pasture which has been abandoned from active grazing or mowing in the last 10-40 years leaving the land with an open field aspect. This association is characterized by predominance of grasses, sedges and herbs with a few scattered shrubs and trees. Some shrubs which grow vigorously in the open such as the highbush blueberry and raspberries, and those which reproduce vegetatively in clones such as gray dogwood are among the first invaders as the succession toward reforestation begins. This post-disturbance vegetation of grasses with colorful daisies, butterfly weed, goldenrods and the characteristic red cedars is bounded by historic stone walls and gives an esthetically pleasing diversity in an otherwise forested landscape. The red cedars which invaded the cleared fields during the period of active agriculture in Pound Ridge often survived browsing since young cedars are very bristly and unpalatable to livestock. Red cedar and the fast growing gray birch are the most frequent tree invaders found in the old field vegetation type. The large variety of seed bearing herbs and berried shrubs make the abandoned fields ideal habitats for many birds and small animals. In some of these meadow thickets, one can flush a woodcock or pheasant.

Examples of old field vegetation are common and might include:

- 1) Complex of red cedar fields west of Trinity Lake on Water Company land.
- 2) Fields north of Upper Shad and east of Long Ridge Roads.

* Developed land with maintained grounds, mowed lawns and fields are included in the old field vegetation classification for mapping purposes.

Old Field - Pound Ridge Species Yellow Map Areas, Slide B+TREE STRATUM:

Acer rubrum	Red Maple
Acer saccharum	Sugar Maple
*Betula lenta	Black Birch
*Betula populifolia	Grey Birch
Carpinus caroliniana	Blue Beech
Fraxinus pennsylvanica	Green Ash
*Juniperus virginiana	Red Cedar
Nyssa sylvatica	Black Gum
Ostrya virginiana	Hornbeam
*Populus grandidentata	Big Toothed Aspen
Populus tremuloides	Trembling Aspen
Prunus pennsylvanica	Choke Cherry
Prunus serotina	Black Cherry
Pyrus malus	Apple
Quercus rubra var. borealis	Northern Red Oak
Quercus velutina	Black Oak
Robinia pseudo-acacia	Black Locust

++SHRUB STRATUM:

Amelanchier ssp.	Shadbush
*Cornus racemosa	Grey Dogwood
Eleganus angustifolia	Russian Olive
Gaylussacia baccata	Huckleberry
Myrica pennsylvanica	Bayberry
Potentilla fruticosa	Shrubby Cinquefoil
*Rhus glabra	Smooth Sumac

SHRUB STRATUM, con't (Old Field)

<i>Rhus copallina</i>	Winged Sumac
<i>Rubus ideaus</i>	Red Raspberry
<i>Rubus phoenicolasius</i>	Wine Berry
<i>Rubus occidentalis</i>	Black Raspberry
<i>Rubus odoratus</i>	Purple Flowering Raspberry
<i>Rosa</i> spp.	Wild Roses
<i>Smilax herbacea</i>	Carrion Flower
<i>Smilax rotundifolia</i>	Greenbriar
<i>Spirea latifolia</i>	Meadowsweet
<i>Spirea tomentosa</i>	Steeple Bush
* <i>Vaccinium corymbosum</i>	Highbush Blueberry
<i>Viburnum lentago</i>	Nannyberry
<i>Vitis</i> spp.	Wild Grape

+++HERB STRATUM:

<i>Achillea millefolia</i>	Yarrow
<i>Agrostis alba</i>	Redtop
<i>Alliaria officinalis</i>	Garlic Mustard
<i>Andropogon virginicus</i>	Broomsedge
<i>Andropogon scoparius</i>	Little Bluestem
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass
<i>Antennaria</i> spp.	Pussytoes
<i>Ambrosia artemisifolia</i>	Common Ragweed
<i>Asclepias syriaca</i>	Common Milkweed
<i>Asclepias tuberosa</i>	Butterfly Weed
<i>Chamaelirium luteum</i>	Devil's Bit
<i>Cichorium intybus</i>	Chicory

HERB STRATUM, cont (Old Field)

Comptonia perigrina	Sweet Fern
Coronilla varia	Crown Vetch
Crysanthemum leucanthemum	Ox-eye Daisy
Dactylus glomeratus	Orchard Grass
Daucus carota	Queen Anne's Lace
Dennstaedia punctiloba	Hay Scented Fern
Erigeron spp.	Daisy Fleabane
Festuca ovina	Sheep Fescue
Fragaria americana	Strawberry
Galium spp.	Bedstraws
Leersia virginica	Catchfly Grass
Linaria vulgaris	Butter and Eggs
Lotus corniculatus	Birdfoot Trefoil
Melilotus alba	White Sweet Clover
Melilotus officinalis	Yellow Sweet Clover
Parthenocissus quinquefolia	Virginia Creeper
Phytolacca americana	Pokeweed
Poa pratense	Kentucky Bluegrass
Phleum pratense	Timothy Grass
Polygonum lapathifolium	Pale Smartweed
Potentilla spp.	Cinquefoils
Prunella vulgaris	Self Heal
Pteridium aquilinum	Bracken Fern
Lysimachia quadrifolia	Whorled Loosestrife
Rhus radicans	*Poison Ivy
Rubus hispidus	Bristly Dewberry
Rudbeckia hirta	Black Eyed Susan

HERB STRATUM, con't (Old Field)

Silene cucubalus	Bladder Campion
Solanum carolinense	Horse Nettle
Solidago spp.	*Goldenrods
Taraxacum officinale	Dandelion
Trifolium pratense	Red Clover
Urtica dioica	Stinging Nettle
Vaccinium angustifolium	Low Bush Blueberry
Verbascum thapsus	Mullein
Vicia spp.	Vetch

* dominant species in each of tree, shrub and herb strata.

+ Tree stratum - any tree larger than 15' when mature.

++ Shrub stratum - any woody tree smaller than 15' when mature and larger than 3'.

+++ Herb stratum - any woody or herbaceous plant smaller than 3' when mature.

Successional Forest Light green map areas, Slide B

The successional forest is by definition variable in composition. Tree seedlings, from windborn seeds and animal disseminated sources begin to invade the fields. Several species characterize the transition phase to forest which we have termed "successional forest". In areas mapped with this plant community the aspect is one of a young forest which is changing in composition. Fast growing species which require the direct sunlight of open fields, such as black birch or large toothed aspen are common tree pioneers.

Large, beautiful sugar maples growing along the stone walls have, in many cases, served as an abundant seed source resulting in some successional stands of almost pure sugar maple. Winged seeds from large white and green ash found along original stone walls also seed into fields.

Pioneer trees may be a large number of species combinations although black and gray birch, black locust, aspens, black cherry and sugar maple are the most common.

The shade of these trees changes the light and temperature conditions of the soil beneath them, and their leaf litter rebuilds soil structure and humus content altered by agriculture. As the vegetation modifies the environmental conditions, the forest edge encroaches further on the once-cleared land, and one of the more mature forest vegetation types found in Pound Ridge begins to establish itself. The successional period, when species able to first invade the unforested land thrive, is transitional. The mature trees,

shrubs and herbs which eventually provide self-perpetuating and relatively stable vegetation cover have fewer members of the species commonly found in successional stages, and are characteristic of more mature types.

The fore runners of the more mature forest lose dominance for reasons such as intolerance of their seedlings to shading, competition among root systems of different species for nutrients and water and interactions of these and other factors. Black birch, for example, although it is a successful clearing invader, is particularly susceptible to species of Nectria fungi.

Stands of cankered black birch surrounded by vigorous seedlings and saplings of other species such as sugar maple, sassafras and tulip poplar are a testimony to the complex successional interactions and can be seen quite commonly in Pound Ridge.

Examples of the successional forest vegetation type might include:

1. Sugar maple stand seeding in old apple orchard complex south of Stone Hill Road and east of Honey Hollow Road.
2. Black birch stand infested with Nectria north of Stone Hill River and east of Michigan Trail.

NOTE: This stage is too highly variable and transitional (between field and forest types) to produce a specific list of vegetation types.

Forest Types

Pound Ridge lies in a region of diverse forest vegetation. The topography, part of the Ridge and Valley physiographic province of the Appalachian Highlands is extremely variable. To the north in New England lies the forest region dominated by a hemlock-northern hardwood-white pine vegetation type where sugar maple, beech and yellow birch mix with conifers. To the south are regions of mixed forests where oak-hickory associations of more mesophytic mixed hardwoods such as tulip popular, sugar maple, beech share dominance of the forest canopy. The local forest vegetation reflects a certain mixing of these types which surround Pound Ridge on a north-south climatic continuum.

Although Pound Ridge is located in a region designated as the glaciated section of the oak-chestnut region of dominant forest vegetation,¹ the American chestnuts, the most valuable and one of the largest and most stately of the forest's dominant tree species, have been wiped out in the last fifty years.

The chestnut blight and its effect on the lower Hudson forest region illustrates the impact of a biological disaster on the forest, and the variety of successional directions which can follow a large scale ecosystem perturbation. Chestnut blight is caused by Endothia parasitica, an ascomycetous fungus. Like the causal agent of Dutch elm disease, this organism is an imported pathogen, thought to

1. Braun, E.L. Deciduous FORESTS OF EASTERN NORTH AMERICA, Blakiston, Philadelphia 1950

have been introduced on nursery stock from the Orient. In 1904, American chestnuts in New York began to die suddenly. The introduction of this alien fungus into a system where it found the environment conducive for rapid growth, where the host American chestnut had not been selected naturally for any genetic resistance, and where the fungus could exist saprophytically on the bark of oaks which were forest co-dominants of the chestnut led to an advance of chestnut blight at a rate close to 24 miles per year.¹ The root collar of the chestnut, however, resists the fungal infection and produces root sprouts which reach sapling height in this region.

Today, Pound Ridge lies in what has been designated the "sprout hardwood" region of the northeast. Following blight and logging operations which are part of the history of this landscape, many oaks and the American chestnut have reproduced vegetatively by sprouting. This sprouting ability is one mechanism working to maintain some of the original forest composition in the process of reforestation.

Sprouts of American chestnut are common in forested portions of Pound Ridge as are the rotting stumps of the blighted trees which represent logging operations to salvage the chestnut wood. These are the remnants of the forest tree which reached 60-90 feet and could be 3-5 feet in diameter when mature. The American chestnut sprouts here today commonly are 3-8 feet high and 1-2 inches in diameter before they show symptoms of chestnut blight cankers. The largest sprout

1. Smith, W.H. TREE PATHOLOGY: A Short Introduction, Academic Press, New York 1970

which we have seen in Pound Ridge is 10.75 cm in diameter and about 20 feet high. This sprout shows no sight of disease at this time and is growing in the mature mixed forest west of the Siscowit Reservoir on the Stamford Water Company Land.

The directions of forest succession after the elimination of the American chestnut have varied. Of the seven main vegetation types listed in the following breakdown, two in particular - oak and mixed hardwood - have been most responsible for successional replacement after the chest-nut blight.

Oak Forest Brown Map areas, Slide B

Forests mapped in "oak forest" vegetation are those in which oak reproduction has increased since the removal of American chestnut's canopy shade and root competition. This type was mapped when oak species occupied more than about 70% of the trees in the canopy. The four oak species commonly growing in this association are Northern red, white, black and chestnut oaks, and these are often associated with black birch and sassafras. A subdivision within this type might well be called 'oak knolls'. This is an association occurring on well drained rocky hills supporting a good proportion of chestnut oak and often an understory of mountain laurel. This ericaceous evergreen shrub grows well in the slightly acidic soil formed by oak litter and in some places form an almost impenetratable stratum. In other oak areas, the shrub layer is more open and the ericaceous high and low bush blueberries are present. Herb layer species are characteristically not abundant in this association, but include the beautiful pink lady's slipper orchid, wild sarsaparilla, wintergreen and mosses.

Gypsy moth defoliation has been particularly severe on oak knolls dominated by chestnut oak. Many of these knolls in Pound Ridge support dead trunks of this oak species with young chestnut oak, black and red oak species seeding in.

Examples of the oak forest type are found in numerous Pound Ridge locations. One example is the oak ridge west of Rt. 124 and beyond the substation.

