



YOUR WOODLANDS PORTFOLIO

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ABSTRACT: Forest resource studies clearly show that Tennessee's ten million acres of private, non industrial owned woodlands suffer greatly from a lack of sustained, long-term management strategies. As a result, our forests have become increasingly undervalued resulting in significant financial losses to individual property owners, and when viewed collectively, a vast loss to our State's economy overall. Out of this current economic situation, related issues emerge which pose a serious future threat to the extent and character of our forests as we know them today.

The intent of this publication is to reverse past and current economic trends by charting a long term, practical course for property owners to follow. These owners can then successfully increase the value of their woodlands while, at the same time, receive periodic income. If a large number of woodland owners are persuaded to adopt a long term, sustainable, business management philosophy, then the future and economic viability of Tennessee's forests will be guaranteed.

We all share a quite human trait in that we constantly seek some means to enhance the quality of our individual existence through the accumulation of things we hold dear. We value the things we own. Indeed, the greater the value of a thing, the more willing we become to tend and protect that thing. Conversely, as a thing loses value we neglect, or discard it, and actively seek more desirable alternatives.

The above philosophy also applies to Tennessee's forests. Over the long term, valuable woodlands will be protected and maintained, while those of little value will be converted to other uses. Social and environmental values associated with forests such as aesthetics, solitude, or wildlife diversity provide individual and social benefits, and as such, must be considered when evaluating the worth of woodlands. However, enhancing the long term financial worth of private timberlands will ensure that future generations of Tennessee citizens can continue to enjoy the many economic, social, and environmental benefits afforded by expansive, healthy, productive forests.

The author offers no apologies to his friends (provided he has any left after they read this publication) in the timber industry for any seemingly critical comments made about timber buyers, loggers, and timber sales administration. While most certainly there are many reputable industry representatives who do not take advantage of naive woodland

owners, the industry overall has earned a well-deserved reputation for hardball, and sometimes unscrupulous, timber sale transactions. Everyone associated with the business can cite instances where landowners forfeited very large sums of money, and/or had their property abused when they sold their timber. Through this publication, hopefully more landowners will learn how to protect their interests, and receive full value for their timber. When viewed over the long term, increasing landowner profits and satisfaction is the best way to promise a sustained supply of wood for industry mills.

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YOUR WOODLANDS PORTFOLIO

A Financial Guide for Serious Woodland Investors

FORWARD

Most Tennessee woodland owners fail to attain high returns from their property because they lack adequate knowledge of the basic principles of forest finance and the wood products business. Current and future owners stand to substantially increase profits through the establishment of coherent management goals based upon appropriate financial strategies. The premise of woodlands portfolio management is to help woodland owners better understand forest management principles through the comparative use of common forestry and investment concepts and terminology.

For most owners, the optimum strategy for enhancing forest values and for making substantially more money from their woodlands is to strive for:

MORE TREES, because an average acre of Tennessee woodlands contains far fewer trees than the land should be capable of supporting, plus trees planted on open land often yield surprisingly high investment returns;

BIGGER TREES, because large trees bring premium prices in the market place;

AND BETTER TREES, as straight, tall trees with few defects are becoming scarce. This scarcity causes the remaining trees to bring astonishingly high prices in both domestic and export markets.

Roughly eighty percent of Tennessee's woodlands are privately owned. However, a historic lack of sound, long term forest management has caused potential woodland income to decline statewide. Informed management strategies coupled with intelligent business decisions can generate dramatically higher profits for serious woodland investors.

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CHAPTER ONE

YOUR LAND, YOUR CHOICES AND YOUR OPPORTUNITIES

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Basic Factors Affecting Total Woodland Returns

Your woodlands provide many immediate and long-term values to you, your family, and society as a whole. Tending your forest prudently and responsibly can be a challenging and rewarding experience. The demand for wood products from Tennessee's woodlands has a long history, and the future for wise investors is bright.

Just as a factory has a finite production capacity, so too your forest has a finite and measurable capacity for wood production. Many variables apply that will be discussed in detail later, but the need to utilize the inherent capabilities of the land to maximize the production of the right kind of wood on your land is fundamental to acquiring top dollar returns from your woodlands.

Successful businesses, large and small, possess first order marketing skills and understand the importance of identifying and targeting clients in highly competitive business environments. In like manner, successful woodland owners must either acquire the knowledge to market their timber for the highest possible price, or else learn where to get expert marketing assistance.

"Production and marketing" is virtually the name of the game in maximizing economic returns from woodland investments. To be successful in your forest enterprise you must learn to apply the many basic rules of the game.

The Concept of Woodlands Portfolio Management

A cartoon circulated several years ago in which a large, obviously affluent gentleman was walking along a wooded path with a small boy. In the caption the gentleman was telling the boy, "You know, it's nice to know about trees, but nobody ever made any real money by knowing about trees." Obviously that fellow knew quite a bit about investments and the value of real money, but what he did not know anything about... was trees. You, as a woodland owner with economic expectations in mind, must be more knowledgeable than this cartoon character if you hope to attain high returns on your forestry investments.

Successfully tending your personal portfolio involves managing various individual investment accounts, (stocks, bonds, mutual funds, real estate, or whatever), in order to attain your goal of maximizing income. Investments are selected and realistic objectives are set based upon some prior knowledge of the opportunities, costs and risks involved. Wise investors opt for a diversified portfolio in which they place their money in several, unrelated investments to maximize income while distributing risk, as opposed to keeping all of their eggs in one basket.

A wooded property of any meaningful size, like your personal portfolio, must also have an overall management goal with realistic objectives based upon a thorough understanding of various investment alternatives, costs and risks. Simply stated, **you've got to know what you've got, exactly what you want, and map out a plan to get there.** Only one thing is more important than planning....taking action.

Forests aren't just "woods." To the experienced, trained eye, virtually all private woodlands have "one of a kind" characteristics. In fact, considerable variations in forest conditions are commonly noted on relatively small areas within one ownership. A properly structured woodlands portfolio identifies those individual forested areas throughout the property, each of which is managed as a separate account offering a unique investment opportunity. This naturally diversified woodland portfolio, when displayed on a map showing each unique area, resembles a patchwork quilt. To carry the same thought further, each area contains hundreds, or perhaps thousands of individual assets... your trees. As a woodland investor, you won't make any real money unless you "know about trees."

Commonalties of Woodland Ownership

Typically, woodland owners have more than one objective for ownership, but somewhere within their list of priorities is an economic interest. Growing and selling wood products is a business. But, few landowners have the interest, expertise, or time to develop the full investment potential of forested property, or optimize returns from the sale of forest products.

Regardless of the investment or business venture involved, certain fundamental financial principles apply. A working knowledge of the investment or business is basic to decision making. Forests and trees are too often thought of in a warm, rustic, "outdoorsy" manner, rather than being considered in the context of valuable assets. If you intend to sell timber, then it is crucial that you think of yourself as being in the timber business.

Tennessee's forests can produce desirable investment returns, as well as many personal, social and environmental benefits. But remember that "there aren't any free lunches" out there in the woods. You simply cannot cut what you want, when you want forever, and never expect to pay a bill. Neither can you "trust to luck" and hope to get "top dollar" when you sell timber. Poor financial planning, coupled with naive timber sales procedures will cost you many, many thousands of dollars!

By growing timber, you are preparing products to be sold in a fast-paced, highly competitive, very specialized market. America's wood products industry is a complex, sophisticated, multi-billion dollar, international business that includes several Fortune 500 companies. While local loggers and sawmill owners may not have the stature of a Georgia Pacific, rest assured that they view their enterprise strictly as a business. Woodland owners must be very well prepared to do **business** in a notoriously merciless **business** environment.

Still, the common view held among many, if not most, woodland owners is that forest income is periodic free money, and all they have to do is let their timber grow until some timber buyer shows up on their doorstep. Then a deal is struck, often on a handshake, and at that point the purchaser becomes the timber owner and property manager with a chainsaw.

Timber buyers are experienced, hard-nosed businessmen who are skilled in "the art of the deal." They use the same principles as any other businessman: "buy low" and operate as cheaply and efficiently as possible. So, typically a buyer will try to purchase a tract of timber at as low a price as possible. Remember too, the timber buyer's only purpose in life is to ensure a constant flow of low cost logs to their mill. Unless contract restrictions otherwise apply, trees are almost always harvested solely to best meet the immediate economic needs of the buyer. Whether or not those same trees were earning the property owner a very nice annual rate of return, or were poised to gain significant value in only a few short years is not important to most buyers. Whether the trees still standing following the harvest have no financial future is irrelevant. The future economic value of that woodland over the long- or short-term is not important to most buyers. Their job is feeding logs into the mill today.

Through ignorance or indifference, woodland owners very often abdicate "management" responsibility to timber buyers and loggers, and sell their timber for only a fraction of its true value. Even though there is no hard data to support the claim, at least one University of Tennessee forestry professor agrees that this uninformed, short-sighted management, harvesting, and sales process costs woodland owners far more in lost income than all of the losses from wildfires, storms, insects, and tree diseases combined.



CHAPTER TWO

INVESTMENT EQUIVALENTS OF FOREST MANAGEMENT TERMS AND CONSIDERATIONS

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Think of Stands as Mutual Funds.

An area of woodland with uniform productive capability and similar tree types and ages is referred to as a *stand*. Stands can be of any size, but for management purposes and to maintain portfolio diversity, at [Tennessee Timber Consultants](#) we believe it is best to keep them relatively small, say at least 10, but less than 50 acres. A large ownership could have several similar, or even identical, stands.

Managed stands of trees bear a close resemblance to "growth and income" mutual funds. As such they have an objective, average rate of return, cost, and relative level of risk. Mutual funds hold shares of company stocks as assets, while the individual assets of a timber stand are trees! Fund managers manipulate stock shares within a portfolio to maximize both "growth" and "income." Likewise, trees in your stands should be sold or retained on the basis of current or potential value performance.

Mutual funds acquire financial growth through supply and demand factors on Wall Street, or wherever, for the stocks held in the portfolio. Stands similarly provide financial growth through supply and demand for trees and the wood products that can be manufactured from them.

In a mutual fund, you purchase or own a defined number of shares, each of which has market value expressed as price (\$)/share, or Net Asset Value (NAV). Total ownership in a mutual fund is measured by the number of shares held at the current market price per share. The number of "shares" owned in a stand of trees is referred to as volume and is measured in board feet (most commonly thousand board feet, or MBF), cords, or tons. Timber unit prices are expressed as \$/MBF, \$/cord or \$/ton. The value of a stand is calculated by multiplying the total number of units owned by the unit price. For example, a stand containing 100,000 board feet (100 MBF) of timber valued at \$200/MBF has a total value of \$20,000.

Income is attained from stocks held in a Mutual Fund through periodic dividend distributions. In like manner trees grow, so each year the number of measurement units you own increases. In other words, your total volume and stand value increases

annually. For example, a stand might, through the growth of individual trees, produce an additional 100 board feet per acre each year. Normally, average annual tree growth and resultant volume increases are predictable for any stand of trees.