Oak Forest - Pound Ridge Species Brown Map Area, Slide B+TREE STRATUM:

Acer rubrum	Red Maple
Acer saccharum	Sugar Maple
Betula allegheniensis	Yellow Birch
*Betula lenta	Black Birch
Carya ovata	Shagbark Hickory
Carya glabra	Pignut Hickory
Carya tomentosa	Mockernut Hickory
Fagus grandifolia	Beech
Liriodendron tulipifera	Tulip Poplar
Prunus serotina	Black Cherry
*Quercus alba	White Oak
*Quercus prinus	Chestnut Oak
*Quercus rubra var. borealis	Northern Red Oak
*Quercus velutina	Black Oak
Sassafras albidum	Sassafras

++SHRUB STRATUM:

Acer pennsylvanicum	Striped Maple
Castanea dentata	Chestnut (sprouts)
Hamamelis virginiana	Witch Hazel
Kalmia latifolia	*Mountain Laurel
Vaccinium corymbosum	*Highbush Blueberry

+++HERB STRATUM:

Aralia nudicaulis	Wild Sarsaparilla
Cypripedium acaule	*Pink Lady's Slipper
Gaultheria procumbens	Wintergreen

+++HERB STRATUM: (Oak Forest, con't)

Gaylussacia baccata	Huckleberry
Geranium maculatum	Wild Geranium
Hepatica acutiloba	Hepatica
Hepatica americana	Haircup Moss
Maianthemum canadense	*Canada Mayflower
Polystichum acrostichoides	*Christmas Fern
Thelypteris nova boracensis	New York Fern
Vaccinium angustifolium	*Lowbush Blueberry

*dominant species in each of tree, shrub and herb strata.

+Tree stratum - any tree larger than 15' when mature.

++Shrub stratum - any woody tree smaller than 15' when mature and larger than 3'.

+++Herb stratum - any woody or herbaceous plant smaller than 3' when mature.

Mixed Hardwood Forest Green Map area, Slide B

The vegetation type mapped as "mixed hardwood forest" could be subdivided for discussion into oak dominant, mixed hardwood forests and mixed mesophytic hardwood forests. In the first type, we may speculate that sugar maple, tulip poplar and black birch, as well as additional oak seedlings invaded the forest gaps left by the chestnut blight. This results in a forest with many Northern red oak, white oak and black oaks, but with 30-50% of the canopy trees of other hardwood species.

The mixed mesophytic type of hardwood forest has a still smaller component of forest oaks. Sugar and red maples and tulip poplars share dominance with white ash, beech and four species of hickories. Maple-leaved viburnum and witch hazel are commonly in the shrub layer. Woodland herbs such as Solomon's Seal, wild geranium, wild ginger and asters are diverse and colorful among ferns which include New York, Lady, Hay scented and Maiden hair.

The outstanding example of a mature mixed mesophytic forest is found in the Mianus Watershed study area, south-east of the Twin Lakes off Pine Brook Road.

Mixed Hardwood Forest - Pound Ridge Species Green Map areas
Slide B

+TREE STRATUM:

* <i>Acer saccharum</i>	Sugar Maple
<i>Acer rubrum</i>	Red Maple
<i>Betula lenta</i>	Black Birch
<i>Carpinus caroliniana</i>	Blue Beech
<i>Carya cordiformis</i>	Bitternut Hickory
<i>Carya glabra</i>	Pignut Hickory
<i>Carya ovata</i>	Shagbark Hickory
<i>Carya tomentosa</i>	Mockernut Hickory
<i>Fagus grandifolia</i>	Beech
<i>Fraxinus americana</i>	White Ash
* <i>Liriodendron tulipifera</i>	Tulip Poplar
<i>Ostrya virginiana</i>	Hophornbeam
* <i>Quercus alba</i>	White Oak
* <i>Quercus borealis</i> var. <i>rubra</i>	Red Oak
<i>Quercus velutina</i>	Black Oak
<i>Sassafras albidum</i>	Sassafras
<i>Tilia americana</i>	Basswood
<i>Ulmus americana</i>	American Elm

++SHRUB STRATUM:

<i>Castanea dentata</i>	American Chestnut (sprouts)
<i>Hamamelis virginiana</i>	Witch Hazel
* <i>Viburnum acerifolium</i>	Maple Leafed Viburnum
<i>Viburnum dentatum</i>	Arrowwood

Mixed Hardwood Forest, con't.+++HERB STRATUM:

<i>Aetaea pachypoda</i>	White Baneberry
<i>Aetaea rubra</i>	Red Baneberry
<i>Athyrium felix-femino</i>	Lady Fern
<i>Adiantum pedatum</i>	Maidenhair Fern
<i>Agrimonia</i> spp.	Agrimony
<i>Asarum canadense</i>	Wild Ginger
<i>Aster</i> spp.	Asters
<i>Botrychium virginianum</i>	Rattlesnake Fern
<i>Caulophyllum thalictroides</i>	Blue Cohash
* <i>Dennstaedtia punctilobula</i>	Hay-scented Fern
<i>Desmodium glutinosum</i>	Pointed Leaf Tick Trefoil
<i>Dicentra cucullaria</i>	Dutchman's Breeches
<i>Dryopteris spinulosa</i>	Spinulose Wood Fern
<i>Geranium maculatum</i>	Wild Geranium
* <i>Maianthemum canadense</i>	Canada Mayflower
<i>Medeola virginiana</i>	Indian Cucumber Root
<i>Podophyllum peltatum</i>	May Apple
<i>Polygonum biflorum</i>	Solomon Seal
<i>Polystichum acrostichoides</i>	Christmas Ferns
<i>Pyrol</i> spp.	Shinleaf
* <i>Rhus radicans</i>	Poison Ivy
<i>Sanguinaria canadense</i>	Bloodroot
<i>Smilacina racemosa</i>	False Solomon's Seal
<i>Solidago</i> spp.	Goldenrods
<i>Theypteris novaboracensis</i>	New York Fern
<i>Trillium erectum</i>	Wake Robin

Mixed Hardwood Forest (footnotes)

- * dominant species in each of tree, shrub and herb strata.
- + Tree stratum - any tree larger than 15' when mature.
- ++ Shrub stratum - any woody tree smaller than 15' when mature and larger than 3'.
- +++ Herb stratum - any woody or herbaceous plant smaller than 3' when mature.

Hemlock - Mixed Hardwood Forest Magenta Map area, Slide B

The hemlock-mixed hardwood forest, such as that found in Pound Ridge on the east side of the Mianus River near the Southwood Homes area, has hemlock dominating a mixture with beech, red oak, tulip poplar. Overstory species from the hardwood association are mixed with hemlocks in varying proportions in this association. The shrub layer in this association is usually sparse and species are a mixture of the hardwood type with the hemlock vegetation association described below.

NOTE: Hemlock Mixed Hardwood Forest - Pound Ridge Species

This vegetation is typically a variable mixture of species types common to both the hemlock vegetation group and also to the mixed hardwood group.

Hemlock Forest Purple Map area, Slide B

A hemlock forest, such as that found on the steep slopes of the Mianus Gorge is more than 90% dominated by hemlock. An occasional beech, Northern red oak or black birch grows with these thick-crowned conifers. Mountain laurel can be found in spots although the shrub and herb layers are rather sparsely vegetated under the shade of the hemlock canopy. However, in this herb layer several lovely wild flowers can be found including the orchids, Pink Lady's slipper and rattlesnake plantain, partridge berry, star-flower and the saprophytic Indian pipes. Ground pines and other clubmosses add patches of green to the well shaded hemlock needle forest floor.

Hemlock Forest - Pound Ridge Species Purple Map areas, Slide B+TREE STRATUM:

Betula lenta	Black Birch
Fagus grandifolia	Beech
Quercus Rubra	Red Oak
*Tsuga canadensis	Hemlock

++SHRUB STRATUM:

Hamamelis virginiana	Witch Hazel
Kalmia latifolia	Mountain Laurel

+++HERB STRATUM:

*Aralia nudicaulis	Wild Sarsparilla
Chimaphila maculata	Spotted Wintergreen

+++HERB STRATUM: (Hemlock Forest, con't)

Cypripedium acaule	Pink Lady's Slipper
Goodyera spp.	Rattlesnake Plantain
Lycopodium complanatum	Ground Pine
Lycopodium lucidulum	Shining Clubmoss
Lycopodium obscurum	Tree Clubmoss
Maianthemum canadense	Canada Mayflower
Mitchella repens	Partridge Berry
Monothropa uniflora	Indian Pipe
Parthenocissus quinquefolia	Virginia Creeper
Polypodium vulgare	Common Polypody
Polystichum acrostichoides	Christmas Fern
Trientalis borealis	Starflower

* dominant species in each of tree, shrub and herb strata.

+ Tree stratum - any tree larger than 15' when mature.

++ Shrub stratum - any woody tree smaller than 15' when mature and larger than 3'.

+++ Herb stratum - any woody or herbaceous plant smaller than 3' when mature.

Conifer Plantation Orange Map area, Slide B

In addition to the naturally occurring forest types, we have noted areas of a type we designate as "conifer plantation". These are usually single species conifers plantings such as the Norway spruce of Carolyn's Grove, off Stone Hill Road, or plantings of red pine on water company properties. These areas are in some cases, reasonably expansive features covering several acres and are a feature of note on the landscape.

Conifer Plantation - Pound Ridge Species Orange Map areas,
Slide B

The tree groups below were usually planted in separate groups according to species. In some cases, however, mixtures of several species have been planted.

Larix laricina	Larch
Picea abies	Norway Spruce
Picea glauca	White Spruce
Pinus resinosa	Red Pine
Pinus strobus	White Pine
Pinus sylvestris	Scotch Pine
Thuja occidentalis	Arborvitae
Tsuga canadensis	Hemlock

Aquatic Vegetation Blue Map areas, Slide B

Wetland Swamp Vegetation Red Map areas, Slide B

In Pound Ridge swamp vegetation occurs in lakes which have been naturally vegetated or in areas left hollowed by glaciation so that the water table is at or just below the surface of the soil. Muck and peaty soil reflect the soil built up by vegetation decomposition. The plants in these communities are those able to grow where soils are nearly saturated with water, and a low level of oxygen is available for root respiration. Some of the Pound Ridge wetlands have a brushy plant cover where there are few trees, but most of the wetlands have tree, shrub and herb layers of characteristic species. The swamps are shaded by red maple (swamp maple) as the dominant species with associated black ash, American elm, black gum and yellow birch are also found in some of the mature swamp forests. The shrub layer in this vegetation type is dominated by sweet pepper bush and spicebush in varying proportions with swamp azalea occurring in some spots.

The tall wetland ferns, cinnamon and interrupted, and the characteristic sensitive and royal ferns are closely associated with skunk cabbage, jewel weed and tussock sedge. Often large tulip poplars over two feet in diameter can be found on sloping ridges surrounding swamps. We have speculated that some of the largest have survived clearing for agriculture because access was poor due to the combination of slope and swamp conditions.

Aquatic Vegetation Blue Map areas, Slide B

Wetland Swamp Vegetation Red Map areas, Slide B

Examples of swamp forests are an extensive stretch of red maple swamp south of Mallard Lake and across Upper Shad Road, and a mature complex forest with large yellow birch exists in some of the open space areas of the Briarwood housing complex.

Aquatic Vegetation - Pound Ridge Species Blue Map areas,
Slide B

Alisma spp	Water Plantain
Alnus rugosa	Speckled Alder
Arisaema atrorubens	Jack in the Pulpit
Cephalanthus occidentalis	Buttonbush
Cryospleneum americanum	
Elecharis spp.	Spikerush
Eupatorium perfoliatum	Boneset
Hydrocotyl americana	Water Pennywort
Impatiens biflora	Jewel Weed
Leersia virginica	Catchfly grass
Ludwiga palustris	Water Purslane
Myriophyllum spp.	Water millefoils
Nymphaea varigatum	Millheae Pond Lily
Nymphaea spp.	Waterlilies
Phragmites cummunis	Phragmites
Polygonum sagittum	Arrow Leafed Tearthumb
Polygonum spp.	Smartweed
Pontederia cordata	Pickerel Weed

Aquatic Vegetation - Pound Ridge Species Blue Map areas,
Slide B

Potamogeton spp	Pondweeds
Sagittaria spp.	Arrowheads
Sambucus canadensis	American Elder
Trillium erectum	Red Trillium
Typha latifolia	Cattails
Utricularia vulgaris	Common Bladderwort

Wetland Swamp Forest Vegetation - Pound Ridge Species
Red Map areas, Slide B

+TREE STRATUM:

*Acer rubrum	Red Maple
Betula allegheniensis	Yellow Birch
Fraxinus nigra	Black Ash
Liriodendron tulipifera	Tulip Poplar
Nyssa sylvatica	Black Gum
Quercus bicolor	Swamp White Oak
Ulnus americana	American Elm

++SHRUB STRATUM:

Alnus spp.	Alder
Azalea viscosum	Swamp Azalea
Clethra alnifolia	Sweet Pepperbush
Lindera benzoin	Spicebush
Lonicera spp.	Fly Honeysuckle
Lyonia lugustrina	Maleberry
Viburnum dentatum	Arrowwood
Viburnum lentago	Nannyberry
Sambucus canadensis	Common Elderberry

Wetland Swamp Forest Vegetation - Pound Ridge Species
 Red Map areas, Slide B (con't)

+++HERB STRATUM:

Arisaema atrorubens	Jack in the Pulpit
Caltha palustris	Marsh Marigold
Carex stricta	Tussock Sedge
Impatiens biflora	Jewel weed
*Onoclea sensibilis	Sensitive Fern
*Osmunda cinnamomea	Cinnamon Fern
Osmunda claytoniana	Interrupted Fern
Osmunda regalis	Royal Fern
Symplocarpus foetidus	Skunk Cabbage
Thalictrum polygamum	Tall Meadow Rue
Thelypteris palustris	Marsh Fern
Typha latifolia	Cattail
Viola spp.	Violets

* dominant species in each of tree, shrub and herb strata.

+ Tree stratum - any tree larger than 15' when mature.

++ Shrub stratum - any woody tree smaller than 15' when mature and larger than 3'.

+++ Herb stratum - any woody or herbaceous plant smaller than 3' when mature.

METHODOLOGY OF CODA ECOLOGICAL EVALUATION

CODA proposes comprehensive and scientific analyses of natural and man-made environmental factors, in a format which facilitates community planning and public education.

Of special ecological importance to CODA is the vital role that undisturbed vegetation plays in the functioning of the natural hydrological cycle and its maintenance of pure water supplies.

Pound Ridge forests are crucial natural sponge areas which store large amounts of unpolluted water and prevent soil erosion. Coincidentally, they are significant in preserving the rural character of the town.*

Field Team and Supervisory Staff

CODA's field team was composed of three qualified Yale graduate students, with professional research and teaching experience in ecology. They lived and worked out of the Ed Marschner barn on Long Ridge Road, Pound Ridge.

Ecological surveys and interpretations were supervised by Dr. F.H. Bormann and Dr. Thomas G. Siccama of the Yale University School of Forestry and Environmental Studies. Thomas Kohlsaas was in charge of hydrological research input. Overall guidance was the responsibility of CODA Director, Jerzy Glowczewski.

Depth of CODA Research

CODA's Ecological Evaluation set out to achieve a preliminary overview of three basic components of the Pound Ridge environment:

1. the function of local ecosystems.
2. the degree of human intervention.
3. the identity and source of environmental problems.

It updates and amplifies the abundance of environmental data that is periodically gathered and published by specialized

*See section, Pound Ridge Vegetation, pages 21 to 46

governmental and other agencies. To CODA, this Ecological Evaluation constitutes the framework for defining the directions and parameters of the forthcoming phases of CODA's Environmental Planning Study of Pound Ridge. CODA's POPULATION DETERMINATION (Phase 2) is primarily research input. Its findings for land parcels 25 acres and over are partially reported in this publication.* Further field research and analysis will be undertaken for CODA's DEVELOPMENT PLAN (Phase 3) and ECONOMIC ANALYSIS (Phase 4).

As specific development proposals come up for Town approval, supplementary Environmental Impact Statements will be essential for sound planning assessments. Ideally, these statements should be the responsibility of developers, in compliance with the criteria and research standards approved by appropriate Town Government agencies.

Watershed Unit Concept

CODA divided Pound Ridge into 10 environmentally-self contained Watershed Units, averaging about 1500 acres each.** A Watershed Unit is an area of land surrounded by high points and ridges which drain into a common basin at the lowest elevation. Standard U.S.A. topographic maps, prepared in 1960 by the U.S. Geological Survey of the U.S. Department of the Interior (1" to 2000' scale), were updated by CODA's field observations to define each Pound Ridge Watershed Unit.

This Watershed Unit approach is scientifically logical and economical, and will also enable townspeople to perceive that ecological impact goes beyond property lines. It also illustrates the necessity for regional cooperation in land-use planning.

*See page 49, 50

**See back cover: Pound Ridge Lifelines

Some watersheds originate in neighboring towns or export water to neighboring towns. The entire Pound Ridge hydrological system is, in turn related to and affects the Hudson River and the Long Island Sound drainage systems.

Levels of Information Reported

For Pound Ridge Watershed Units 1-9*, four levels of information were researched, analysed and superimposed on 4 maps. Base maps were U.S. Topographical Maps (1" = 2000') scaled down to 1"=400' to coincide with the scale of the Pound Ridge tax map and the aerial photo maps prepared by the Tri-State Transportation Commission which are publicly available at the Westchester County Department of Planning.

CODA's data was superimposed by colors and/or alphabetical and numerical symbols and keyed to map legends and CODA's written Ecological Evaluation report. Graphic renderings were done by landscape architect Armistead Browning and architect-artist Dale Paegelow.

The major levels of information recorded were:

MAP A - EXISTING ZONING AND LAND USES, 1973 STATUS

On its base topographical map (1" = 400'), CODA added property lines from the Pound Ridge tax map; zoning and Watershed Unit boundaries; tax-exempt and residential and commercially held properties. It then identified significant areas already developed to the zoning limit, and undeveloped areas with little or no municipal, residential or commercial development.

In relation to this map, CODA has made preliminary projections of the Development and Population Potential of Undeveloped Parcels

*Evaluations for Watershed 10 of which most falls in the 4700 acre Ward-Pound Ridge Reservation, are minimal. The Reservation is a conservation area under the Westchester County Department of Parks, Recreation and Conservation.

25 Acres and Over - Under Current Zoning Regulations. These appear within each Watershed Unit analysis. CODA's preliminary projections were based on:

1. Field observations during Summer 1973 in conjunction with CODA's Ecological Evaluation, regarding the degree of ease or difficulty of developing specific parcels under current zoning regulations.
2. A computation of the number of potential building lots on each parcel, regardless of the ease-or-difficulty of developing them.
3. A computation of potential population for each parcel, regardless of the ease-or-difficulty of developing it. Formula: No. of potential new lots X 3.57. This formula is based on the average persons per household in Pound Ridge reported in the 1970 U.S. Census of Population.

For the present publication, CODA's assessments of the development potential of parcels 25 acres and over is purposely limited to brief notations on the ease-or-difficulty of development under current zoning regulations: "Very Easy/ Easy/ Fairly Easy/ Difficult/ Very difficult".*

Computations of potential building lots and population have been made on large parcels without reference to the ease-or-difficulty of developing these parcels because modern advances in technology make it impossible to realistically predict the "unsuitability" of land for development under current zoning regulations.

MAP B - VEGETATION

This is a graphic analysis of plant and forest life in Pound Ridge which also demarks significant open water, streams and wetlands. See also background section, POUND RIDGE VEGETATION, pages 21-46.

*A more detailed ecological evaluation of undeveloped land in Pound Ridge is the subject of CODA's Phase 3-A DEVELOPMENT PLAN. This phase is designed as a comparative graphic and written analysis of the development and population potential of undeveloped land in Pound Ridge under 1) current zoning regulations and 2) environmental planning alternatives. It will incorporate a town-wide soils classification study using publicly available data from the U.S. Department of Agriculture.

MAP C - CRITICAL AREAS IN THE PLANNING PROCESS

These are numbered in sequence, and were selected on the following basis with hydrological resources and drainage patterns also indicated.

Nodes - Areas that contain a complexity of environmental factors, and which are being developed or are vulnerable to extensive development because of their location and/or size of saleable acreage. Ten NODES are identified (A-J).

Environmental Problem Sites - Mostly small acreages on which CODA recognized some existing problem or a strong potential for the eminent development of a problem. For example - potential eutrophication of surface waters, septic drainage problems, erosion due to poor land management, local dumping sites.

Natural Areas of Special Interest - Generally defines small acreages on which some aspect of natural phenomenon is sufficiently well developed to be worthy of preservation for scientific or educational purposes, or both. All aspects of natural sciences are covered such as geology, vegetation, soils, hydrology, locations of unique flora or fauna.

Historic Sites - Includes old burial or Indian settlements, buildings, old camp sites, mill sites or other evidences of early industry, old farm houses, etc.

Water Sampling Sites - During the early stages of CODA's summer 1973 field work, the Town Government was reported to be considering a scientific study of Pound Ridge's water quality. Since CODA's field work brought it in contact with the entire spectrum of surface water conditions in the town, CODA felt it could save time and money for Pound Ridge taxpayers by recording logical places for obtaining water samples for standard analysis.

Therefore, this report locates 121 surface water-sampling sites recommended for standard analysis. Their selection was done under the supervision of hydrologist Thomas Kohlsaas.

CODA's water sampling sites, are located on lakes and streams, and include a range of water quality conditions from pristine springs and small streams in totally undeveloped watersheds, to highly eutrophic lakes and their downstream drainages.

They have been selected as key points in the surface hydrology of Pound Ridge. A small number are located in neighboring towns.

CODA's criteria for the selection of its surface water-sampling sites was:

- A. Upstream water to be used as a baseline of water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands).
- B. Downstream waters having known or suspected pollution.
- C. Large wetland or body of standing water.
- D. Heads of major watersheds.
- E. Exit points of major watersheds.

MAP D - ENVIRONMENTAL SITE ANALYSIS

This map provides a complex overview of Pound Ridge's natural and man-made environmental factors as well as environmentally critical areas and water sampling sites. Persons closely involved in planning decisions will, however, want to consult maps showing all major levels of CODA information, as well as close-up views of individual Watershed Units for each information level.

CODA RECOMMENDATIONS

For Watershed Units 1-9* CODA offers capsule recommendations to forestall degradation of specified ecological factors. Some are more vital than others. However, all bear on preserving the rural character of Pound Ridge.

Overall recommendations are stated at the conclusion of CODA's Ecological Evaluation report. They are based solely on this first phase of CODA's 5-phase, Environmental Planning

* Since Watershed 10 is mostly comprised of the Ward Pound Ridge Reservation, an area conserved by Westchester County, CODA has made only limited observations, and no specific recommendations for this Watershed.

Study of Pound Ridge. As this Study progresses, the integration of CODA's Population Determination Development Plan and Economic Analysis, will substantiate more complex CODA proposals bearing on scientifically and economically feasible environmental planning alternatives for Pound Ridge. At that point Pound Ridge will have a comprehensive basis on which to consider CODA's proposed Phase 5-A 'Model' Zoning Ordinance. This will be framed in conjunction with environmental legal analysts. It will deal equitably with private property investments, and attempt to reflect the expressed social and esthetic values of the community.

POUND RIDGE WATERSHEDS*

MAP SLIDE C - MAJOR DRAINAGE ROUTES

HUDSON RIVER DRAINAGES (via New Croton Reservoir and River)

1. Lake Kitchawan -- Cross River -- Cross Reservoir
2. Stone Hill River
3. Blue Heron Lake -- Pitch Swamp -- Stone Hill River
10. Ward Pound Ridge Reservation -- Cross Reservoir

LONG ISLAND SOUND DRAINAGES

A. Via Mianus River

5. Mianus River -- Mianus Reservoir -- Mianus River --
Mianus Reservoir -- East Branch Mianus
7. Shad Roads Area

B. Via Rippowam River

4. Mill River North
Mill River -- Laurel Reservoir --
Rippowam River -- New Stamford Res.
8. Mill River South
9. Barnegat Road -- Laurel Reservoir -- Rippowam River --
Area New Stamford Res.
6. Siscowit

* Watershed perimeters marked on Map Slides A,B,C,D numerically keyed to Map Slide C.

WATERSHED I- LAKE KITCHAWAN

This watershed centers around Lake Kitchawan, with most of its area in Lewisboro to the north and east. Drainage rises in the northern and southern highlands and flows through swamps which drain into the lake. Water leaving the lake flows into the western Canals which lead into a northward-flowing stream-swamp complex, leaving the watershed through a gorge. From this exit point the water then flows into Cross River, which in turn flows into the Cross River Reservoir. Thus, any activity affecting water quality in this watershed will ultimately influence water quality in the Reservoir.

Lake Kitchawan's lake and swamp system lies on top of an easily erodable marble formation. Difficult access to the lake through the swamp complex controls this area's development. However, a gneiss hill, which slopes abruptly to the eastern side of the lake provides easy access, and is the site of an intensive housing development. The Hunter Peninsula which affords access to the lake from the south is a probable site of future development. To the southeast of the lake, on a gently sloping hill of gneiss and schist, is an area which was formerly agricultural, probably pasture land abandoned some 25 years ago. By appearances, it is not being actively subdivided.

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also partially keyed to the following CODA information:

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/Difficulty To Develop	Potential New Population ** (persons)
55	11	104.111	34	Fairly easy	121.38

Section 25 R-3A Block # 10263

*CODA's Phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. Census of Population, 1970.

MAP SLIDE B - VEGETATION

This graphic analysis of plant and forest life in Pound Ridge, also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C- CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change)
Brown Map Symbol

- A. Leichter properties undergoing development.
- B. Eastside development whose pollution is now entering lake and which now needs pollution control.
- C. Hunter Peninsula which provides a southern access to Lake Kitchawan and which will be under pressure for development.

Environmental Problem Sites Red Map Symbol

1. The Northern Swampland

Bordering the northern lobe of Lake Kitchawan is a swamp which has been partially brushed by builder Emil Leichter.

The debris has been burnt. These activities together will promote the eutrophication of the lake.