Think of Trees as Stocks - Picking Winners and Losers

As mentioned above, trees are the individual assets contained in your stands. Just as mutual fund managers attempt to maintain a portfolio of equities that yield a high return, our woodland managers strive to develop stands of high value trees. Portfolio managers retain stocks with high potential (winners), and sell those stocks that have reached the peak of performance or could drop in value (losers). In general, the same philosophy applies to managing trees.

Most trees occurring in Tennessee are sold to local wood using industries which process logs into lumber for domestic markets. Increasingly, however, high value logs are sold internationally with premium prices being paid for American wood exports into Europe and the Pacific Rim. Strategies to produce trees to take advantage of these export markets can be expected to yield high returns for wise, long-term investors.

At appropriate intervals, harvests are conducted to maintain or increase the growth and value of a stand. Over the long term, harvests should be tailored to remove only those trees that have little economic potential (losers), or that are damaging or restricting the growth of the higher value trees (winners) that are identified to be retained.

Ultimately a stand should contain an optimum number of extremely high value individuals. These are then marketed when they have reached their peak performance, and the risk of losing some or all of them outweigh potential further gains.

A Fully Vested Stand

Mutual fund managers often attempt to invest a major portion of cash assets in high quality stocks. That is, they normally try to stay "fully vested." Our woodland managers strive to fully utilize the inherent qualities of the land to maximize the production of high-value wood products. The degree to which a sufficient number of evenly spaced trees are present to fully occupy an acre of land is referred to as **stocking**.

Under favorable management, most Tennessee woodlands can grow twice as much commercial wood as they are currently producing. Very simply, most Tennessee forests are significantly under-stocked. Innate land and soil conditions predetermine the amount of wood fiber that can be grown on any given acre of land. That wood can be distributed on several small trees, on a few large ones, on the trunks of trees, or in their limbs. Timber harvesting dramatically affects stocking, but traditionally logging is routinely undertaken without any consideration for fully utilizing the productive capabilities of the land over the long term.

A very young stand of seedling-size trees could contain from several hundred to several thousand very small trees depending, in part, upon the kind of trees occupying the site. As the seedlings grow, they begin to compete with one another for sunlight, moisture, and soil nutrients. Eventually, a number of them will begin to die out simply because they cannot compete with their more aggressive neighbors. In undisturbed settings, this "survival of the fittest" process continues throughout the life cycle of a forest.

Our managers identify and quantify those trees with inherently poor competitive characteristics; normally the smallest and poorly formed trees. Rather than simply allowing them to die and fall over, at the earliest possible opportunity, the economic value of these trees is captured by initiating a series of periodic commercial harvests called **thinnings**. Conducting a proper thinning at exactly the right time in the development of a forest is of great importance, and will profoundly influence financial returns.

Carried out properly, a thinning will leave a very specific number of trees standing in the forest that are spaced at an optimal distance apart. Soil conditions, stand age, average tree size, and the species of trees are some of the specific considerations associated with planning for thinnings. If harvested properly, a thinning will not damage the remaining trees, and will maintain or enhance their growth and health by providing them with necessary growing space. How often thinnings are carried out depends upon many of the before mentioned conditions, coupled with economic strategies or constraints.

Harvesting too few trees in a thinning simply does not achieve the desired outcome of providing optimum growing space for the remaining trees. Maintaining a desired stocking level to optimize tree growth is very important financially, but might also affect the forest's susceptibility to attacks by insects or tree diseases.

Harvesting too many trees during a thinning creates an under-stocked condition that is perpetuated throughout much of, if not the entire life of a stand. In such situations, the growth characteristics of the remaining trees are influenced biologically in many ways, some of which lower their commercial value. Because the trees are spaced too far apart, a common growth response is for trees to develop large, spreading crowns very similar to a tree in your front yard. So, rather than growing valuable wood, trees in under-stocked forests grow limbs. Thinning too many trees, on too often a cycle has caused most Tennessee woodlands to become vastly under-stocked with low value, limby trees. They have value, yes, but a comparatively low value compared with trees grown under optimum conditions.

Mutual fund managers attempt to maintain fully vested portfolios of high value stocks, while our woodland managers establish fully stocked stands of valuable trees. By constantly maintaining a fully stocked stand of trees our managers can put the full productive capacity of your land to work for you.

Divestiture, or Liquidating a Stand

So the question now arises, what happens after a stand has been repeatedly thinned, and all that remains are old, large, high-value trees? Well, it is time to take your highest profit. In other words, it is time to start the process over by harvesting the old trees, while simultaneously investing in creating optimum, sunlit conditions for the establishment of an entirely new forest. Let's call these methods "final harvests."

The most efficient and effective final harvest method is through clearcutting. Clearcutting brings about the end of one generation of trees, and the birth of another. As is the case with most birthings, witnessing the event may not present the viewer with a very pretty picture. But painful and unsightly though it may be, clearcutting provides an optimum environment for the establishment and unimpeded development of young trees either as a result of their natural occurrence from seeds or sprouts, or through planting.

All plants require sunlight, and trees are no different. Without sunlight there can be no trees. Shade cast on the forest floor is plenty adequate to prevent the establishment of desirable new seedlings. A partial harvest of the large trees temporarily provides sufficient sunlight for many seedlings to become naturally established. But, limbs in the crowns of the remaining large trees soon begin to spread out to take advantage of the unexpected new growing space. Sooner or later then, the newly established seedlings become imprisoned under a dense canopy of large, limby trees. When that happens, the sunlight will be cut off, the seedlings simply stop growing, never having the opportunity to develop properly, if they survive at all. Simply put, properly managing trees means properly managing sunlight.

Alternative, less unsightly final harvest methods may be used that approximate the results of clearcutting. These methods aren't actually final, but they are close enough to fit the term. Seed tree, group selection, two-aged, and shelterwood harvest methods come to mind. Apart from the visual benefits of not clearcutting a stand, these methods are sometimes advantageous for some species of wildlife. In addition, they may provide a more attractive setting for potential buyers should you at some point elect to sell your property. The down side of these methods could be that you are leaving your highest value trees at significant risk without any expectation of increasing their worth. Indeed, they will likely lose value, or be lost entirely from environmental influences.

Advanced thought should be given to the affects alternative harvesting methods have on a stand over the short and long term. Three important outcomes must be considered. First, you must create adequate conditions for the replacement of the harvested trees by assuring that a well-stocked stand of desirable trees can become established. Secondly, you must determine what to do with those trees not removed in the first harvest so that the newly established young trees can continue to develop unimpeded. Finally, by applying alternative final harvest methods, you are, in effect, leaving a vastly under-stocked stand of old trees that can rapidly decline in value. Any lost value is the price you would be willing to pay to maintain some degree of visual quality on the harvested area.

The concept of continuously managing stands through a harvesting procedure referred to as "individual tree selection" has been viewed favorably by many woodland owners for many years. The idea being that harvesting individual trees throughout a stand creates adequate conditions for new trees to replace those that were removed. Conceptually then, you would have large and small trees of various ages scattered higgledy/piggledy throughout the stand. This process seems reasonable on the surface, but the fact is, it doesn't work. The actual result is the development of an under-stocked stand of slow growing species of trees well suited for developing in shaded conditions. In fact, the use of individual tree selection, or high-grading, has directly led to the under-stocked, low-value conditions prevalent in our woodlands today.

Properly harvesting a stand of timber throughout its lifetime requires correct timing, but forests are timeless. A forest might be nothing more than small seedlings, but they constitute the first important step in a life cycle that spans decades. Establishing those seedlings in full sunlight and allowing them to develop over the years into high value individuals is one of the vital keys to long-term financial success.

Sustaining long term economic viability requires that you invest energy and money to replace the trees that are harvested. Harvesting cycles that approximate natural events and life cycles will assure that forests can continue to provide economic and environmental benefits for generations to come. As previously mentioned, forests provide us with many things, but they do not provide a free lunch.

Economic versus Biologic Maturity

Did you ever hang around college or professional athletes? Wow, those guys are big! At least on television we've all seen basketball players who are over seven feet tall, and offensive linemen in college and the pro's who are 6'-7" tall, weighing three hundred plus pounds. And, these are all relatively young men. How old will you have to get to be that big? At the opposite end of the spectrum, we also see adult men who never reach five feet in height. Obviously, people grow at different rates, and vary significantly in size at maturity. Genetics and environmental factors affect human growth and development, so you plainly cannot tell how old someone is simply by noting their size.

Just as with people, genetics and environmental factors influence the growth of trees. Even within the same species of trees, young trees are not necessarily small, and very old trees are not necessarily large. As a case in point, you might notice the variation in tree sizes in planted stands of genetically similar pine trees. Keep in mind that all of those trees were planted on the same day with seedlings coming from the same nursery, but you will still see a wide variation in tree heights and diameters. The same thing happens in natural stands of trees except that the variations swing wider because natural genetic variations are more pronounced. So, variations in tree sizes are often more akin to the rate of growth of individuals, as opposed to age.

Environmental factors influencing the growth of people almost always come down to diet. In like manner, since trees need sunlight to produce food (remember photosynthesis?), those individuals with the best opportunity to capture sunlight will grow the fastest. Did you ever notice that trees next to a clearing are larger than their neighbors positioned farther back in the woods? The trees next to the opening are better fed. Beyond any doubt, sunlight is the most important environmental factor affecting the growth of Tennessee's trees.

Of course environmental factors other than sunlight affect tree growth. Available soil moisture is a prime concern with the establishment and growth of trees. Some species, such as loblolly pine, grow very well with limited soil moisture, where other species, such as oaks, under the same conditions would fair poorly. Available soil nutrients also affect tree growth. In virtually every situation in Tennessee, soil nutrients are sufficient to produce a stand of trees. Fertilization is rarely an absolute requirement, although the application of fertilizers may improve the growth of certain species in specific locations. The cost of fertilization must be carefully weighed against potential added growth. Soil acidity, or soil ph, is another important consideration for many species. Walnut is a very good example of species requiring an alkaline, or fairly high ph soil. Some oak species and loblolly pine perform very well under relatively acidic conditions. These environmental conditions greatly affect how large a tree will be at any point in its life.

You might recall from your early days in grammar school when the teacher discussed how native Americans taught the Pilgrims how to grow corn. Remember the picture of a native American woman bending over to plant a seed followed by a man dropping a fish in the hole for fertilizer? Agricultural specialists took that native variety of "Indian corn," or maize, and developed genetic hybrids by repeatedly breeding improved varieties of corn in such manner as to capture those traits that maximize production. The benefits from those many years of research have given American farmers the opportunity to dramatically increase profits while feeding our citizens and the world.