2. Eastside development (in Lewisboro)

On the steep east shore of Lake Kitchawan there is a development of dozens of houses. Septic drainage from this development is draining into the lake. The winterization of summer houses increases the amount of septic drainage. (We suspect that the drainage may be flowing into the lake through cracks in the marble bedrock surrounding the lake). The area is cut with roads, which may promote increased sedimentation of the lake.

3 & 4. Canals Complex

This focal point of the watershed is a shallow lake whose quality apparently has been rapidly diminishing. The lake used to have bass and trout to 18 inches, but now fishing is all but impossible and swimming unattractive. We observed on May 18, abundant Potamogenton and benthic algae. It was reported that the eutrophication became critical 5-6- years ago, and that 3-4 years ago, a chemical herbicide was applied, notwithstanding extensive opposition from conservationists.

Unfortunately, any chemicals applied in the lake may find their way into the Cross Reservoir. A winding system of water channels creates a drainage network southwest of Lake Kitchawan. Water enters these canals from northern swamplands, the lake itself and from the southern wetland and drains northwest into the Cross Reservoir.

Estates which are beside the canals face both Scofield and Cross Pond Roads. Between the lake and the canals is a thick brushy swamp vegetation.

On May 29th, 1973, the flow from the canals northward was estimated at 4-6 cubic feet per second at the point where Scofield Road crosses the drainage stream. The water site appeared quite clear. However, field observations and the fact that the canals drain a eutrophied lake suggest that water conditions will limit the amenity of living by these canals. Due to conditions favorable to construction, housing will cover much of the area. In this situation, thin wooded buffer strips between artificially maintained savannah would be aesthetically pleasing.

Natural Areas of Special Interest Green Map Symbol

1. Abandoned Farmland: Old farmland which has been seeding in from the hedgerows to red maple, white ash, gray dogwood, cherry, spirea, a little cedar. The soil has a good deal of clay content and this area looks wetter than many other old field types we have seen in town before.

2. Mature Mixed Stand: large red and white oak, with dbh over 20", tulip poplar in excess of two feet (one was three feet). Very rich forest soil with ground cover of Actea. Sugar maple up to 2 feet. Thick shrub layer of beech, sugar maple and flowering dogwood.

3. Wet Slope Forest: Wet mesophytic forest on a slope. Sugar maple in excess of one (1) foot dbh, and tulip poplar 1.5-2 feet dbh.

*dbh: diameter at breast height

4. Mature Hemlock: A closed stand with stems 1.0-1.5 feet dbh. Very little herb or shrub layer. Next to a stand of mixed hardwoods -- hemlock with white ash and black birch. Very pleasant and open.

5. Northwest hemlock hardwood: This forest containing many trees in excess of 16 inches dbh is of a type uncommon within the town region boundaries. Located near a main town road, the diversity of science offered by this woodland is of immense value. The hemlock will continue to dominate the site and pass beyond its present boundaries.

The large amount of development of this area, which is mostly in Lewisboro, will reduce the quality of waters draining into the lake and the canal system.

6. Hunter Peninsula: Hunter Peninsula is formed by a spine of marble and granite running through the center of Lake Kitchawan. It has a scenic view of the lake and lake shore, abundant bird life and a pleasant old field-savannah aspect. Two pine plantations on the site add to the landscape architecture. An old estate adds a pleasant historical dimension to the area. The tip of the peninsula would make a fine place for recreation. A scenically diverse access can be made by trail or bicycle path.

7. Beautiful Young Maple Forest:

8. Emil Leichter Savannah: A well managed program of brushing and burning is maintaining this area as a sparsely wooded grassland. Trees presently include gray birch, ash, aspen, red maple and sugar maple. The diversity and landscape

architecture of the area is enhanced by this savannah type.
 This property appears in the process of subdivision.

Historic Sites: Orange Map Symbol

- | | |
|--------------------------------------------|--------------------------|
| *1. Old mill reamains
at watershed exit | 5. Indian site |
| 2. Indian site | 6. Indian site |
| 3. Delevan Cemetary | 7. Indian site |
| 4. Indian site | 8.Knapp Barhite Cemetary |
| | 9.Waterbury Cemetary |

* See Watershed 10, Pound Ridge Reservation -page 103 - for proximity of Paleo-Indian site.

Water Sampling Sites : Blue Map Symbol

- | | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. E | CODE FOR SURFACE WATER -SAMPLING SITES |
| 2a.C(in springtime) | A. Upstream water to be used as base-
line for water quality(l.e.springs,
streams leaving old forests, stream
leaving undisturbed wetlands). |
| 2b,C | |
| 3.D,A | B. Downstream water, having known or
suspected pollution. |
| 4.B | |
| 5.B | C.Large wetland or body of standing
water. |
| 6.B,C | |
| 7a.A | D.Heads of major watersheds. |
| 7.B | E.Exit points of major watersheds. |

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B,and C,which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Hunter peninsula should be studied as a potential recreational area.

2. The Lake Kitchawan Association should evaluate ways of dealing with its septic discharge problem and should not use chemical herbicides in the lake. A Lake Kitchawan nutrient budget should be researched (water company data might be useful). Get water quality parameters: Nutrients, BOD and bacteria for lake. Septic systems may have to be set back longer distances from the lake than those required by public health regulations; and their design and installation may require close supervision by Town officials. Septic systems should also be located and designed so as not to contaminate the underlying marble aquifer.

3. Vegetation management (see general introductory section).

4. Old Mill at Historic Sites location in Boutenville, might be restored as a historical site to recreate the dim past of water power and low energy management in the Northeast.

WATERSHED 2 - THE STONE HILL RIVER

The Stone Hill River watershed is bounded by the SW ridge of the Wará Pound Ridge Reservation and by a series of gentler rolling hills and ridges to the south. The river itself lies on marble bedrock just below the southern escarpment of the reservation. It was probably formed by the wearing away of marble from the more resistant rock mass of the Reservation.

Residential developments along Stone Hill River Road and Old Stone River Road are oriented toward the splendid view of the Reservation excarpment which is the visual focal point of the watershed.

The Stone Hill River lies on a broad (800-1200 feet) band of swamps which are set upon a flat marble bedrock. The swamps which are mostly brushy or heavily forested greatly hinder visual or even physical access to the river. On the southern bank of the river, near where northerly flowing tributaries meet the river, there is a line of gravel pits and natural ice contact features.

In the southeast area of the watershed, there is gently undulating topography with a sluggish drainage characterized by an extensive swamp system and pockets of wet forest with varying degrees of interconnections. This area is currently under rapid development with evidence of pond dredging and access roads being built.

In the southwest of the watershed there is an extensive old field complex with views to the ridge which is in our opinion, a likely site of future development.

MAP SLIDE A- EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also keyed numerically, to the following CODA information:

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS 25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS					
CODA MAP #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/ Difficulty to Develop**	Potential New Population ** (Persons)
44	37	60.000	29	Very difficult	103.53
45	63	47.820	15	Very difficult	53.55
46	64	28.682	9	Fairly easy	32.13
47	61	49.796	11	Fairly easy	39.27
48	67	76.445	25	Very easy	89.25
Section 21					
			R-3A	Block #9816	
51	9	28.400	7	Fairly easy	24.99
52	20	32.922	9	Very easy	32.13
Section 22					
				Block #9817	
53	6	61.989	18	Very easy	64.26
54	7	49.947	14	Very easy	49.98
Section 23					
				Block #10051	
56	31	27.389	8	Very easy	28.56
57	43	27.981	8	Very easy	28.56
Section 28					
				Block #10047	
58	9	37.73	12	Easy	42.84
Section 29					
				Block #10047	

* CODA's phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. Census Population, 1970.

MAP SLIDE B - VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C- CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change)
Brown Map Symbol

D..Old field orchard-conifer plantation complex (See Green Map Symbol..Natural Area Site #16)

Environmental problem sites Red Map Symbol

5. Potential septic problems due to intensive development around low lying areas including ponds, and on sand and gravel soils. which may not have sufficient inherent ability to purify septic system effluents before they reach the water table.

6. Extensive mined-out gravel pit.

7. Dumping into wetland by gravel pit.

8. Roads running into wetlands on Bernier subdivision (Hoyt Rd. off Pound Ridge-Bedford Rd.)

Natural Areas of Special Interest Green Map Symbol

9. Raven Rocks: on top of a steep escarpment and one of the highest points in town, this site offers a panoramic view of much of Pound Ridge. It has a pitch pine stand which we hadn't seen outside of the reservation. It also has superb examples of primary succession. On the escarpment leading up to it (a pleasant climb), it has a lot of dead chestnut oaks, large specimens of other oak species and large tulip poplar.

10. Blueberry Old Field: was managed for blueberries and now contains blueberries, cherry, red cedar, young sugar maples. Is probably a good wildlife habitat.

11. Impressive rock outcrop.

12. Impressive rock outcrop.

13. Swamp along Old Stone Hill River: a practically impenetrable wetland of brushy to forested swamp, this wetland is one of the largest in town and is a valuable wildlife habitat.

14. Rock Face.

15. A thin soil plateau: with oak and numerous examples of primary succession. It has an excellent view of the Ward Pound Ridge Reservation.

16. Orchard - old field - conifer plantation complex: this area has a great diversity of vegetation. It was once an active agricultural area and even now a small orchard is being maintained. In some areas old fields have been seeded by large, old sugar maples to form almost solid stands of young sugar maples 1-5 yearsold. The area has a wealth of conifer plantations including white pine, scotch pine, red pine, larch. It also has a locust area. As the area is likely to be developed, special attention should be paid to keeping the rich diversity which it presently offers. It is now mainly used as a bridal path area.

17. Exceptional stand of mature swamp forest.

18. Carolyn's Grove: A Norway spruce plantation which is greatly overstocked. The town nature conservancy owns the site.

Historic sites: Orange Map Symbol

10. The original pound constructed by Indians from which Pound Ridge gets its name.

11. Indian site.

12. Cemetary off of Stone Hill Road

13. Old foundations.

14. Old foundations.

Surface Water Sampling Sites: Blue Map Symbol

8. B

8a. A,D

9. B

10. C

10a.A

11. B

12. C, D

13. A,D

13a.A

14. B

14a.A

14b.A,D

14c A, D

15. E

15a.A,D

15b.B

15c D

Code For Surface Water-Sampling Sites

A. Upstream water to be used as base-line for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands).

B. Downstream water, having known or suspected pollution.

C. Large wetland or body of standing water

D. Heads of major watersheds.

E. Exit points of major watersheds.

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENCATIONS

1. Look into the possibility of maintaining the old field-orchard-conifer plantation complex as an educational working farm. Possibly some reproductions of historic buildings might be erected on the area. (See Green Map Symbol..Natural Area Site #16)
2. The use of the gravel pit for dumping as well as a potential park should be reviewed, (these two points to be contradictory). (See Red Map Symbol Environmental Problem #17)
3. Inventory the Bernier subdivision park, review plans for their management.
4. Restore Carolyn's Grove to health by thinning.(See Green Map Symbol Natural Area #18)
5. The sand and gravel deposits underlying the swamp along Old Stone Hill River are potentially the best source of large quantities of water for high density development. The potential of this aquifier for storage, delivery and recharge of water should be prospected. Septic systems nearby should be designed so as not to contaminate this aquifier. The underlying marble bedrock also holds promise as a high-yield aquifiar and should be prospected.

NOTE: See Watershed 10, Pound Ridge Reservation - page 102

((Natural Area site #65); and page 103(CODA Recommendation #1) for proximity of Watershed 2 properties to the ancestral denning area of the Northern Copperhead.

WATERSHED 3 - BLUE HERON LAKE

The Blue Heron Lake drainage rises in a semi-circle of uplands and flows into the Blue Heron Lake complex.. This is the largest lake complex in Pound Ridge interconnected by several streams. It flows to the pitch swamp in Bedford and to the Stone Hill River.

Between two lobes of the lake is a superb Clethra swamp with hemlocks growing on hillocks of dark colored gneiss. We recommend this swamp for preserve.

Since the lake is lobed, there is a long length of shoreline per area of water. Settlement of the watershed is centered on the lake shore and in a development north of the lakes. The western and southern sectors of the lake are more heavily developed than the east, probably because of large single land holdings in the east.

The lakeside has the air of a summer resort, with the lake being used extensively for fishing, swimming and boating. The appearance of the water and its attractiveness for human use, suggests that the water is of good quality.

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also keyed numerically, to the following CODA information:

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map #	Total Acreage	Potential New Lots	Degree of Ease/ Difficulty to Develop	Potential New Population ** (persons)
36	69	68.225	22	Fairly Easy	78.54
Section 17		R-3A	Block #9452		

*CODA's Phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

** Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. census of Population, 1970.

MAP SLIDE B- VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C - CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change)
Brown Map Symbol

E. Clethra-hemlock lowland (See Green Map Symbol #20)

Environmental Problem Sites Red Map Symbol

9. Use of herbicide

10. Eutrophication of pond from developments upstream.
Extensive algae growth and an oil skin on the pond.

Natural Areas of Special Interest Green Map Symbol

19. Slope forest with large beech trees up to 1.5 feet dbh.

20. Clethra hemlock lowland: impenetrable clethra with attractive hillocks of hemlock. We found one 84 cm dbh dead black oak indicating that the area had not been disturbed for a long time. We recommend this unique area for nature conservation.