When looking at naturally occurring Tennessee hardwood or pine trees, what you are really seeing is the forest's equivalent of that original variety of "Indian corn." It is exactly what Mother Nature developed, good or bad, coupled with generations of ill-conceived harvesting practices. You often see large, old white oaks with good characteristics, and small white oaks of the exact same age with little added growth or value potential.

Research in tree genetics has been going on for more than 100 years. Scientists are basically doing the same thing with trees that has been done with corn and other agricultural commodities. That is, they look for a tree with desirable traits, and breed it with another tree of the same species with other desirable qualities. Over a long period of time, the goal is to breed fast growing trees with high value potential that can be grown in high capacity nurseries for sale and planting. We already see benefits from that work, most particularly in the growth potential of loblolly and white pine seedlings available from many nurseries. Efforts in hardwood research show similar results for

timber production purposes, but only for a very limited variety of species such as cottonwood.

Historically, woodland owners felt that the common sense course for managing their timber was to simply cut the large trees, and leave the small ones to grow. As we have seen, however, this strategy is actually illogical when you consider that cutting only the largest trees most often means harvesting the fastest growers, while leaving small trees usually results in simply leaving the slowest growers. What does that do for the long-term productive capacity of the forest? Guess which trees are left standing to provide seeds to establish future generations of trees? Over the long term, repeatedly cutting the biggest trees while leaving the slow growers standing will create a stand of old, slow growing, low value trees. Actually it's a kind of backwards genetic selection.

So, how big is a mature tree? This question relates to both biological and market influences. A white oak, for example, can possibly live several hundred years, but within only 80 to 100 years it will very probably reach its peak economic value regardless of size. So, while ages of trees and stands is a very important management consideration, of much more vital interest is determining when a tree or stand has attained its highest economic value.

Stand Ages = Total Length of Investment

Investors logically need to know how long it will take to maximize the return from their investments at the final harvest. Foresters refer to the total life cycle of a stand of trees beginning from the establishment of seedlings through the final harvest as one rotation. The number of years it takes for this complete life cycle to occur is further expressed as the length of the rotation.

Rotation lengths vary considerably depending, in part, on the species being grown and land productivity. Other considerations could include integrating wildlife habitat or visual objectives that could shorten or extend stand rotation lengths beyond biologic or economic maturity.

Most native Tennessee hardwoods require long rotations extending from 60 to 100 years. The shorter-term rotations are normally associated with productive bottomlands that are producing softwoods such as gum, cottonwood, or poplar, and very poor uplands that are growing low quality trees. Longer rotations are often needed for the development of high-value trees, such as oaks, on good sites.

Pine rotations aimed at producing sawlogs normally require a medium term investment of 30 to 40 years. Yellow pine pulpwood rotations are normally targeted for shorter terms of 18 to 22 years.

There are few forestry investments with very short rotations. Christmas trees generally require 5 - 8 years before they can be sold, while paulownia rotations require 20 or so years.

It takes a very long time to realize the full economic potential of most forestry investments. However, most woodland owners already have a good start towards attaining high returns through thinnings or final harvests within a reasonable period of time. Considering the long period of time it takes for one rotation to develop, owners must take full advantage of what they already have, and conduct timber harvests only at the right time and only for the right reasons.

Our Foresters are Your Asset Managers

Investors rely heavily upon the expertise of brokerage firms, mutual fund companies, banks, Realtors, and other business professionals to obtain sound advice, management services, or for buying and selling assets. Specialists in stocks, bonds, futures trading and other investments provide a valuable service for a modest fee or commission.

Our professional foresters (foresters with a University degree in Forestry) provide similar services for woodland investors. They are educated and experienced in the science and business of growing and structuring forests to appropriately meet your goals. We can also provide continuing management services, and serve as your broker and agent when timber is sold. Selecting a forester to work with your woodlands is as important as selecting your stockbroker or CPA.

The Tennessee Department of Agriculture, Forestry Division offers professional and technical forestry advice and management planning services. These State provided services are often a good first step towards investigating your woodlands management potential and options. District and Area Foresters are located throughout the State and provide valuable assistance to private woodland owners. To find out which forester covers the county where your land is located, contact:

Tennessee Department of Agriculture
Division of Forestry
Ellington Agricultural Center
Box 40627
Nashville, TN 37204
(615) 360-0720

or their Web Site at <http://www.state.tn.us/agriculture/forestry/index.html>

Some forest products companies offer professional forestry assistance to private woodland owners through a cooperative forest management program. As a part of the service, however, some companies require a financial commitment from the property

owner that is most often in the form of "the right of first refusal" on all timber sales. Cooperative management agreements provide a wonderful service to many landowners, and further information about them can also be obtained from State foresters and Extension Agents

At [Tennessee Timber Consultants](#), our charges for professional services vary, depending in part upon the level of services desired. General advice can often be obtained at no cost to you at all.

Loggers and sawmill operators are very good at harvesting and processing wood products, but very few have an in-depth understanding of forest biology, or can offer sound advice about managing long-term forestry investments. Never rely upon these individuals to provide the management services or expertise you need to maximize returns from your investment.

Some forest products companies employ professional foresters to purchase timber from private woodland owners. Most of these individuals have the expertise to provide excellent advice, but they rarely have the time to conduct a detailed property assessment and prepare long-term recommendations. Remember too, their company's immediate needs and interests will always come first (remember what was said about timber buyers), and you should not expect them to divide their loyalties.

IRA Equivalent

We all understand that investments yielding annual earnings are subject to Federal Income Taxes each year. Depending upon the nature of the investment, these earnings will be treated as ordinary income, or either short term or long-term capital gains.

Individual Retirement Accounts (IRA's) allow you to place a limited amount of money into an interest bearing account each year. Through continued deposits and compounding the interest, over the years the account will gain value. However, Federal Income Taxes are deferred on the interest earned until such time as you reach retirement age and begin withdrawing funds from the account.

In a similar manner, a properly managed woodland will gain value each year, again through growth and income. However, exactly like an IRA, Federal Income Taxes are deferred every year until you receive a profit from the sale of trees. For the income received from sales, most private property owners are eligible to take advantage of long-term capital gains benefits.

Dollar Cost Averaging = Diversifying Stand Ages

Over the long term, maximum income from investing in mutual funds can usually be achieved through dollar cost averaging. That is, regular periodic purchases of additional

shares in a fund normally yield higher returns for investors than a one-time purchase. Dollar cost averaging seems to be the better course for investing because shares are purchased when the stock market is high, as well as during downturns.

Simply because you own 200 acres of timber does not mean that you have to harvest all 200 acres at the same time. Harvesting all the timber on a given tract at one time is closely akin to killing the goose that laid the golden egg. More appropriately, wise managers keep their goose healthy and productive by dividing their property into several stands, and periodically reap financial rewards one egg at a time.

Investors should diversify their stands not only throughout the property, but also over time. To the extent possible, they should have several stands of different ages. In much the same way that dollar cost averaging works for mutual fund investments, the greater the diversity in stand ages, generally the higher the returns that will be received over the long term. Where possible, having a variety of age classes of trees allows you the opportunity to take advantage of long-term timber price increases and sustain periodic income.

Managing stands of various ages also provides a major opportunity for mitigating risks. Risk factors such as wildfires, wind and ice storms, insects, and diseases affect trees differently during varying stages of stand development. For example, a young stand of loblolly pine is highly susceptible to wildfire and drought. As the stand ages, though, those factors become less important while the threat from devastating outbreaks of Southern Pine Beetles increases. Therefore, having several pine stands of different ages could help to prevent the loss of your entire pine investment due to one catastrophic event.

Associated benefits resulting from diversifying your woodlands include opportunities for sustaining wildlife, scenic, and real estate values. Generally, the more diverse a forest, the more diverse the species of wildlife that use it. Diversifying stands also allows owners to consider maintaining scenic values because the entire wooded property is not harvested all at one time. Should you be contemplating selling your property at some point in the future, diversifying your woodlands allows you to receive periodic timber income while leaving your options open. Areas of un-harvested timber create added interest for many potential buyers.

It is important to establish a cycle in which different harvest methods and management practices are applied to individual stands at different times. Ideally, you should attempt to develop a definite timeline in which you are harvesting timber at the same rate you can grow it back. This sustainable forest management cycle will ultimately maximize woodland incomes for timberland owners as a result of dollar cost averaging their investments.

Timing the Market.

You may not be able to time events on Wall Street, but you had better be able to time your timber sales. The demand for timber products can change considerably for short or long periods, and it is very important that you sell your timber when market prices are high.

Unlike Wall Street, timber markets rarely move up or down rapidly. Normally, prices change gradually over a period of several weeks or months. Downturns do occur, and sometimes last for a year or more. But, under usual conditions timber does not have to be sold within a short time frame, so during down times owners have the opportunity to simply sit on their investment and wait for market conditions to improve.

Annual cycles also come into play when selling timber. Hardwood veneer markets are usually strongest in the late summer and early fall. Upland stands that can be logged during the winter months normally bring highest prices in the fall and winter. Bottomland tracts that stay too wet to log all winter and throughout much of the spring often bring highest prices during the spring and early summer. Determining exactly when to sell timber has a profound influence on income and total returns. Again, using a reliable marketing specialist to help make timing decisions is very important.



CHAPTER THREE

TAX CONSIDERATIONS

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Federal Income Taxes

Federal tax codes relating to timber management and income are complex, and, at times, downright baffling. Any discussion of federal tax codes is risky simply because it is easy to say too much by starting the discussion in the first place, or too little by failing to flesh out the finer points applicable to specific situations. Serious woodland owners should always seek assistance from accountants or attorneys who are familiar with the subtleties of timber taxation.

For tax purposes, your woodlands will be treated either as a business or as an investment. A “gray area” exists in the tax code between what constitutes a business versus an investment, so which category is best or necessary must be determined for each owner on a case-by-case basis. Internal Revenue Service rules mandate the type of tax treatment that is required predicated upon the type of management, the owner’s participation, and methods and frequency of harvests. Tax advantages for treating your woodlands as a business include the opportunity to fully deduct ordinary operating expenses and depreciation, while investment income may offer long term capital gains benefits.

Timber accounts should be established when woodlands are acquired. Failing that, it is never too late to begin keeping detailed records. It is absolutely essential that separate records be kept for each individual stand beginning with determining the value, or basis, of the timber at the time of acquisition. The basis must then be periodically adjusted in each stand as timber sales are carried out.

It must be emphasized that one of the most common tax related errors made by woodland owners is failing to have the timber appraised when they purchase, inherit, or otherwise acquire property. In other words, they fail to establish their basis. Although it should seem obvious enough, when selling timber you need only pay income taxes on your profit. The only way you can know how much of a profit you made, if any, is by knowing what the timber cost you in the first place. Incredibly, people have purchased woodlands, sold all of their marketable timber a short time later, and paid income taxes on the entire amount of the sale proceeds!

Capital accounts are associated with real property, equipment, timber, roads, bridges, buildings, or virtually any other asset with a life span of more than one year. Woodland

owners can usually, though not always, use capital costs to offset incomes through capitalization, depreciation, or depletion procedures provided they are directly associated with generating income.

It is important to realize that many ordinary expenses associated with managing your timber assets are deductible. However, costs of installing or maintaining associated benefits such as wildlife habitat or recreational projects may not be deductible unless it can be shown how these activities directly relate to some form of income, such as a hunting lease.

Preferential tax treatment is provided to landowners who incur expenses associated with planting trees or otherwise reforest their properties. Up to a \$1000 tax credit may be earned in the first year when reforestation expenses are incurred. Tax credits are subtracted from your tax bill. Subject to certain limitations, additional reforestation expenses may be amortized for eight years. Woodland owners should always take advantage of reforestation tax incentives subject to the provisions of Public Law 96-451.

Foresters, accountants, attorneys, and the Internal Revenue Service may be able to provide you with excellent free or low cost publications regarding the Tax Code and timber income. Certainly, it would be to your distinct advantage to begin your own tax library.

Studying and attempting to comprehend the seemingly endless mysteries of the "infernal revenue service's" tax codes can be mind numbing for most people. That does not mean you should be completely brain dead. Having first hand knowledge of a few basic tax considerations could very well prevent you from over-paying your federal income taxes, and substantially increase profits from your woodland investments.

Estate Planning

Like it or not, sooner or later we all become a decedent. In Tennessee, becoming a decedent is officially defined as being "deader than a door nail." What provisions, if any, have you made towards including your woodlands as part of your estate? Whatever ultimately happens to your land, your trees, and your dreams should not be left up to the courts, to the IRS, or to chance.

Woodland owners have an opportunity to establish a unique, and very profitable family business that can be passed from generation to generation. So, the importance of estate planning cannot be over-emphasized. Properly designing your estate to cover all contingencies is no simple task, and should not be put off until you "get around to it." The fact of the matter is, few people plan their estates properly, if at all. So, less than one-half of all family-owned businesses are inherited by even the very next generation. Through each succeeding generation, the odds for a family business to survive diminish even further.

An in-depth discussion of estate planning options and associated tax liabilities far exceeds the scope of this writing. Never the less, this important consideration seriously affects long term financial benefits for you and your family. Because of the long rotation lengths necessary for most timber investments, maximum profits from diverse woodland portfolios cannot be achieved during any single individual's lifetime. Therefore, maximum returns can only be realized and sustained if managed woodlands are passed along intact as a legacy from one generation to another. In fact, the business should become more profitable with each succeeding generation.

Many estate options are available. You may have concerns about your retirement, protecting the interests of your spouse or beneficiaries, determining who will manage your woodland assets after you are gone, or any number or combination of factors. However, the planning and final decisions are entirely up to you. A qualified financial, or estate planner can offer advice on which course of action can best meet your needs. But, don't leave it up to your family to decide what is best after you are gone. If you truly intend to develop a woodlands portfolio, don't leave the most important part undone.

By properly developing an estate, it is possible to preserve your woodlands portfolio for generations to come. Failure to properly plan your estate could force your beneficiaries to liquidate the entirety of your carefully crafted timber and land assets.

Property Taxes

In Tennessee, the Comptroller of the Treasury, Division of Property Assessments has responsibility for developing statewide appraisal standards for woodland properties. These standards are applied locally by County Property Assessors to determine individual tax liabilities.

Crops, including tree crops, generally cannot be taxed in Tennessee. However, rural land is appraised for tax purposes on the basis of potential productivity. Woodlands are broken into Good, Average, and Poor categories, plus several sub-categories. Good woodlands are taxed at a rate higher than the two lower categories. Therefore, taxes are based upon the inherent capabilities of the land for producing crops of trees, not the value of the trees themselves. So, a wise manager that maximizes woodland income should pay the same property taxes as a poor manager with comparable land.

A special category exists for lands designated for pine pulpwood production. Again, several sub-categories apply.

Property values, or fair market values may be established by County Property Assessors on the basis of what they consider to be the "highest and best use" on given tracts of land. Their determination might or might not be consistent with the "current use" or goals you established for your property. For example, a wooded tract near an urban center might be considered prime development property and taxed on that basis. However, if the ownership goal is to continue to manage the land for woodland values

then the owner could face paying inflated property taxes. To counter that possibility, Tennessee enacted the “Agricultural, Forest, and Open Space Land Act of 1976, better known as the “Greenbelt Law,” to protect qualified woodland owners with long term goals. You must sign up for the Greenbelt program at the County Courthouse by April 1, or the day the County Board of Equalization is adjourned in a year of reappraisal. A written forest management plan for your property prepared by a forester may be required.

It is important to know how your property is being assessed. Remember, Property Assessors are not foresters. Discuss your tax rate with your Property Assessor and find out how your property was appraised. Many owners might very well reduce their property taxes by enlisting in the Greenbelt program.



CHAPTER FOUR

FACTORS INFLUENCING STAND VALUES (Copyright Tennessee Timber Consultants. All rights reserved)

Tree Species

Prices for wood products vary significantly among the various species of trees. That includes end product prices as well as the prices paid for standing trees. Certain red oaks, white oak, yellow poplar, walnut, and ash are a few of the species of trees that have historically brought high prices in Tennessee. More recently, loblolly and other species of pine demand very favorable prices in some areas of the State. Sweetgum, cottonwood, red maple, and hickory are examples of species that have traditionally held considerably less value.

Some futurists claim that price differences among various species of trees will become less important if wood supplies shorten, and as consumer wants and technologies are certain to change. Perhaps they are correct, but it is difficult to bet against those species whose prices have withstood the test of time. The important consideration for a woodland owner, however, is to always fit the greatest number of the highest value species into the portfolio of every stand. More trees! Now, where have we heard that?

Tree Size

The influence of tree size to prices is a relationship associated with harvesting and manufacturing costs, plus the availability of large logs, coupled with potential end product values. That is because it is usually much more expensive to harvest many small trees than a few large ones. Loading and transporting a truckload of small logs is usually more costly than transporting a full truckload of larger ones. It is more costly for a sawmill to saw one or two boards from a small log, than for them to saw several boards from a large one. Normally, the larger the logs, the more economical it becomes for wood industry to manufacture wood products.

Very small trees can only be used to manufacture paper products or some type of chipboard, and unit prices paid are, as a rule, the lowest in the industry. Slightly larger trees will be sawn at a sawmill. Normally, the unit prices increase as the sizes of the logs become larger. Again, there is a relative shortage of large diameter trees, so supply and demand factors drive prices up for large trees, logs, and lumber.

For example, with construction grade lumber, 2 X 10 boards which can only be sawn from fairly large trees bring higher unit prices than 2" x 4" boards, cut from small trees. Veneer mills manufacture a high-value product and are willing to pay very high unit prices for the large trees they require. Once again, we see the financial rewards of growing bigger trees!

Tree Quality

The quality of trees is related to the end products that can be manufactured from them. All trees contain certain defects such as knots, decay, insect damage, crookedness, or mechanical damage of various types. The fewer the defects, the higher the unit value of a tree.

A large, "high-quality" white oak tree with few defects can have ten to twenty times more value than a "low-quality" white oak of the same size with many defects. Indeed, trees can become so defective as to have no value at all.

Woodland owners must be very aware of how tree quality affects forest values. All things being equal, it takes the same amount of time to grow a high-quality tree as it does to grow the same size low-quality tree on the same site. Growing high-value trees in the shortest amount of time possible is the goal of most woodland managers. Better Trees! Well, you get the picture.

Supply and Demand

As with other businesses, supply and demand factors greatly influence the price of your forest products over time. When viewed nationally and internationally wood product values are affected by such factors as competition in a global wood economy, trends in home construction, the value of the dollar against foreign currencies, trends in furniture design and manufacturing, interest and inflation rates, government regulations on timber harvesting both here and abroad, and other macro-economic factors. Viewed locally, new markets or the loss of existing markets, weather conditions, insect or disease epidemics, or local ordinances could affect the supply and demand for timber in your area for either the short or long term.

Our knowledgeable managers understand how these supply and demand factors will significantly influence timber values. Long-term goals and stand management objectives take projected supply and demand forecasts into consideration. Over the short-term, however, there are "up" and "down" cycles, normally lasting only a few months, during which value-minded woodland owners time the sale of their timber. Selling timber during a down cycle in the market could cost you thousands of dollars in lost income. As already stated, you might not be able to properly "time" the happenings on Wall Street, and we will help you time your timber sales.

Economies of Scale

Foresters and wood industry representatives routinely get calls from homeowners who want to sell a large tree they want removed from their front yards. Many are astonished to discover that no one is interested in purchasing and removing what appears to them to be a valuable asset. Apart from the fear that over the years enterprising youngsters have filled such yard trees full of nails, plus the liability associated with cutting down trees in an urban setting, buyers normally cannot economically justify moving equipment to cut and haul one tree at a time.

There are a couple of exceptions to the example given above. Certain specialty products can only be manufactured from a particular species, size, and quality of tree. Most notably in Tennessee, paulownia and walnut trees are sometimes purchased individually provided they meet very stringent standards. Even so, these trees are purchased in rural, and rarely urban settings. Again, nails wreak havoc on expensive saw blades, so sawmill operators routinely reject logs delivered to them if they discover that the logs were cut from yard trees.

Timber buyers are interested almost exclusively in purchasing entire stands of trees. The larger the stands, generally the more economical they become to log. A small stand of, let's say less than ten acres, can be very interesting to buyers provided it has a high volume of high-quality trees. However, ten acres is a minimum stand size that most owners should consider in managing their woodlands for attracting very much interest from buyers. Likewise, stands can be so large, and demand such a potentially high price that many small or mid-size operators cannot afford to buy them.

Stand sizes should be determined on the basis of meeting ownership goals such as providing periodic income, diversifying the investment, or visual and wildlife considerations. We recommend that keeping stand sizes between ten and fifty acres is a good rule of thumb to bear in mind.

Available Markets

Owners of good timber are no longer bound to local wood dealers who rely on raw materials purchased from private woodland owners. Increasingly, sawmills, pulpwood dealers, and other purchasers are willing to travel more than one hundred miles to obtain the quantity and type of timber they need for their operations. Buyers of high quality veneer trees have virtually no travel limits.

Not all sawmills, pulpwood dealers, veneer buyers or other wood processors are equally good at marketing their products. As a seller of timber, however, you should not care how successful an individual might be in his business as long as he offers you a higher price for your wood than his competitors, and demonstrates an ability to meet your contract requirements.

Not all wood processors have the same need to purchase a given tract of timber at any given time. Timber buyers routinely purchase tracts well in advance of their needs to ensure a constant supply of raw materials to keep the mills running. A company that has already bought an adequate future supply of timber might not be willing to purchase an available tract, or could choose to offer less money than a competitor who is facing a wood shortage. The point is, timber buyers are willing to pay more or less for wooded tracts based upon the current or anticipated needs at their mills.