Historic sites: Orange Map Symbol

15. Cemetary..

16. An old, double hearth chimney with a high cast-iron stand pipe nearby, of unknown purpose.

17. Chichester Cemetary.

Surface Water Sampling Sites: Blue Map Symbol

- 16. D
 - 17. B
 - 18. B
 - 19. C
 - 20. C
 - 21. C
 - 22. B
 - 23. C
 - 24. B,E
- Code for Surface Water-Sampling Sites
- A. Upstream water to be used as baseline for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands).
 - B. Downstream water, having known or suspected pollution.
 - C. Large wetland or body of standing water.
 - D. Heads of major watersheds.
 - E. Exit points of major watersheds.

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designed in more detail on Maps A,B, and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Check into environmental problem sites (red map C symbols #9-11)
2. The clethra-hemlock lowland should be conserved as a natural area. (green map C symbol #20)

WATERSHED 4- MILL RIVER NORTH

The Mill River North Watershed is unlike most of the other drainages in Pound Ridge, because much of it originates many miles away in Connecticut. Thus, Pound Ridge has limited control over the quality of the Mill River which flows through its central corridor.

The Mill River North Watershed provides the largest open space in town, but lack of access roads and the fact that most of the land is water company property, makes it largely unexplored by citizens. However, because of the development of the large Simon property now owned by Robert Gale, this watershed may be susceptible to increased public use.

On the Simon property itself the location and construction of the major road system has intensified soil erosion and siltation into streams and wetlands. The developments 6-acre recreation area has been constructed on wetlands bordering the Mill River.

The watershed has many sites of ecological interest including a large, very dry, old field complex with a high percentage of exposed bedrock and some fine hemlock and mixed hardwood forests. It contains the two largest bodies of water in town - the Trinity Reservoir and the Mill River Reservoir which are both manmade. On the east bank of the latter, there is an extensive, fascinating "lost village" of old stone walls and foundations.

MAP SLIDE A - EXISTING ZONING AND LAND USE

This is a graphic analysis. Map Slide A is also keyed numerically, to the following CODA information:

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS 25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS					
CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/ Difficulty To Develop	Potential New Population** (persons)
37	23	38.955	12	Difficult	42.84
39	35	26.037	6	Fairly Easy	21.42
Section 18		R-3A	Block #9824		
49	16	44.078	19	Very Easy	67.82
50	62	28.400	7	Difficult	24.99
Section 22		Block #9817			

*CODA's Phase 3- A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. Census of Population, 1970.

MAP SLIDE B - VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C - CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change)

Not identified, the major land area vulnerable to change was the now-developing 217 acre Simon subdivision.

In March 1972, CODA presented a Preliminary Environmental Planning Study of this property, under the sponsorship of Citizens For Environmental Planning.

Environmental Problem Sites: Red Map Symbol

11. Area gouged out for dam fill.
12. " " " " " "
13. Dump behind Marshall oil company.
14. New road spilling into wetland.
15. Rubble spilling into stream with resultant sedimentation of stream on Simon property development.
16. A wetland and associated aquifer system being destroyed by a road in the developing Simon property.

Natural Areas of Special Interest: Green Map Symbol

21. Mandrake (Map Apple) area: In this location there is an unusually large 30 ft. X 30 ft. area of may apple in a mesic mixed woodland. The soil was shallow but fine and had a rich herb layer including violets and rattlesnake fern. The foundations of the "lost village" are located in this area.
22. Beech slope: Mature beech, sugar maple and oak on a steep slope. From a path running along the top of the slope there is a view to the reservoir 80 feet below.
23. Hemlock forest: with mature hemlock, a parklike atmosphere with a long view up Trinity Lake.
24. A diverse field: on thin, very dry soil having red cedar, gray dogwood clones and diverse wild flowers. There were some patches of rock outcrops covered by a coarse sandy soil.
25. Slope: of unusually well developed hop hornbeam trees (up to 34 cm dbh) on a sheltered slope.
26. Halle Ravine: well developed mature stand of mature hemlock in a steep ravine.

27. A large fault: at least 50 feet wide in powerline right of way.

28. A pocket: of large trees including white oak (up to 85 cm dbh), black birch (up to 50 cm dbh) tulip poplar (up to 62 cm. dbh). In an opening in this pocket there is a large glacial erratic 20 foot long, 7 feet high and 7 feet wide on which is perched a 6 X 6 X 4 pink granite boulder.

29. Indian Hill: to the north it has a pure hemlock forest with a parklike atmosphere; to the south there is a mixed hemlock hardwood. This area is also unique in that it is surrounded by wetlands.

Historic Sites: Orange Map Symbol

18. Old foundation and stone wall complex.

19. Hoyt Cemetary.

20. The "lost village" (or shoemakers village). An extensive complex of old stone walls and old foundations abandoned sometime in the late 1800's.

21. Brown Cemetary.

Surface Water Sampling Sites: Blue Map Symbol

		<u>Code For Surface Water-Sampling Sites</u>
25. D	33. A,C,D	A. Upstream water to be used as base- line for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands). B. Downstream water, having known or suspected pollution. C. Large wetland or body of standing water. D. Heads of major watersheds. E. Exit points of major watersheds.
25 a.C,D	34. C	
26. C	34a. A	
26a. A,D	35. B	
27. A,D	36. A,D	
28. A,D	37. B	
29. A,D	38. A,C,D	
30. C	39. B	
31. A,D	40. B	
32. C	41. C	

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Check into environmental problems (red map C Symbols #11-16)
2. Study the possibility of opening up some hiking trails on water company lands. This area has immense historical and ecological resources and corresponding aesthetic and educational value.
3. The historic sites (orange map C symbols # 18,20) might bear some archeological study.
4. Sand and gravel deposits in the vicinity of Indian Hill (green map C symbol, natural area #29) and the marble bedrock underlying much of the watershed should be prospected to determine their water-bearing properties and potential high well yields, especially along the many faults and contacts with other

bedrock types. Septic systems in the vicinity of high yield areas also need more careful design than existing public health regulations require in order to avoid contaminating ground and surface water.

WATERSHED 5- MIANUS RIVER

This watershed parallels the Mianus River, including part of Bedford on the north and running south to the Connecticut Border. It includes a number of lakeside communities (Twin Lakes, Robin Hood Lake, Highland Lake). Along the Mianus River is a superb hemlock gorge. Parts of this hemlock gorge are owned by the Nature Conservancy, and part is held by the Greenwich Water Co. In the southern region, astride the Connecticut-New York line, is a rapidly developing residential area backing up to the riverside hemlock area.

The largest undeveloped area is found in the northern part of the watershed, near the Twin Lakes. It is one of the finest pieces of open space in the town and includes an old age mixed hardwood forest a spruce-pine plantation complex and a conifer-old field complex.

This stretch of the river is something of a curiosity in that a short stretch of the river to the west of Pound Ridge flows northward, then turns south near Indian Hill in Bedford and runs parallel to itself through Pound Ridge. It is thought that the original channel continued northward, but was "captured" by the southward flowing branch during mountain building or glaciation episodes which re-arranged the landscape.

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also partially keyed to the following CODA information:

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/Difficulty to Develop	Potential New Population ** (persons)
1	179	14.485	4	Very difficult	14.28
2	170	48.047	13	Very difficult	46.41
Section 1,2,3			R-3A	Block #9031	
3	166	29.648	4	Fairly easy	14.28
4	7	25.278	12	Very difficult	42.84
5	6	25.240	12	Very difficult	42.84
6	2	27.693	13	Very difficult	46.41
			R-2A		
7	49	61.498	13	Easy	46.41
8	50	60.448	18	Fairly easy	64.26
15	55	40.000	13	Difficult	46.41
16	52	31.000	9	Difficult	32.13
Section 4			R-3A	Block #9317	

*CODA's Phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. Census of Population, 1970.

MAP SLIDE B- VEGETATION

This graphic analysis of plant and forest life in Pound Ridge, also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C - CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change)

F. Tension zone between superb hemlock forest and developments to east of it.

G. Superb complex of natural areas including the mature mesophytic forest and conifer plantations, set in a matrix of regular mixed forest.

Environmental Problem Sites: Red Map Symbol

17. Highland Lake potential septic problems: We noticed that some houses were set beside poorly drained areas near the lake. This might result in odors or contamination of the lake.

18. Dumping: The cul-de-sac here was being filled in by brush and assorted trash.

19. Interface between superb natural area and housing: In our opinion there could have been a wider buffer zone between residential development and the hemlock woods.

20. Large development astride N.Y./Ct.border: This area may exert a lot of pressure on lands owned by the Nature Conservancy or other environmental problems typical of dense developments.

21. Gravel pit: An area which has been scalped for till and which is now an eyesore.

Natural Areas of Special Interest: Green Map Symbol

30. Blueberry field with trails (marked in blue): A diverse, pleasant old field (on excessively drained glacial outwash sands and gravels), with excellent wildlife habitat and recreational potential. (in Bedford).

31. Bower path of Shadbush on old estate: a 10 foot bower of arching shrubs.
32. Conifer-old field complex: fascinating complex of mixed conifers, partially mowed fields and paths. Excellent wildlife habitat. Potential recreational area.
33. Mature mixed hardwood forest with hemlock along a gorge: One of the first agricultural areas abandoned in the town, as evidenced by stone walls and large trees (up to 24") of beech, sugar maple, black gum, tulip poplar, black birch. We are recommending this area for conservation as a natural area. It is a unique, superb area, of a stature rarely seen in New England.
34. Spruce-white pine complex: A Norway spruce grove that seeded in from a few large planted specimens. Adjacent to the area is a grove of white pine (possibly also seeded from planted pines). We are recommending this area for conservation because it is unique and attractive.
35. Superb Maple (sugar) slope: on a bolder strewn slope on almost solid stand of sugar maple 1-1.5 feet dbh. This is a rare type in town worthy of conservation.
36. Old dairy farm complex: a gently rolling area with mowed fields, hedgerows and young successional forest. The area is an excellent bird habitat.
37. Hemlock ridge: All along the river a hemlock stand (which is, in some places, superb) lines the gorge. The Bedford side is heavily used as a nature education area. However, while the hemlock is at least as impressive on the Pound Ridge side, it is much less used due to a lack of a trail system and an educational program.

38. Exceptional stand of hemlock: a stand overlooking the Mianus River and along a stream. From the stand, one can simultaneously gaze down at the Mianus River and hear the rushing water from the stream. Red Trillium is abundant.

39. Hemlock hardwood stand: located east of pure hemlock gorge ...top of hills are in hemlock-oak. Hardwoods mixed in with hemlock include beech, yellow birch, red and chestnut oaks, tulip poplar, sugar maple and white ash..

Surface Water Sampling Sites: Blue Map Symbol

		<u>Code For Surface Water-sampling Sites</u>
42. B(In Bedford)	52. A	A. Upstream water to be used as base-line for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands).
43. B(In Bedford)	53. A	
44. C. (In Bedford)	54. D	
45. A	55. B	
46. A,D	56. A,C	
47. C	57. B	B. Downstream water, having known or suspected pollution.
48. A,D	58. C	C. Large wetland or body of standing water.
49. A,D	59. C	D. Heads of major watersheds.
50. A,D	60. E	E. Exit points of major watersheds.
51. A		

MAP SLIDE D- ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Check into environmental problem sites. Red Map C Symbols #17-
21
2. Natural areas (Green Map C Symbol, natural areas #34, 35,
36) should be considered for conservation.
3. Steps should be taken to conserve all of the hemlock
forest on the Pound Ridge side of the Mianus River (Green Map
C Symbol, natural areas #37, 38, 39). This then might be used in
a program of nature education. Some trails should be maintained
in the area.
4. Care should be taken to buffer these hemlock forests
from the effects of residential development.

WATERSHED 6 - SISCOWIT RESERVOIR

The Siscowit Reservoir is located in the extreme eastern section of Pound Ridge; 40% of its area extends northward into Lewisboro. The most notable geological feature of the watershed is an oak forested spine of pink micaeous granite extending from the northernmost border of the watershed in Lewisboro almost to the Pound Ridge/Connecticut border. The spine has inhibited development in Lewisboro. In Pound Ridge, much of it has been developed and is continuing to be developed. Right now, the bedrock west of River Road Lane is being blasted apart.

One of the focal points of the watershed -- the Siscowit Reservoir -- is presently drained and contains a beautiful, but ephemeral sawgrass meadow. Plans are for the reservoir to be somewhat enlarged and refilled. To the west of the reservoir, is an old-age mixed forest; to the north is a wonderful pond dominated by waterlilies with buttonbush growing around the sides. The pond is a continuation of an extensive wetland running northwest of it.

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also keyed numerically, to the following CODA information.

***DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER -- UNDER CURRENT ZONING REGULATIONS**

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/ Difficulty To Develop	Potential New Population ** (persons)
26	3	40.753	13	Fairly easy	46.41
Section 10		R-3A	Block #9457		
30	31	136.47	44	Very difficult	157.08
Section 11			Block #9458		
31	20	67.854	22	Fairly easy	78.54
Section 14			Block #9822		
32	1	63.270	25	Very difficult	89.25
Section 15			Block #9454		
38	24	25.235	5	Fairly easy	17.85
Section 18			Block #9824		
40	25	53.690	16	Easy	57.12
41	37	28.460	9	Easy	32.13
42	28	32.575	11	Difficult	39.27
Section 18			Block #9824		

*CODA's Phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. Census of Population, 1970.

MAP SLIDE B - VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C - CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change)

H. A "U" shaped node of open space consisting of Cole property to west of Siscowit Reservoir and another section east of East Woods Rd.

Environmental Problem Sites: Red Map Symbol

22. Dump

23. Dump

24. Dump

25. Dump

26. House lot dug into stream bank causing ecological disruption of stream.

27. Scalped area along water course.

28. Scalped area along Siscowit Reservoir.

Natural Areas of Special Interest: Green Map Symbol

40. Steep ravine with oak forest on the slopes: Eastern side has striped maple -- a rare plant in this area. On top of the western side, there is a stand of pleasant, open, grassy woods with a development next to it.

41. A one (1) acre vegetable garden: adding interest to the landscape.

42. Old age beech forest: with stems 1-2 feet in diameter.

43. Overgrown old field: with spirea, cherry, blueberry, red maple. It has an excellent food and cover for wildlife (we

flushed a woodcock). Its value as a wildlife habitat is further enhanced by the fact that it is near a wetland which could satisfy additional habitat requirements.

44. Attractive old-age mixed forest: on Stamford Water Co. land.

45. Site of the drained Siscowit Reservoir: now with the aspect of a large meadow of sawfly grass with mounds of smartweed. This habitat will disappear when the reservoir is again flooded.

46. A magnificent tulip poplar stand: on the edge of a swamp on the Cole property. This site is surrounded by an attractive stand of mixed forest.

47. Siscowit Pond: a 20 acre pond dominated by pond lilies and button bush. These two vegetation types are intermingled with areas of open water forming an ideal wildlife habitat. The water is shallow, probably not more than 6-feet maximum, with a peat substream. This area was probably at one time a red maple swamp, until a road which serves as a dam was constructed. The water is dystrophic and flows into the Siscowit Reservoir..

Historic Sites: Orange Map Symbol

25. Site of an old basket-weaving shed and a barn made with boards of American Chestnut.

25a. Beck's Hill Cemetary,

26. Cemetary

27. Cemetary

28. Hoyt Cemetary

29. Indian Site

Surface Water Sampling Sites: Blue Map Symbol

61. D (in Lewisboro)			
62. A (wetland stream) Lewisboro			
63. B. Lewisboro		<u>Code for Surface Water-Sampling Sites</u>	
64. A,D Lewisboro		A. Upstream water to be used as base-	
65. A, Lewisboro		line for water quality (ie. springs,	
66. A , D	73. B	streams leaving old forests, stream	
67. C	74. B	leaving undisturbed wetlands).	
68. A	75. A	B. Downstream water, having known or	
69. C	76. B	suspected pollution.	
70 A,D	77. B	C. Large wetland or body of standing	
71. B	78. B	water.	
72. C,D	79. A	D. Heads of major watersheds.	
		E. Exit points of major watersheds.	
		80. A	82. C
		81. C	83. E (New Canaan)

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Check into environmental problems (red map C- symbols,#22-28)
2. Recommend Cole property to west of Siscowit Reservoir for conservation. (includes green map C symbol, natural area #46)
3. The development on the east side of the Siscowit Reservoir should be observed to determine if reservoir water quality is adversely affected.
4. Conservation of Siscowit Pond (green map C symbol, natural area #47).

WATERSHED 7 - SHAD ROADS

Right now, Shad Roads is rather a sleepy watershed. There is no current active development. Large tracts of undeveloped land surround two wetlands in the western third of the watershed. Much of the part north bordering Stamford, Ct. is taken up by two large country clubs, Rockrimmon (north west) and Twin Ridge (north east). However, this apparently dormant situation could change rapidly with the new ownership of the Twin Ridge Country Club, 167 acres of which lies in Pound Ridge. This could lead to rapid development.

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also keyed numerically to the following CODA information:

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/Difficulty To Develop	Potential New Population ** (persons)
9	38	104.206	29	Very difficult	103.53
10	82	47.000	15	Very difficult	53.55
11	17	27.304	7	Very difficult	24.99
12	8	30.722	9	Difficult	32.13
<u>Section 4</u>		<u>R-3A</u>	<u>Block #9317</u>		
17	4	156.547	52	Easy	185.64
18	1	59.794	18	Easy	64.26
19	33	34.629	10	Fairly easy	35.70
<u>Section 5</u>		<u>R-3A</u>	<u>Block #9318</u>		

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/ Difficulty To Develop	Potential New Population ** (persons)
20	2	113.869	36	Very Easy	128.52
21	4	69.592	23	Very Easy	82.11
22	10	39.100	9	Difficult	32.13
23	18	162.660	50	Very easy	178.50
Section 6		R-3A	Block #9316		

*CODA's Phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No. of potential new lots X3.57, based on average persons per Pound Ridge household reported in U.S. Census of Population, 1970.

MAP SLIDE B - VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C - CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change) Brown
Map Symbol
Shad Roads Watershed includes part of two natural areas Nodes:

Node F in the northeasterly corner which lies mostly in the Mianus River and includes part of the Twin Ridge Country Club property.

Watershed (Watershed 5) Node I in the northeasterly corner which also straddles the Mill River South Watershed (Watershed 8) which in turn is a natural extension of the Mill River North Watershed (Watershed 4).

Environmental Problem Sites: Red Map Symbol

29. Automobil graveyard.

30. Dump

Natural Areas of Special Interest: Green Map Symbol

48. Attractive rock knob rising up from wetland.

49. Magnificent, large swamp forest: with large red maple black ash and a thick shrub layer. There is a beautiful view of this wetland from the path west of it.

50. Mature beech slope: bordering a wetland.

51. Excellent grove of hemlock: Stems are 1-2 ft. dbh with one tree 3 ft. dbh.

52. Largest, most magnificent tulip poplar grove we've seen in town, with many stems exceeding 2 ft. dbh. Lies at the edge of a wetland.

53. Old estate with closely folded topography: (Present Sultzburger property). Parklike forests with rhododendron. There are many meandering roads which are now used by bikes and snowmobiles.

Historic Sites: Orange Map Symbol

30. Cemetary

Surface Water Sampling Sites: Blue Map SymbolCode for Surface Water-Sampling Sites

84. C,D	90. B	A. Upstream water to be used as base-line for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands).
85. B	91. B (Stamford)	
86. B	92. D	B. Downstream water, having known or suspected pollution.
87. C,D	93. D	
88. D	94. E (Stamford)	C. Large wetland or body of standing water.
89. B		
		D. Heads of major watersheds.
		E. Exit points of major watersheds.

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Check out environmental problems (red map C symbol #29,30)
2. Development of the Twin Ridge Country Club property which lies in an environmentally complex area (Node I) and should be carefully appraised. On the westerly side of the Club's property lies Pound Ridge's largest and most magnificent tulip poplar grove (green map C symbol, natural area site #52) at the edge of one of this area's large wetlands that drain into the Mianus River.
3. Two wetland systems straddling Upper Shad Rd. are probably underlain by sand and gravel, or finer stratified material. Although the deposits are likely to be too shallow for direct development as ground water sources, they constitute important storage and

recharge areas for the surrounding bedrock aquifer. The surrounding upland may therefore support a higher density of wells, but care must be taken to protect the recharge area from contamination by septic systems, storm sewers and direct road runoff.

WATERSHED 8 -MILL RIVER SOUTH(continuation of Mill River North
Watershed 4)

The Mill River South Watershed contains some of the most intensively developed areas in Pound Ridge - The Hamlet, Sarles Corners, the southern third of the currently developing 'Simon Property'(now owned by Robert Gale), and the 18-acre western stretch of the Scotts Corners business area,Planned Business District A (PB-A). There is also the prospect of the Fosella Condominium on the west of Trinity Pass,south of Westchester Avenue.

The impact of man on this watershed is reflected by the large proportion of successional forest. Contrasting with present development is a section of old growth hemlock in a gorge of the Mill River, within a larger area of hemlock-hardwood forest perched on the southern edge of the watershed. This area will be increasingly disturbed by public use as development progresses.

The entire Scotts Corners area is hydrologically critical. As yet, the sewage and water purity problems of the Watershed 8 section of the business area(PB-A) are largely unrelated to similar but more intense problems in the 35-acre Watershed 9 section of this area, Planned Business District B(PB-B), although drainages from both sections flow into the Laurel Reservoir, about one mile away. Construction of safe access roads in PB-B,to service increasing commercial traffic, could however diminish the self-containment of Watersheds 8 and 9 if grades fall below the water table.

MAP SLIDE A -EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also keyed, numerically to the following CODA information :

*DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/Difficulty To Develop	Potential New Population ** (persons)
24	13	100.7000	47	Very easy	167.79
	R 1A				
25	28	28.300	22	Easy	78.54
Section 7	R-2A			Block #9320	
13	21	80.455	26	Difficult	92.82
14	41	71.788	19	Easy	67.83
Section 4	R-3A			Block #9317	
33	32	39.050	11	Easy	39.27
34	12	56.738	14	Easy	49.98
35	27	59.851	19	Difficult	67.83
Section 17				Block #9452	
20	18	40.516	14	Fairly easy	49.98
Section 43	R-2A			Block #9818	

*CODA's Phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

**Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S. Census of Population, 1970.

MAP SLIDE B - VEGETATION

This graphic analysis of plant and forest life in Pound Ridge, also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C - CRITICAL AREAS IN THE PLANNING PROCESS

Nodes (Complex Environmental Areas Vulnerable to Change) Brown Map Symbol

Part of I which includes the Twin Ridge Country Club and surrounding properties.

Most of J which includes part of the hydrologically critical Scotts Corners and wetlands; & the south of this business district which drains into Laurel Reservoir in Connecticut one mile away.

Environmental Problem Sites: Red Map Symbol

31. Polluted pond west of Pound Ridge Elementary School at head of watershed.

31a. Potential septic problems downstream of intensive development at and in a large zone underlain by well-drained sand and gravel soil which may not have sufficient inherent ability to purify septic system effluents before they reach the water table.

32. Development on a mature mixed forest bordering a wetland. CODA observed that test pits being dug for septic field were being filled with water at a depth of 3 feet.

Natural Areas of Special Interest Green Map Symbol

54. Impressive rock face: with a 3 foot dbh beech.

54a. A mature black gum forest: a very unusual forest in town.

54b. A new wetland which we identified.

55. Near virgin climax hemlock in a steep ravine of Mill River, one of the finest examples of the hemlock type in the northeast. Many hemlock stems are 2-3 feet equaling the Mianus hemlock stand. Thick hemlock reproduction underneath.

56. Magnificent rock escarpment: overlooking a large wetland.

56a. A white pine hillock with extensive white pine reproduction. It is a refreshing change of scene in a predominantly hardwood landscape.

57. An expansive, mature wet slope forest with spicebush shrub layer.

58. A scenic, almost solid sugar maple ravine with steep sides and parklike atmosphere.

Historic Sites: Orange Map Symbol

- 31. Pound Ridge Cemetary.
- 32. Cemetary
- 33. Indian Site
- 34. Cemetary
- 35. (Stamford)

Surface Water Sampling Sites: Blue Map Symbol

95. Downstream continuation of Watershed 4
- Code For Surface Water-Sampling Sites
- 96. A,C,D A. Upstream water to be used as baseline for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands).
 - 97. C,D
 - 98. B B. Downstream water, having known or suspected pollution.
 - 99. C
 - 100. D C. Large wetland or body of standing water.
 - 101. B
 - 102. A , D D. Heads of major watersheds.
 - 103. A E. Exit points of major watersheds.
 - 104. B,C
 - 105. C (active development nearby; in Node J)
 - 106. B
 - 107. D
 - 108. C
 - 109. D, A
 - 110. C
 - 111. B
 - 112. C
 - 113. B
 - 114. B, E (N. Stamford)
 - 115. C, (N Stamford) E

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A,B and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Hemlock stand should be protected. The development on a hill to the east of the stand should be carefully regulated so as not to damage this stand. (green map C symbol, #55)
2. Sand and gravel, or deposits of finer material probably underlie three major wetland areas: at Scotts Corners, northwest of Scotts Corners on Rte. 124, and at the head of Laurel Reservoir on the New York-Connecticut line. Although the deposits are likely to be too shallow for direct development, as ground water sources they constitute important storage and recharge areas for the surrounding bedrock aquifer. The surrounding upland may support a high density of wells, but care must be taken to protect these recharge areas from contamination by septic systems, storm sewers, and direct road runoff.
3. The Mill River Valley is underlain by a marble deposit, north of rte 124, and a major fault which extends the length of the valley past the New York-Connecticut line. These zones should be prospected for their water bearing properties and potential high well yields. Septic systems in this vicinity also need more careful design than existing health regulations require, to avoid contaminating ground and surface water.