It is important for woodland owners to remember that timber companies do not make money buying timber. They make money by selling wood products manufactured from trees, whether that be lumber, plywood, paper or other goods. For these companies to succeed in Tennessee, they must rely upon the continued supply of logs harvested from privately owned woodlands.

Site

A site is a defined area with consistent soil properties and landscape position features. Sites with good characteristics can produce high volumes of high quality trees. The converse is true. Poor quality sites grow low volumes of low quality trees. Understanding sites is one of the cornerstones of successful woodland management, because sites dictate management strategies.

Sites can be measured to determine their inherent productive capabilities. On the basis of those measurements, management alternatives can be considered.

To complicate matters a little, though, a site that is good for one tree species might be less productive or even deadly for other species. A site that produces poor quality, slow growing oaks might produce high quality, fast growing loblolly pine. A cypress can grow in standing water, but most other species would perish in those conditions.

Stands should be established and managed on the basis of sites. Oak stands should be grown on good oak sites, yellow poplar stands on good yellow poplar sites, loblolly pine stands on good pine sites, and so on. Failure to establish the correct relationships will substantially reduce stand yields and income. Our foresters know how to bring this all together for you.



CHAPTER FIVE

ECONOMIC TRENDS AND FORECASTS (Copyright Tennessee Timber Consultants. All rights reserved)

Crystal Balls and Tea Leaves

Predicting the growth of woodland investments for any period of time into the future is risky business. As with any investment, past returns provide some gauge for potential gains, but of course, do not guarantee future performance. Crystal balls and tea leaves are seemingly unreliable tools for predicting the future, so it seems prudent to review the facts that are known through published reports. From those, a few very tentative assumptions about what the future could hold in store might be appropriate.

Market Reports

Most market analysts agree that the southeastern United States is rapidly becoming America's wood basket. Recent changes in environmental regulations, a reduction in available timber from Federal lands, and other influences such as urban sprawl have caused a major shift in the timber industry from northern and western states to the South. This shift places more demand for timber currently available in Tennessee. Significantly increased demand has already begun in some parts of the State. These increases, especially along the southern border, have boosted prices. This price boost has proven very welcome news to many woodland owners.

The Tennessee Forest Products Bulletin provides helpful information in reviewing past trends in price gains for certain grades and species of logs delivered to mills. These delivered log prices closely correlate with the prices timber buyers offer for standing timber. This report clearly shows that the value of high-quality logs has increased each year at a substantially higher rate than low-quality logs of the same species..

For example, from 1977 through 1994, the average price paid for Grade 2 red oak sawlogs increased by approximately 10 percent per year as compared to a mere 4.2 percent for Grade 3 sawlogs. During the same period, the percentage increases for white oak sawlogs were 12 percent and 3.8 percent respectively. Hardwood veneer prices annually soared by as much as 16.6 percent in some parts of the State, while hardwood crosstie log prices rose an average of 5.5 percent each year. Price increases for some species, such as Sweetgum, did little more each year than pace inflation at about 2.8 percent.

Forest Inventory Analysis

The USDA Forest Service conducts an inventory of Tennessee's forests each ten years. Their 1989 survey showed that the combined volumes of wood in grade 1 and grade 2 hardwood trees dropped from 44 percent of the total state wide hardwood volume in 1980, to only 30 percent of the total in 1989. This significant decline is extremely important since grade 1 and 2 trees constitute the backbone of Tennessee's hardwood lumber industry.

Taken as a whole, however, wood volumes are increasing across the State. In other words, tree growth is annually exceeding tree removal by a substantial margin. Therefore, Tennessee is not facing a general wood famine for the foreseeable future. That same positive situation may not exist in every county. Again, some southern counties have felt the full impact of increased demand from mills in Georgia, Alabama, and Mississippi. The latest inventory demonstrates that in some very localized areas, annual timber removals exceed annual growth.

What Do All of the Facts Mean to the Average Investor?

The prices paid for large, high-quality hardwood logs have traditionally shown significant annual increases. The supply of high quality sawlogs has continually decreased. What does that mean to an investor who is looking towards the long-term production of high-quality hardwood sawlogs and veneer? "Up, Up and Away?" Probably.

Concurrently, the value of low-quality hardwood sawlogs has risen very gradually in the face of increased low-quality supplies. Can investors hope to see rapid increases in prices offered for low-quality hardwood logs at anytime in the near future, if ever? Unless we experience some unforeseen explosion in demand, more than likely not anytime soon. Say, not before the next ice age.

What about pine prices? There are very few large southern pine sawmills active in most parts of Tennessee. With a few notable exceptions, sawlog markets are generally limited to mills located south of the state line. But, those mills are actively buying Tennessee wood at ever-higher prices. Pulpwood is purchased for both in-state and out-of-state facilities, and both demand and prices have generally been increasing over the past several years. In many parts of the state, investments in southern pines, especially loblolly, have yielded total annual returns well in excess of 10%. White pine prices in East Tennessee have shown nominal annual price increases of about 5.5%, but rapid annual tree growth, the other side of the economic equation, dramatically improves the overall financial assessment for this species. Demand is increasing for many pine products across Tennessee, so price increases could very well mirror, or possibly even exceed past performance.

The supply and demand picture for Tennessee wood products can be drawn with reasonable confidence from published reports. Although expert opinions are still only opinions, they are better than relying on crystal balls or tea leaves. Anticipating with reasonable assurance what the future may have in store is, without a doubt, essential to responsible decision-making. At [Tennessee Timber Consultants](#), we can help you make those difficult decisions.



CHAPTER SIX

NON-TIMBER VALUES

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Have Your Cake and Eat it too

At [Tennessee Timber Consultants](#), we believe that long term, economically-based forest management and environmental sensitivity are not mutually exclusive of one another. Woodland investors with a long-term view can periodically harvest timber while actually protecting and even enriching associated environmental values. Indeed, owners who are committed to intensively managing and sustaining their forests for economic reasons can become environmental heroes (whether they actually intended to do so or not).

Multiple Forest Benefits

Many woodland owners value their woodlands for reasons other than timber income. In fact, many are very willing to sacrifice timber revenues in order to meet, what are to them, much more valuable objectives. Decisions about land management most often comes down to making choices based upon what is most important to the owner. Having the freedom and opportunity to make those choices is perhaps one the greatest benefits of private woodland ownership.

Society as a whole also benefits from privately owned forests. Clean air and water, scenic beauty, abundant and diverse wildlife, and Tennessee's recreation industry are some of the benefits afforded by extensive private woodlands. Responsible woodland owners should take pride in not only what they are doing for themselves, but also for what they are contributing to society.

Wildlife Benefits

Many woodland owners enjoy a variety of benefits from managing for wildlife on their property. Some owners want to increase their hunting opportunities while others simply enjoy viewing or photographing wildlife. Aside from timber income, managing for wildlife is perhaps the most popular objective found among most owners.

Managers often conduct activities that directly benefit habitat for game and non-game species of wildlife. Timber harvesting practices greatly affect wildlife populations, and those effects can be good or bad depending upon the specific habitat requirements of particular animals. What might benefit white tail deer, for example, might be detrimental for certain species of songbirds.

Woodland owners with wildlife objectives should clearly define the species they most want to feature on their property. Timber harvests and other activities can then be structured to improve habitat for targeted species.

Many owners have established hunting leases on their property that generate annual incomes. Some landowners lease hunting rights to organized hunting clubs, while others lease their land to private individuals or groups. Generally, lease rates are established at so much per acre with price variances depending upon the quality and diversity of the wildlife habitat, and hunting opportunities. At fees ranging from \$2.00 to \$10.00 per acre, no one is getting rich from hunting leases. Still, at least the income may offset annual property taxes, plus leave a little left over. Those interested in finding out more about hunting leases should speak with representatives of the Tennessee Wildlife Resources Agency (TWRA), or the University of Tennessee Agricultural Extension Service.

Scenic Values

Aesthetics, or scenic benefits are also important to many owners. Timber harvesting influences scenic values for many years after the trees are cut, so it can be very important to incorporate harvesting strategies that minimize visual impacts. Unharvested scenic buffers can be left around sensitive areas or along roads. Stands can be kept relatively small or shaped in such a way as to keep them relatively unobtrusive, or harvest methods can be used, which mitigate visual problems.

Scenic values come with a price tag that is normally measured in deferred or lost timber income. Remember, there aren't any free lunches in the woods, so on your property, even beautiful vistas and sunsets aren't necessarily free. Never the less, they are often very well worth the price.

Recreation

Forests provide places for solitude; places to get away from the noise, confusion, and stress of everyday living. In many woodlands, special features can be identified which will serve as verdant retreats.

Trails can be developed for hiking, horseback riding, or ORV activities. Certain specifications should be followed for trail construction that will help minimize maintenance and offset possible soil erosion problems. The Forestry Division can provide you with a trails manual that gives guidance for trail development.

Most owners interested in recreation on their lands create opportunities for themselves, families, and friends. Others invite groups such as the Boy and Girl Scouts to use their property for hiking and camping. There seems to be little commercial demand for recreational hiking and camping on private property at this time, as Tennessee's State Parks and, of course, the Great Smoky Mountains National Park are already providing these same opportunities, often at no charge to the users.

Possible dangers exist for recreationists in commercial forests. Visitors should be warned about on-going timber harvesting operations and other management activities on your property. You should discuss needs for liability insurance with your insurance representative.

Archaeological or Cultural Resources

Do you have an Indian mound on your property? How about a rock shelter, or perhaps the site of an old native American village? Archaeological sites are priceless vestiges of American pre-history.

Cultural resources include the sites of pioneer cabins, Civil War campsites, or similar historic sites. Even certain individual trees can have historic or other cultural value such as a "hanging tree," or perhaps the largest white oak in the State. Additionally, community or family cemeteries are often found, sometimes abandoned, in woodland settings. Obviously, these sites have immeasurable human value.

Archaeological, historical, and cultural resources are often difficult to recognize by the casual observer, but they need to be protected during logging operations. Our timber professionals respect these resources and routinely go out of their way to protect them. To prevent irreparable errors, include the exact locations, and provisions necessary for the protection of these resources in your timber sale agreements.

Real Estate

There may come a time when you wish to sell your land. Obviously, the manner in which you have managed your property will have a direct bearing on its appraised value. Another important factor, of course, is how potential buyers intend to use the property. Will they follow a course of woodland management, or will they change the land use altogether? Prior to the sale you basically have two choices.

First, you can have the land and timber appraised and sell the property. In other words, the time and effort you have put into the land will be for sale to anyone wishing to continue with an established forest management program.

Your second option is to sell all of your timber before you sell the property. As such, buyers will be facing purchasing the land with no timber value, and little opportunity for timber income for many, many years. That may or may not be important to them.

Which is the proper option? From a societal perspective, the first choice is clearly preferable. Developed, managed forests will continue to provide many societal benefits. However, from your standpoint as the seller, the choice may not be so clear, as you must determine which option will best allow you to move the property. If you have the land and timber properly appraised, either choice should yield essentially the same financial results.