WATERSHED 9 - BARNEGAT

Barengat is a heavily developed watershed, and the locale of the 35-acre eastern stretch of the 53-acre Scotts Corners business area -Planned Business District A(PB-A). Development is continuing, in some cases without regard to environmental constraints. One focus of expansion is an area of oak covered hills underlain by thin soils. Another is the Scotts Corners commercial district.

Scotts Corners always has been, and still is, a hydrologically critical area. It was zoned as the town's business center without reference to environmental analyses. Ecologically, it is one of the worst locations in Pound Ridge for intensive development. The area sits on or near a complex of wetlands that drains into Stamford's Laurel Reservoir, about one mile away. Sewage disposal and water quality are potentially serious health hazards, aggravated by shallow soils and a ground-level water table. The Merritt Corporation's shopping center (popularly called the 'A&P' supermarket) involved filling-in 4 acres of an extensive wetland. The construction of safe access roads and parking facilities, inadequate at present for commercial traffic, will further endanger the fragile ecology of the Scotts Corners area.

Future development of Scotts Corners (PB-A and PB-B) may necessitate a sewage treatment plant. One suitable location involves property adjacent to Merritt's shopping center(Town Tax Map, parcel 3, section 9, block 9456) plus property south of Westchester Avenue (Town Tax Map, parcel 26, section 8, block 9455). Another location is behind the south stretch of Westchester Avenue in PB-A(Town Tax Map, parcel 56, section 7, block 9320).

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map slide A is also keyed, numerically, to the following CODA information:

* DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA Map #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/Difficulty To Develop	Potential New Population ** (persons)
27	9	35.000	11	Fairly easy	39.27
28	11	74.461	20	Very easy	71.40
29	12	28.000	6	Difficult	21.42
Section 10			R-#A		Block #9457

* CODA's phase 3 - A DEVELOPMENT PLAN - will offer further field observations and more detailed ecological evaluation of these parcels.
**Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household, reported in US Census of Population, 1970.

MAP SLIDE B- VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams, and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP SLIDE C -CRITICAL AREAS IN THE PLANNING PROCESS

Nodes(Complex Environmental Areas Vulnerable to Change) Brown Map Symbol
Part of natural area Node 'H' overlooking the Siscowit Reservoir, consisting of the Cole property.

Environmental Problem Sites Red Map Symbol

33. Filled-in wetland for commercial development of Merritt Corporation shopping center.

34. A dump in the historic site of Dantown, on Barnegat Road.

Natural Areas of Special Interest Green Map Symbol

59. Pleasant small beech grove at the base of a rock face.

60. Impressive rockface and pleasant tulip popular grove overlooking the large wetland north of Scotts Corners PB-B business district.

61. A beautiful Norway spruce grove north of this wetland.

62. A red maple swamp which has now been flooded. An excellent wildlife habitat. CODA saw a bittern and pileated woodpecker fly up from this swamp.

Historic Sites Orange Map Symbol

- 36. Dantown, a small abandoned old village on the Cole property. Mr. Cole claimed it once included 3 houses, a sawmill and a well dating back to the early 1800s. Some of the foundations are now filled by dumps.
- 37. Near the Cole house and spring. An Indian feast site. Mr. Cole found clam shells here and other artifacts (pottery, arrowheads).
- 38. Cemetary
- 39. Cemetary

* Surface Water Sampling Sites Blue Map Symbol

- | | |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 116. C,D | <u>Code For Surface Water-Sampling Sites</u>
A. Upstream water to be used as baseline for water quality (i.e. springs, streams leaving old forests, stream leaving undisturbed wetlands)
B. Downstream water, having known or suspected pollution. |
| 117. C,D | |
| 118. B | |
| 119. B | |
| 120. B | |
| 121 E(N.Stamford) | C. Large wetland or body of standing water.
D. Heads of major watersheds.
E. Exit points of major watersheds. |

*All these sites are on stream flowing into and through a major wetland located at Scotts Corners.

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This is a graphic synthesis of significant environmental factors designated in more detail on Maps A, B, and C, which could deteriorate under Pound Ridge's present land-use legislation.

CODA RECOMMENDATIONS

1. Monitor Scotts Corners expansion closely, to forestall further hydrological impact and deterioration of supportive vegetation.
2. Conserve the tulip poplar grove and rockface (green map C symbol #60).
3. Protect the wildlife habitat in red maple swamp (green Map C symbol # 62)
4. Dantown dumps should be cleared, and consideration be given to restore it as an historical monument (orange map C symbol # 36).

WATERSHED 10 - WARD POUND RIDGE RESERVATION

The Ward Pound Ridge Reservation is a 4700 acre conservation area managed by the Westchester County Department of Parks, Recreation and Conservation. Some 3300 acres fall in Pound Ridge. CODA's evaluation of this Watershed is therefor minimal, limited mainly to broad graphic data.

Drainage from the Ward Pound Ridge Reservation flows in all directions from a high point*in the south central part, an escarpment which begins at the southern corner near the Bedford town line. Drainage to the southeast falls in Watershed 2, Stone Hill River(see pps. 62-67). Drainage flowing off the escarpment to the northeast borders Watershed 1; Lake Kitchawan (see pages 55-61) and joins the drainage from this Watershed at its exit. Drainage to the north joins with the drainage from Watershed 1 and the Cross River and flows southwest into the Cross River Reservoir. The westerly drainage flows west, primarily from the Honey Hollow wetland, into the easterly end of the Cross River Reservoir. The natural divides between these drainage patterns are shown on CODA's maps A, B, C and D.

The importance of the Pound Ridge Reservation as a local and regional water source is well known. The natural rugged topography, vegetation and wildlife of this area have also been primary factors in designating it as a County parkland. Because of the difficult accessibility of much of it, it has also remained a significant archeological preserve.

* Dancing Rock- elevation 836 feet. (See Map Slide C, Natural Area # 65)
1. New York State Archeological Association, The Bulletin, July 1972.

MAP SLIDE A - EXISTING ZONING AND LAND USES

This is a graphic analysis. Map Slide A is also keyed numerically, to the following CODA information:

* DEVELOPMENT & POPULATION POTENTIAL OF UNDEVELOPED PARCELS
25 ACRES AND OVER - UNDER CURRENT ZONING REGULATIONS

CODA MAP #	Town Map Parcel #	Total Acreage	Potential New Lots	Degree of Ease/ Difficulty to Develop	Potential New Population (persons)**
59	11	62.275	20	Very easy	71.4
Section 31			R-3A	Block # 10526	
60	10	36.500	12	Very easy	114.29
Section 31			R-3A	Block # 10255	

* CODA's phase 3 - A DEVELOPMENT PLAN - will report further field observations, and a more detailed ecological evaluation of these large undeveloped parcels.

** Formula: No. of potential new lots X 3.57, based on average persons per Pound Ridge household reported in U.S.Census Population,1970.

MAP SLIDE B- VEGETATION

This graphic analysis of plant and forest life in Pound Ridge also demarks open water, streams and wetlands. See background section, POUND RIDGE VEGETATION, pages 21 to 46.

MAP C - CRITICAL AREAS IN THE PLANNING PROCESS

Natural Areas of Special Interest Green Map Symbol

- 63. Meyer Arboretum. Outstanding tree stands.
- 64. Caves in rock knolls. Leatherman's Cave.
- 65. Dancing Rock. Elevation 836 feet. Observation point , High point of Ward Pound Ridge Reservation drainage routes.

Rock outcroppings from this point and extending southwest to Honey Hollow Rd, near where the power line follows Michigan Trail and crosses Honey Hollow Road, is an ancestral denning area of the Northern Copperhead (Agkistrodon Mokeson Mokeson).

Historic Sites Orange Map Symbol

- | | |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------|
| 40. Cross River Cemetary. | 49. Old foundation. |
| 41. Cemetary. | 50. Archeological site,
rock mounds. |
| 42. Cemetary. | 51. Waterfall. |
| 43. Trailside Nature Museum. | 52,53. Old Foundations. |
| 44. Old Colonial foundations. | 55. Archeological site. Spy
Rock Shelter. Major Shelton,
American Revolutionary War. |
| 45,46,47, Unique geological
sites, outcroppings. | 56. Archeological site. Rock mounds
bordered by rock wall. |
| 48. Archeological site,
rock mounds. | |

The following sites can be most easily located from the orientation points of sites listed previously in Watersheds 1 and 2 :

Historic Site #1(Watershed 1, Lake Kitchawan)- About 1600' west of this site is an archeological sand pit indicating occupation by humans from Paleo-Indian times, 10,000 years ago.

Historic Site # 11(Watershed 2, Stone Hill River) -About 800' north of this site is the Bear Rock Petroglyph. Here Indian carving of black bear and other probable animals and birds exemplify majico-religious ceremonialism as practiced by aboriginal inhabitants of Westchester County.

MAP SLIDE D - ENVIRONMENTAL SITE ANALYSIS

This graphic synthesis of significant environmental factors is minimal for the County-preserved Ward Pound Ridge Reservation.

CODA RECOMMENDATIONS

1. Developments that disturb the ancestral denning area of the Northern Copperhead would require extensive blasting to eradicate the potential danger of these reptile havens. (See Green Map Symbol, Natural Area Site #65). Properties affected are Parcels 2(19.5 acres) and 3(15.6 acres), Section 30, Block #10036, on Town Tax Map.
2. Developments in the vicinity of the Bear Rock Petroglyph could lead to the deterioration of this valuable archeological landmark. (See Historic Site # 11, listed under Watershed 2, Stone Hill River).

NOTE: Dotted line separating southwest part of Ward Pound Ridge Reservation denotes a further Watershed Unit(theoretically Watershed 11) which is not evaluated by CODA in this report.

GENERAL CODA RECOMMENDATIONS

Pound Ridge is no longer a remote country town whose rugged topography provides a natural obstacle to substantial growth. A large percentage of its employed residents have always commuted to New York City. It is within reasonable driving distance of the expanding cities of White Plains, Mt. Kisco, Bridgeport, Stamford and Danbury. Advances in construction techniques are making it possible to build homes and cut roads on almost any kind of land. The trend towards consolidating small acreages under one subdivision plan suggests that future developments will be on a large scale.

In towns with Pound Ridge's rural character, it is imperative that natural ecosystems continue to service human needs in residential areas. If these systems are bypassed for waste and water treatment facilities in one residential development it will become difficult to justify, legally, the importance of the ecological complex in other residential areas.

Decisions such as where and how to site homes, locate roads, fill-in wetlands, fell trees and strip vegetation should be substantiated on specific environmental grounds. Construction should be monitored since it is during this phase of development that the most irreparable damage occurs. Dedicated and persuasive officials can do much to steer a town's development along ecological lines without adequate supportive legislation. Nevertheless, in our democratic free-enterprise society, where the mobility of industry and populations is largely uncontrolled, administrations change. The best insurance that environmental protection will be sound and lasting is well-substantiated law.

Short of more effective environmental controls, CODA is convinced that the ecological character of Pound Ridge will change drastically in future years.

This Ecological Evaluation is only the first phase of a town-wide Environmental Planning Study of Pound Ridge. However, even at this preliminary stage, townspeople should begin to think in terms of environmental planning. To this end, CODA offers the following recommendations for consideration.

1. USE OF THE WATERSHED UNIT CONCEPT IN TOWN PLANNING. CODA's

Watershed Units were determined by specific environmental factors. Land use policies which keep alive the ecological relationships within these Watershed Units will maximize the town's natural character.

2. COORDINATION OF SOILS CLASSIFICATION AND HYDROLOGICAL DATA.

These are major, and interdependent components of environmental planning. Natural water resources depend on maintaining soil constituents which nourish --- and in turn are nourished by --- vegetation, wildlife, and the ever-regenerating cycle of nature. The locating of vital wetlands, and underground aquifers -- these store and purify water resources -- is scientifically economical in pinpointing surface water sampling sites, potential wells and septic systems, and monitoring stations. Maps C & D of this report identify wetlands and aquifers and isolate 121 water sampling sites. CODA's Development Plan for Pound Ridge, now underway and scheduled for completion in Fall 1974, will include the coordination of soils classifications and available hydrological data.

3. SUPPORT FOR A TOWN-WIDE DEVELOPMENT PLAN WHICH INTEGRATES THE WHOLE COMPLEX OF ECOLOGICAL FACTORS, AND WHICH DRAWS ON THE DATA, ANALYSES, AND DEVELOPMENT ALTERNATIVES PROPOSED IN CODA'S 5-PHASE ENVIRONMENTAL PLANNING STUDY OF POUND RIDGE.

The future effectiveness of this Town-Wide Environmental Development Plan will depend on fully substantiated - and equitable- environmental zoning legislation.

4. INSISTANCE THAT DEVELOPERS FINANCE AND SUBMIT ENVIRONMENTAL IMPACT STATEMENTS THAT RELATE TO, AND JUSTIFY, THEIR SPECIFIC DEVELOPMENT CONCEPTS AND PROPOSALS , in compliance with

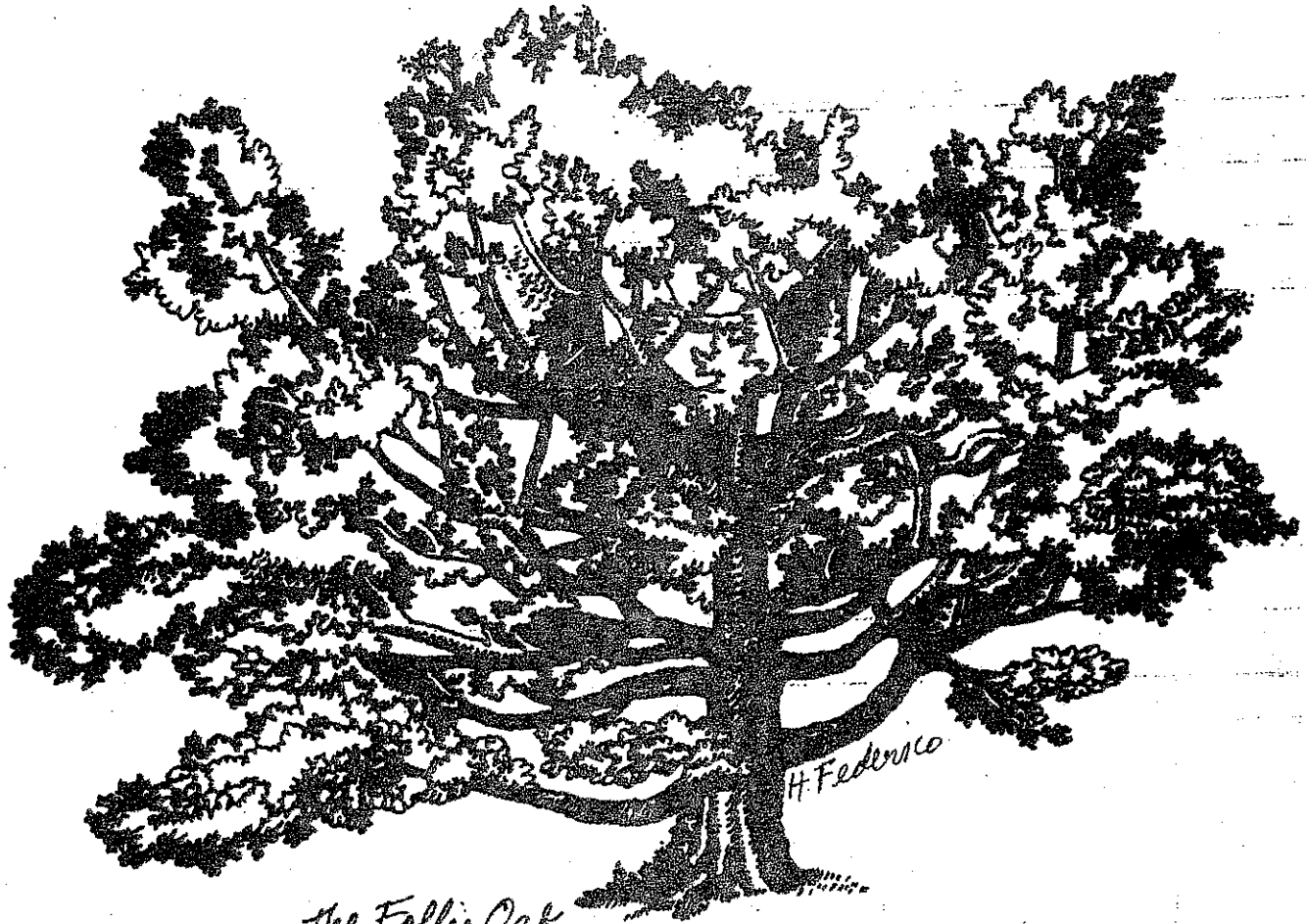
standards approved by appropriate Town Government agencies. Environmental Impact Statements should document the overall effects of proposed construction and other land uses on surrounding properties and on the town as a whole.

5. ENCOURAGEMENT FOR PLANNING THAT PRESERVES UNUSUAL ESTHETIC And/Or HISTORICAL FEATURES. Existing lake and river shores should be left undisturbed. Pound Ridge also has magnificent specimens of vegetation and virgin forests; and many historic farm buildings and Indian sites. Efforts should be made to design safe roads which perpetuate the narrow, hilly, tree-lined winding features that give Pound Ridge its natural rustic charm.

From the viewpoint of one property, the need for these recommendations may seem remote or exaggerated. CODA, however, considers the Town of Pound Ridge as one land unit where each major development will be felt ultimately by the community as a whole.

Mary Glowczewski

Jerzy Glowczewski, Director
Community Design Associates
July 1974



*The Follis Oak
Bedford Road, Pound Ridge, New York*

LAND USE BASED ON ECOLOGY

This Ecological Evaluation of Pound Ridge was published largely by volunteers. Harmon Newell, Jr., who began the PRUP 'movement' in December 1972, gave valuable help. Dolores Vogeler served as editor, in cooperation with CODA Director Jerzy Glowczewski. Lisl Steiner Monchek photographed the CODA field team, data maps and Trinity Lake. Natalie Williams contributed the Watersheds map. Helen Federico donated the line drawing of the Jack Follis's Oak tree. John Vogeler gave layout advice and offset printing. Gay Nilson prepared over 100 stencils for duplication. Joan Faxon and Mary Jane Russell teamed up for final proofreading and mimeographing. PRUP's ten Trustees worked together to review, collate, and bind, so that CODA's Ecological Evaluation of Pound Ridge could be made available to townspeople and groups at the lowest possible cost.










Any part of this Ecological Evaluation may be reprinted or summarized in context with appropriate mention of Community Design Associates (CODA) and/or Pound Ridge United For Planning (PRUP) as the publication source.

POUND RIDGE UNITED FOR PLANNING
POUND RIDGE, NEW YORK 10576

Guide to CODA map slides











A EXISTING ZONING AND LAND USE

1973 STATUS

-  zoning boundary line
-  watershed boundary line
-  tax exempt
-  owned by water co.
-  developed to zoning limit
-  not developed to zoning limit
-  COMMERCIAL PROPERTY (PB-A & PB-B)
-  RESIDENTIAL PROPERTY (R-1A & R-2A & R-3A)
-  PARCELS OVER 25 ACRES






B VEGETATION

1973 STATUS





-  open water & streams
-  watershed boundary
-  wetland
-  conifer plantation
-  hemlock forest
-  hemlock-hardwood forest
-  mixed forest
-  oak forest
-  old field
-  successional forest

C CRITICAL AREAS IN THE PLANNING PROCESS

1973 STATUS










-  nodes-vulnerable areas
-  suggested water sampling site
-  environmental problem site
-  natural area of special interest
-  historic site

note: each of the above categories is numbered in sequence

-  open water & streams
-  watershed boundary
-  watershed drainage direction
-  watershed drainage exit

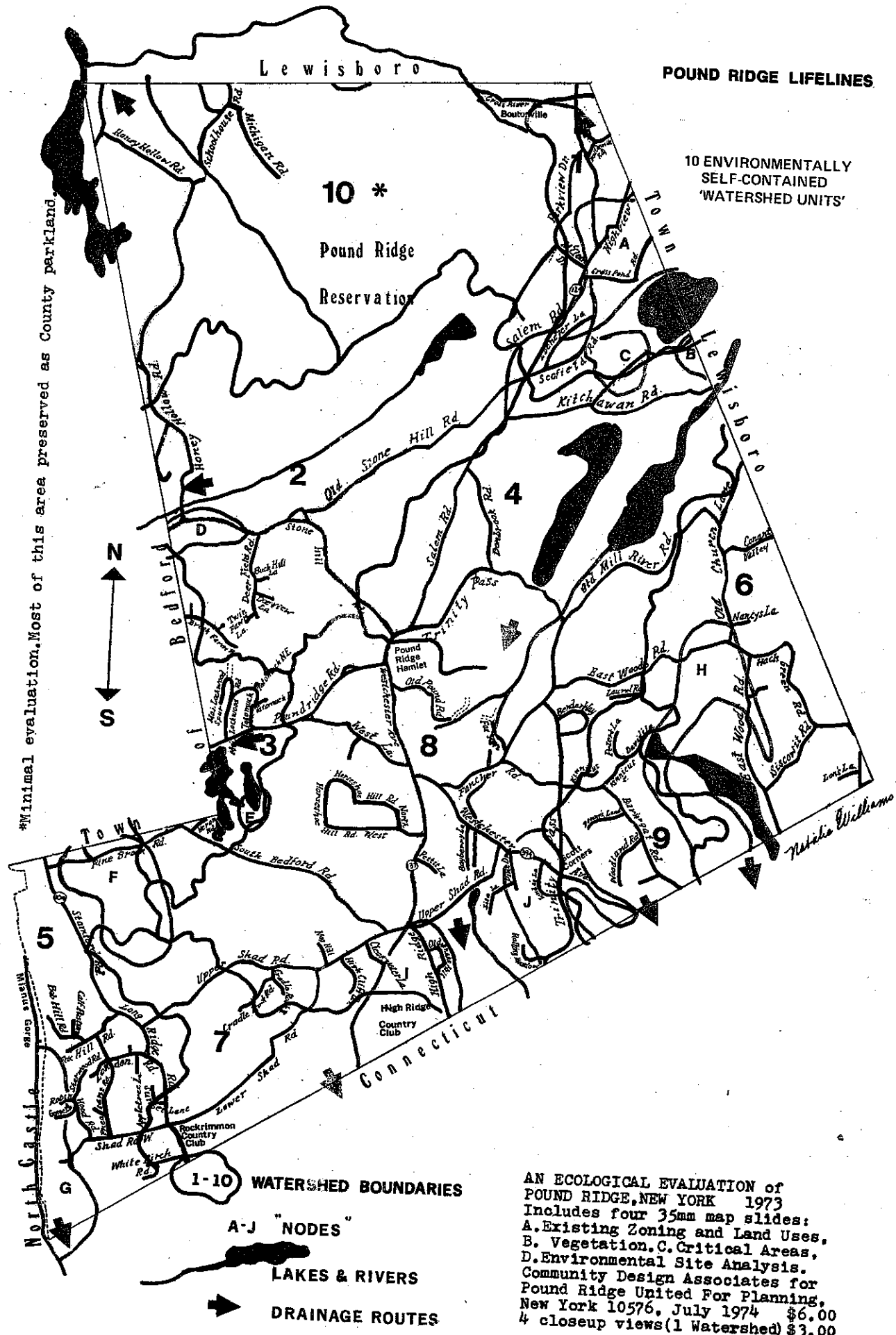
D ENVIRONMENTAL SITE ANALYSIS

1973 STATUS

-  nodes
-  areas under active development
-  water company property & protected areas
-  conservation areas
 -  wetlands
 -  exceptional forest
 -  aquifers
 -  public parks
 -  scenic vistas

Pound Ridge watersheds

- | | | |
|--------------------|----------------------|---------------------------------|
| 1 LAKE KITCHAWAN | 5 MIANUS RIVER | 9 BARNEGAT ROAD |
| 2 STONE HILL RIVER | 6 SISCOWIT RESERVOIR | 10 WARD POUND RIDGE RESERVATION |
| 3 BLUE HERON LAKE | 7 SHAD ROADS | |
| 4 MILL RIVER NORTH | 8 MILL RIVER SOUTH | |



*Minimal evaluation. Most of this area preserved as County parkland.

POUND RIDGE LIFELINES

10 ENVIRONMENTALLY
SELF-CONTAINED
'WATERSHED UNITS'

AN ECOLOGICAL EVALUATION of
POUND RIDGE, NEW YORK 1973
Includes four 35mm map slides:
A. Existing Zoning and Land Uses.
B. Vegetation. C. Critical Areas.
D. Environmental Site Analysis.
Community Design Associates for
Pound Ridge United For Planning,
New York 10576. July 1974 \$6.00
4 closeup views (1 Watershed) \$3.00