Intangibles

Forests often have inter-related human interests that cannot be measured in dollars and cents. A sense of responsibility for maintaining the old family homeplace, the desire to create a valuable and lasting legacy for your children and grand children, or merely taking personal pride in responsible land stewardship are impossible to define in financial terms. But these benefits are very real, and can greatly add even more to the value of your property.



CHAPTER SEVEN

COSTS OF WOODLAND MANAGEMENT (Copyright Tennessee Timber Consultants. All rights reserved)

Woodland Management Costs are Important

Some investment analysts claim you should not worry about costs, but rather focus upon returns. Well and good, provided you aren't terribly concerned about the required length or liquidity of your investments. Highest returns from woodland investments normally do not come before several decades, and indeed with some strategies, no portion of an initial investment may be recoverable for many years.

Woodland investments can be similar in many regards to most other investments, but have unique characteristics. Simply the cost on your money for many decades can result in very large expenditures that dramatically affect end profits. For example, a current expenditure of \$1000.00 compounded at an alternate annual rate of only 7 percent for thirty years yields a total cost of \$7,612.00. Minimizing costs while getting the job done properly is an important forest management consideration.

Land

For good reason, the cost or value of bare land generally should not be considered as a part of the cost of woodland management. Land is a singularly unique asset, and should be thought of as an investment unto itself. Owning land is one thing, but why you own it and how you use it are altogether different matters.

As a landowner you have many, many options and the freedom to decide how to put your land to good use. You could certainly grow forests, but you might opt to produce livestock, row crops, or other agricultural products on some or all of your property. Or, you might choose to develop your land for housing or commercial projects. At any rate, having chosen to be a landowner, you then chose, and will hopefully remain, to be a woodland owner.

Cultural Practices

Cultural practices are specific treatments required for establishing, developing, and protecting stands of trees. Such activities necessarily demand varying levels of expertise, capital, and time, but are absolutely required to maximize investment returns. Creating a new stand of trees necessitates creating optimum conditions for new natural or planted tree seedlings to become established and begin to grow. Costs associated

with naturally replacing harvested trees are low, and normally run less than \$50.00 per acre. Medium to high cost investments of \$75.00 to \$200.00 per acre can be expected for most tree planting projects. Preparing a site for planted seedlings could require the use of equipment such as a bulldozer or tractor. Herbicides may be necessary and the best choice for eliminating unwanted competition when used alone or in combination with mechanical treatments. Many times a controlled fire is a prescribed treatment to help prepare an area for the establishment of a new stand of trees. When planting trees, seedlings must be purchased, and perhaps a contractor hired to do the planting.

As stands develop, low to medium cost intermediate treatments are sometimes needed to allow individual trees, or groups of trees to grow properly. Practices can include release treatments by applying herbicides to control woody and herbaceous competition, vine control, or crop tree release activities in which certain undesirable trees are removed that are competing with high value individuals.

For complex investments such as Christmas tree production or many types of hardwood plantations, medium or even high establishment costs in excess of \$200.00 per acre are common. Additionally, costly annual expenses such as pruning or mowing will be incurred for several years, or perhaps through the entire life of these investments.

Protection measures are occasionally employed in high-risk situations. Various practices can be used to mitigate potential wildfire losses including establishing and maintaining firebreaks. Beaver control is sometimes necessary, especially in parts of west Tennessee.

Cultural practices can be expensive, and significantly affect long-term results. The costs versus the benefits of conducting each activity should be carefully examined before it is implemented.

[Tennessee Timber Consultants Professional Services](#)

Few woodland owners have the time, special knowledge, and skills to oversee every aspect of their forest enterprise. There are simply too many variables, too much to know, and perhaps too little time for one individual to do everything, and do it correctly. Wise owners know that using our professional services will make them more money over the long haul.

Management services are available through private contractors for carrying out most cultural practices. Fees vary significantly based upon location, and the type and extent of the work to be performed. Our foresters will represent your interests so that you can receive the services you need at the most affordable prices.

The periodic need for legal counsel is obvious. Buying and selling land, establishing estates, and resolving boundary disputes commonly require an attorney. Additionally, lawyers should always review all timber sale contracts or timber deeds before you sign them.

Annual accounting services may be needed to help you wend your way through the maze of Internal Revenue Service tax codes. Of equal importance, however, is to initially establish the proper records to adequately track each individual woodland account. Proper record keeping may very well prevent you from unnecessarily paying thousands of dollars in income tax.

It is very difficult to maximize financial returns from your property if you don't know exactly where it is. Having a registered survey of your property, coupled with clearly marked boundary lines, is basic to land management. Licensed surveyors are expensive, and periodically painting your boundary lines is no picnic. It is very important for management purposes, timber sale transactions, and preventing timber trespass that your property be distinctly defined.

Related Costs

Installing and maintaining associated capital assets such as roads, bridges, fences or gates are often costs associated with woodland management. Tax relationships with these costs were touched upon in Chapter Four.

Section 208 of the Clean Water Act requires that certain measures known as Best Management Practices, or BMP's, be taken while conducting forest management activities. Meeting State or Federal water quality standards during and after harvesting operations, for example, generally requires the installation of erosion control structures, as well as planting vegetation on bare, erodible areas. At [Tennessee Timber Consultants](#) we ensure that the installation of BMP's by loggers is a required part of timber sale contracts. Failure to comply with BMP's or other water quality laws can result in fines to property owners totaling to many tens of thousands of dollars.

Opportunity Costs

Procrastination is a terrible thing. "You know, if I had only made that investment ten years ago when I had the chance, look where I would be today." Failing to make that investment created an opportunity cost. "If only I had planted those trees....," or "I wish now that I had used [Tennessee Timber Consultants](#) when I sold my timber because...." Opportunity costs are the difference between what you actually earn, versus what you could have earned had you made a different decision.

Well, no one is totally clever, and makes all of the right decisions all of the time. The difficulty with a woodland investment, however, is that a delayed or improper decision is often irretrievable or irreparable, and can create lost opportunities that persist for decades to come. And, it is too late to cry about the small amount of income you received for your timber after your trees have all been cut and hauled away.

Woodland owners who insist on a long term planning horizon, and who rely upon our professional services are seizing their opportunities and reaping nice rewards for their efforts. However, those who harvest their timber indiscriminately, and who sell their timber without proper advice are losing staggering sums through lost opportunities.



CHAPTER EIGHT

UNDERSTANDING AND MANAGING RISKS

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What About Risks?

Woodland investments are not without risks, some of which are controllable while others relate to influences within the natural environment. Clearly, risks can potentially cause a partial or total loss of an investment. As with any other business decision, woodland owners must understand what those risks are, and make individual decisions as to the amount of risk they are personally willing to accept. Many risks can be minimized through prudent planning and management practices.

When it comes to risk assessments for forestry activities, there are no readily defined "beta factors" that apply. Far too many variables can affect a woodland investment to establish an objective, quantifiable risk factor that applies in every situation. Decisions about risk must be considered from a somewhat subjective perspective. However, it is possible to make some assumptions and define categories of risks from which generalizations about probabilities for loss can be made.

Since you are taking the time to read this publication, we will assume that you are a prudent woodland owner. It can also be assumed that you will search out and apply the professional and technical advice found at [Tennessee Timber Consultants](#) with respect to managing your investment. Therefore, you won't be your own worst enemy by carrying out ill-conceived management activities. As a result, the only risks that should apply are those, which are normally and reasonably beyond your direct control.

The Four Risk Categories

Now that we have established that you are a wise manager, it is possible to define four broad risk categories. While all four categories apply to every woodland, the degree to which they do so can vary significantly depending on the nature of each stand being managed through time. Under each category are some of the specific types of risks that are commonly encountered.

CATEGORY 1. ENVIRONMENTAL RISKS. Natural factors related to weather and biologic influences affecting forests.

Storms: wind/snow/ice. Severe windstorms can cause partial or total damage to forests through breaking and uprooting trees, and sometimes cause a problem known as ring shake. The latter problem is a phenomenon in which permanent separation occurs between the concentric growth rings within the trunks of trees that, of course, ruins the tree for lumber production. Snow and ice storms can bend, break, and uproot trees. Pines are normally more susceptible to these storms than are hardwoods. Snow and ice damage can damage or destroy entire stands.

Climate. Climates change gradually over a period of centuries or even thousands of years. Are greenhouse gases causing a rapid rise in annual temperatures? Will "global warming" actually occur? Even the experts are confounded by the almost limitless factors that affect climatic change. However, there can be no doubt that Tennessee's forests will be dramatically impacted should global warming occur.

A more tangible effect of climate comes into play if you plan to plant trees. Determining those species of trees that are suitable for your local climate is an early consideration. Clearly, Tennessee's climate varies significantly from the mountaintops in the eastern portion of our State to the Mississippi River floodplain in the west. White pine, for example, will generally do well in the mountains, but are ill suited for planting in the relatively hot, dry uplands of western Tennessee.

Another very important tree planting consideration is locating tree seedlings with the proper "seed source." That is, significant genetic variations occur within a single tree species due to the long-term influences of local climates. For example, loblolly pines native to Florida have, over thousands of years, become adapted to that region's year-round warm climate. Similarly, loblolly pines native to the northern range of the species, such as southern Tennessee, have adapted to a different, much colder, environment. Indeed, genetic differences occur not only from north to south, but also from east to west. While seed source differences may appear subtle, they are, never the less, extremely important factors affecting seedling survival and long term stand development. Woodland owners should seek the advice of a professional forester to locate nurseries producing trees with the proper seed source for their area.

Diseases. With only a few notable exceptions, tree diseases rarely pose a serious threat to forests. Everyone knows the history of the Chestnut Blight that virtually eradicated American chestnuts during the 1930's. Dutch Elm disease is another widespread problem that has gained a lot of media exposure.

Virtually all species of trees have certain diseases that affect their growth or condition. Productive forests, however, normally have few disease problems.

Insects. Many insects inhabit trees, although few are destructive. Indeed, insect pests rarely kill healthy trees on a large scale, although outbreaks do occasionally occur which cause widespread losses. There are far too many species of insects that affect forests to discuss them all within the limitations of this publication, so we will only cover a few of the classics. The most damaging insects fall into the general categories of wood borers and defoliators.

By far the most devastating wood boring insect is the Southern Pine Beetle. This pest can completely destroy a forest of loblolly, shortleaf, or Virginia pines over the course of only a few weeks. Similar pine borers cause the deaths of trees on a smaller scale. Oak and other hardwood borers cause significant financial damage to individual trees, but rarely kill the trees themselves. However, the collective economic loss from hardwood borers over a wide area can be significant.

Many species of caterpillars defoliate entire trees, and at times, virtually entire stands of trees. Normally, healthy trees can withstand one or two years in a row of defoliation, and serious outbreaks of defoliating insects rarely last for the third consecutive year. A new pest, the Gypsy Moth, has changed all of the rules. This pest, which was introduced into the United States, has been wreaking havoc in several New England and Mid-Atlantic States for the past several years. Gypsy Moths favor old oak stands, and stay in the same stands year after year until most, if not all of the trees are dead. This pest is already moving into eastern Tennessee. It is much too early to estimate the damage the Gypsy Moth will impose on Tennessee's forests.

At [Tennessee Timber Consultants](#), we recognize that thrifty, well-managed forest is much less likely to suffer widespread insect damage than one that is old and decadent. Basically, healthy trees can withstand damage and rebound quicker than unhealthy trees.

Beavers and Flooding. Most important commercial tree species cannot long withstand ponded water during the growing season. The longer that water remains on a stand during the growing season, the greater the likelihood that damage and tree mortality will occur. Annual flood events occurring for brief periods are generally no threat to trees, with the occasional exception of newly planted seedlings. Indeed, annual flooding is part of a natural annual cycle that is important for the establishment and maintenance of wetland forests.

Beaver populations are continuing to build throughout Tennessee, with the greatest concentration being in the western region of the State. Beaver ponds will often reach many acres in size unless measures are taken to control them.

Stream blockages often cause year round flooding, and again, a single blockage can affect many acres. Efforts to remove these blockages are absolutely necessary to prevent the loss of valuable timber.

Property owners must become aware of certain provisions of Section 404 of the Clean Water Act that affect, and limit, the kind of work that can be done in forested wetlands. Violations of these provisions can, and often have, resulted in hefty fines. Generally, beaver control, and the removal of minor stream blockages do not require government permits before the work can be conducted. However, it would be wise that you check with the Division of Forestry, Tennessee Department of Environment and Conservation, USDA Natural Resources Conservation Service (NRCS), or Army Corps of Engineers prior to carrying out flood control activities.

Drought. Drought, or more specifically a lack of available ground moisture, affects tree growth and survival. Tree seedlings are especially susceptible to a drought during the same year in which they are planted. As trees grow older, however, they become more tolerant of dry conditions even though growth rates can be seriously affected. Very old, declining trees often die during periods of drought.

Certainly, Tennessee does not experience a drought every year, and their occurrence is unpredictable. The last drought period that seriously affected woodlands in the State was during the mid 1980's.

Lightning. You will very likely suffer the loss of some trees to lightning. Throughout the life of a stand, individual, or small groups of trees will be killed or seriously damaged by lightning strikes. Potential lightning losses may become the factor that triggers the liquidation of a very valuable stand where the loss of a single individual would be financially significant.

Age. Old trees, like elderly people, are far more susceptible to dying or becoming permanently damaged from outside influences than are younger, more vigorous individuals. Mature trees are invariably more valuable than young trees, but allowing stands of trees to develop into great ages will bring about the loss of many, many individuals from biologic or environmental influences. As a general rule, trees live longer on good sites than they do on poor sites, which is another reason why matching the proper species of trees to the proper site is extremely important.

Wildlife. Newly planted hardwood and pine seedlings are vulnerable to damage from browsing deer. In some cases, wide spread damage has been known to occur. Rabbits likewise are known to damage newly planted seedlings. Rodents, including squirrels, can cause extensive problems by digging up recently planted acorns and walnuts, while prairie voles girdle and kill fairly large trees in planted stands.

CATEGORY 2. MANAGEMENT COMPLEXITIES. Management practices which, due to the requirements of exact timing, availability of specialized equipment, or exacting or conflicting management prescriptions, could easily lead to errors of application or omission on the part of property owners or their agents.

Specialty Stands. Christmas trees, paulownia, walnut, or hardwood plantations require very exacting management applications. Seedling selection, planting standards, competing vegetation control, pruning, and proper marketing all must be performed in exactly the right way at exactly the right times. The window of opportunity for performing each of these tasks properly is not very wide. Many times, developing sizable specialty stands is the equivalent of opening and operating a small business.

Specialty stands mandate that investors spend a lot of time studying stacks of literature. As a case in point, should you use herbicides? Which ones? What equipment is needed? When should you apply them? At what rates? What are the safety precautions? What do they cost? Will you need an applicator's license to purchase and apply them? Can you apply them yourself, or do you need to hire specialists to do it? Where do you find specialists? What will they charge? If you do anything wrong, you could kill your trees. This is only one example of the kind of information needed to successfully manage specialty stands.

Once you have the knowledge, then you must apply it. Do you have the time, capital, and energy to stay on top of your project for several years? Good intentions won't get it done. Many woodland owners start these projects and give up after only a year or two. While the rewards can admittedly be great, talk with us so that you will be absolutely certain that you know what you are getting yourself into before you start.

Complex management requirements require sustained commitment to studying and hard work. Sure, we already determined that you are a wise and prudent manager. But, mistakes happen.

Quick Cash. Timber investments are long term. Even prudent investors are often tempted to sell trees long before they have reached their peak values. In almost every case, selling trees too soon will drastically reduce returns on investment.

In a sense, woodland owners often shoot themselves in the foot; "You know honey, that little red sports car sure is pretty, and I think I know how I can come up with the money to pay for it." Go ahead and buy it if you want, but if you cut your timber too soon, the cost of that car is going to be a lot higher than the sticker price on the window.

Of course financial emergencies happen to almost everyone, and woodland owners sometimes have no choice other than to access their timber assets. However, if their woodlands portfolio is structured properly, emergencies need not necessarily totally devastate their entire woodland investment. When our foresters are provided with concrete facts about specific short-term cash requirements, they can adapt timber management strategies to mitigate significant long-term financial losses.

Thinning stands too heavily is another temptation. A sufficient amount of wood must be available in a thinning for a buyer to economically harvest the tract. Thinnings have often been carried out which included the sale of potentially high value crop trees simply in order to attract a buyer. Very simply, from a longer-term perspective, such thinnings should have been delayed until a proper commercial thinning was appropriate.

Well-managed stands of high-quality, economically mature trees are worth a huge amount of money. They can sell for thousands of dollars per acre. Indeed, individual trees have been known to bring thousands of dollars. But that kind of income does not come about when woodland owners are consistently grasping for quick cash.

Grazing Livestock. If you raise livestock on your property this is very important. In effect, livestock and forests are not compatible. Over a period of time, domestic grazing animals will cause serious damage, especially in hardwood forests. Cattle, hogs, goats, horses, and whatever else grazes on tree seedlings, and, over the years, tree growth can be reduced due to soil compaction. There also seems to be a direct correlation between grazing animals and the occurrence of "mineral streak" in wood that significantly reduces the quality and value of hardwood trees.

Livestock can ruin a young planted stand. Not only do the animals graze on the seedlings, but also they often step on and break the small trees. Sensitive woodlands should always be protected from grazing livestock.

CATEGORY 3. MARKET TRENDS. Supply and demand factors in the marketplace influencing the value of wood products.

The Only Thing That Won't Change is Change. The wood of dogwood trees has very little value now, but at one time this hard, durable wood was in great demand for the manufacture of shuttle blocks used in the textile industry. Persimmon has long been used for manufacturing highly valued golf club heads, but new metal and graphite technologies are rapidly making persimmon golf clubs a relic of the past. What will the proliferation of metal baseball bats do to the demand for ash? These are a few of the many wood products that have felt the dramatic effects of alternative technologies, but there are many, many similar examples.

The effects of supply and demand have already been discussed. It bears repeating, however, that these factors over the long and short term will certainly affect investment returns.

Seemingly unrelated goings on in our society and national economies can affect timber values. What about the demand for Tennessee "sourmash," for example? If America's tastes for spirits decline, then so will distillers' needs for white oak barrels. Barrel stave manufacturers pay a high price for good Tennessee white oak.

Wood is one of our most basic and valuable natural resources. The use of wood products will certainly continue to change over the years. But woodland owners can rest assured that their renewable resource will still be in demand long after the last drop of oil is pumped from the ground.

CATEGORY 4. HUMAN INTERVENTION. Activities of individuals not directly controlled by a property owner that threaten woodland investments.

Wildfires. When thinking about risks to woodlands, the threat of forest fires is often on the top of people's lists. In Tennessee, fires are not caused by lightning or other natural events. Over 95% are caused by people. Careless debris burning causes about half the fires, while arson fires constitute the majority of the remaining causes.

However, statistics for Tennessee show that the average woodland acre burns once every 300 years. That is not to say that fire is not a damaging influence or that it should be totally discounted. Fire is certainly still a severe risk in many locations. It is important that owners discuss wildfire probabilities in their area with the Tennessee Division of Forestry.

The Tennessee Department of Agriculture's, Division of Forestry provides forest fire control services statewide. In addition, local paid and volunteer fire departments also take action on forest and brush fires in most areas of the State.

It could be prudent to install firebreaks or take other actions to minimize the risk from a potentially destructive fire. Management decisions such as interspersing hardwood stands throughout large stands of pine makes wildfire control simpler should a fire occur. Overall though, a wildfire threat is not a limitation for making sound forestry investments for the great majority of Tennessee's woodland owners.

Harvesting Damage. Care must be taken during thinnings to minimize damage to the remaining trees. It is important to understand that some damage will occur even with the very best loggers. A common occurrence is for heavy equipment operating in the forest to scrape against crop trees causing permanent injury. However, properly planning and conducting a timber sale can minimize equipment damage. Starting harvesting operations at the furthestmost point away from a log concentration site is one way of reducing damage.

The act of felling trees is another way in which remaining crop trees can be damaged. Tree tops can be broken, and cut trees sometimes slide down the sides of standing trees as they fall.

Timber sale contracts should include a provision in which loggers are required to use reasonable care in protecting uncut trees. Logging operations should be monitored frequently to insure compliance with harvesting provisions.

Timber Theft and Timber Trespass. Unfortunately, it seems that if an item has worth, then someone is out there looking for an opportunity to steal it. Though rare, timber theft does happen from time to time across Tennessee.

High value individual trees such as walnut and paulownia that can be quickly cut and spirited away are the most frequent targets of tree rustlers. Where theft occurs, Federal tax laws indicate that owners may qualify for a casualty loss deduction.

Though again a rare occurrence, loggers have knowingly and intentionally cut timber from the property of another. In such cases, Tennessee law provides for civil liabilities to be paid to the property owner in the amount of treble the current market value of the harvested trees.

More frequently, loggers inadvertently cut timber belonging to another (trespass) because the property lines were poorly or incorrectly marked. In those cases, Tennessee law requires that the associated civil liability be double the current market value of the harvested timber.

In the case of any of the above situations, woodland owners should contact us at [Tennessee Timber Consultants](#) to appraise the value of the harvested trees. Even though timber theft or trespass rarely happens, the fact that these laws exist points out the importance of keeping property lines clearly marked or otherwise designated.

Societal Influences and Government Regulations. Our society has a growing interest in, and concern for, protecting environmental values. But, America still demands vast quantities of wood products. Clean water and air, protecting endangered species and wetlands, visual corridors, and old growth forests are but a few of the on-going public commentaries pertaining to regulating woodland management. During the past twenty years or so, scrutiny of timber management activities has been directed towards publicly owned lands. Increasingly though, environmental issues are tending to focus more attention towards conflicts between private property rights versus the public's interests.

Unquestionably, a well-managed public or private forest can and will provide many environmental benefits. A poorly-managed forest can cause significant environmental harm. The continuing battles pitting environmental activists against private landowners and wood products interests most often center around the definitions of good versus

bad management. Points of dissension range from the vitally important to the inane, but seem destined to continue.

We must get past the "Voodoo" and "Who Do" of the environmental struggles portrayed in the media. It is also important to remember that woodland owners have legitimate economic interests, but also have both innate and legislated societal responsibilities. Public perceptions of private woodland owners and managers will ultimately determine how many societal responsibilities remain innate, and how many become legislated.

One concept often heard is the belief that a goal to maximize economic returns from woodlands is, by definition, incompatible with sustaining or enriching environmental quality. Economic theory tells us that the greater the value of a thing, the more willing we become to tend and protect the thing. How can it be said then, that managing for long term economic gains necessarily poses an environmental threat? Indeed, increasing the value of private woodlands may be the best insurance we have to assure the future of Tennessee's forests.

Levels of Risk

There is no such animal as a no risk investment, so it must be assumed that some probability for loss is associated with each of the four, primary risk categories. Assessing those probabilities must begin with obtaining all of the facts about each woodland investment option from experts in the forestry community. So, a risk assessment system can be helpful in evaluating and comparing these options provided it is based upon the knowledge and opinions of experienced professionals who are familiar with local conditions.

A suggested, straightforward process for evaluating risks involves simply classifying probabilities for losses into four comparative levels; Low, Medium, High, and Very High. While this is admittedly a process based upon many judgment calls, it does provide woodland owners with a systematic means of thinking through their investments, and comparing risks among various options. But, a further definition of each level is necessary.

Low. Improbable. Circumstances under which significant investment losses for the great majority of woodland owners are unlikely to occur.

Medium. Possible. Circumstances under which some woodland owners will incur significant investment losses.

High. Probable. Circumstances under which many woodland owners are likely to experience significant financial losses.

Very High. Very probable. Circumstances under which the majority of woodland owners routinely sustain significant financial losses.

Applying the Risk Assessment System

Using this system, the table below compares levels of risk for each of the four risk categories under three very different woodland investments given average Tennessee conditions. The three comparative examples are a stand of native hardwoods, a planted stand of loblolly pine, and a Virginia pine Christmas tree plantation.

<u>RISK CATEGORY</u>	<u>HARDWOODS</u>	<u>LOBLOLLY</u>	<u>Christmas TREES</u>
Environmental	Low	Medium	Medium
Management Complexities	Low	Medium	Very High
Market Trends	Low	Low	Very High
Human Intervention	Low	Low	Medium

Clearly, by the above example, risks associated with producing Virginia pine Christmas trees are far greater than those relating to growing either native hardwoods, or loblolly pine plantations. Can a practical average be determined from the four categories and levels of risk? Only in a very general sense. However, a Very High risk rating under any one of the four basic categories could make all of the difference in the world to an investor.

Whether woodland investments are any more or less risky than alternative investments such as stocks, bonds, or real estate is impossible to say with certainty. That is a determination only you can make provided you are armed with all of the facts. However, thousands of Tennessee property owners make woodland investments each year. Most have considered the risks that could affect their investments, and determined that the potential rewards far outweighed any risks.



CHAPTER NINE

SELLING TIMBER

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Get it Right the First Time

Managing stands of trees to reach defined objectives is essential to successful forestry investing. However, possibly the greatest single risk to a forestry investment comes from failing to market timber wisely. Selling trees is a business deal. No more, no less.

Indeed, a single timber sale may very well be the largest one-time business transaction that some woodland owners will face in their lifetimes. When you sell a stand of timber, you generally have only one opportunity to get it right. Regardless of the purpose for the sale, whether for a thinning or final harvest, the process should remain the same.

Appraisals

Obviously, the first step in carrying out a timber sale is to define the area you intend to harvest. That area must be clearly defined on the ground so that buyers know what you are selling, and later on, loggers know the very specific area they are to work in.

The second step is to determine the amount, type and quality of timber you have to sell. This will require a "timber cruise" conducted by [Tennessee Timber Consultants](#), as we will establish an estimate of the number of trees, and the volume of each species of trees within the designated sale area. The cruise will also, as a minimum, define average tree sizes and quality. In many cases, especially with thinnings, it is necessary that we identify with paint each tree that is to be sold.

The information from the cruise can be used to determine the fair market value of the timber. Our foresters apply various methods for appraising timber including comparable sales results and current average prices for lumber or delivered logs. Of course, variables apply including logging difficulty, contract restrictions or mandates, and contract length.

Specifically designating the area to be harvested, determining the number, type, volume, and quality of trees to be sold, and establishing the fair market value of the stand are all absolutely essential to conducting a successful timber sale.

Marketing Strategies

Woodland investments are very long term, and the potential returns and risks are too high to trust to luck when it comes time to sell timber. It is imperative that woodland owners use our experts at [Tennessee Timber Consultants](#).

A prime consideration in marketing is to identify the highest and best markets for the trees to be sold. For example, white oak veneer trees should not be sold to a local sawmill that will saw these trees into lumber, nor should pine sawtimber be sold to pine pulpwood dealers who will chip the trees for a paper mill. On the whole, buyers with the highest end product values can pay the highest stumpage prices on the front end, and it is essential that all of the players be contacted.

But as previously discussed, many woodland owners foolishly sell their timber to the first timber buyer that shows up on their doorstep. These owners do not know the volume or quality of the timber they are selling, much less its' true market value. Yet, they trust the purchaser ("He seemed like such a nice, honest fellow") to offer them a "fair" price. **What successful businesses do you know that have no concept of the type, quantity or value of their products, but allow a single customer to establish prices and purchase their entire inventory?** It makes no sense does it?

Other owners market their timber by contacting a few local sawmills or buyers, and negotiate a sale based upon the highest offer. Invariably, they have not had their timber appraised, so they have no concept of the true value of their woodlands. Therefore, what assurance do they have that they received the highest possible offer? Obviously they are guessing and hoping for the best. They limit their income potential by limiting their markets to only a few known, and possibly the wrong, local buyers. Negotiated sales rarely result in highest possible timber sale returns.

The timber owner's best method is to use the services of our marketing professionals at [Tennessee Timber Consultants](#). Our professional services include identifying and appraising the specific trees to be sold, conducting a sealed bid process, and developing and administering the sale contract. An increasing number of woodland owners realize that our marketing specialists will, in virtually every case, generate the highest profits.

Payment Methods

In the vast majority of cases, payment for timber should be made as a lump sum settlement. That is, you should receive total payment for your timber before any trees are cut. We ensure that the amount of the sale is clearly stated in your written sale agreement. Other types of payments are commonly offered, but they are not advisable for the great majority of owners, or for most tracts.

Occasionally very large tracts of land require more than one year to harvest. Where harvesting takes place during two subsequent calendar years, tax considerations could

enter the picture. It could be advisable to accept two separate specified payments; one in each year based upon a pre-determined amount of timber, or specified portion of the tract that will be harvested during each year.

No discussion of payment strategies in Tennessee can avoid the practice of selling timber on a unit basis, or what is locally termed "on shares." Unfortunately, woodland owners routinely agree to this payment method, and it is so prevalent a practice that it merits serious review.

A unit sale, or "shares deal" means that a "purchaser" will harvest your trees, then deliver the logs to a sawmill or woodyard where he will receive payment for them. He will then return to you some percentage, normally forty or fifty percent, of the proceeds. It is a sweet deal for him because the only thing he has invested is his time, labor, and equipment. Giving the man 50 to 60 percent of the delivered price of a low value tree is one thing, but do you really want to pay him that percentage on a tree worth, say \$1,000? It becomes even sweeter if he "forgets" to mention and pay you for all of the trees he cut and delivered. It happens far too frequently. Furthermore, you are totally at the mercy of the marketing skills of an individual who quite possibly doesn't have the confidence of a local banker who would loan him enough to pay you cash for your timber.

The biggest concerns associated with unit sales are trust and confidence. Can you trust the individual you are doing business with to pay you an appropriate percentage for the trees harvested? Can you place total confidence in them to pay you for every load of logs that leaves your property? Can you place confidence in their marketing skills to merchandise the logs in the highest and best markets? Trust and confidence are important in any relationship, but they should not be the sole basis for a business transaction.

As a final caveat, under a "shares" arrangement, you are retaining a financial interest in every tree and each log. To protect yourself from potential liability claims, require that the logging contractor provide proof of workman's compensation insurance coverage on his employees before they begin harvesting his/your trees. Do not rely solely on a "hold harmless" clause in a contract. Are you liable if one of his/your logs falls off the truck and causes a traffic accident? If so, are you properly insured? No doubt, the potential liability aspects associated with "selling on shares," should be thoroughly investigated by an attorney prior to entering into such an agreement.

Regrettably, so many Tennessee landowners have been, and still are for that matter, taken advantage of by a few dishonest timber dealers that it places the integrity of the entire industry in doubt.

Contracts and Timber Deeds

Entering into a formal contractual agreement scares the daylights out of many people. The only thing scarier is selling timber without one. At [Tennessee Timber Consultants](#), we always work with an attorney to develop a detailed contract that fully protects your interests.

Planning a harvest operation should not be a hit or miss proposition. We will discuss your concerns with you to ensure that each of your expectations are included in a written contract. Contracts should specifically spell out exactly “who, what, when, where, and how” a harvesting operation will be conducted. Again we work with attorneys so that every aspect of the sale is evaluated and terms written to meet your exact requirements. If you want something done, we make sure that it is put in writing in your contract. If you want something prevented, again we will work to put it in writing in your contract.

Many timber companies offer their own form of a written contract. They are generally pretty fair, but some of the worst, after taking out the legal mumbo-jumbo, merely say, "For a specified sum, the buyer has the right to cut the timber on this tract when and how he chooses." Those buyers don't take prisoners. You are selling your timber on your land. We will work with you to make certain your needs are protected.

Some buyers require a Timber Deed. That is fine, as it is merely another type of formal agreement. A timber deed will be recorded by the purchaser, at their expense, at the County Courthouse. This gives them needed protection in cases where property is sold from one owner to another before the timber is harvested. That does not mean the property cannot be sold while the timber deed is in force, only that the new owner must honor the already existing timber sale agreement. Basically, a Timber Deed serves as a registered lien against the property guaranteeing that the buyer retains the right to harvest the purchased trees within the terms of the agreement.

Contract requirements should be made available for prospective buyers to review before they are asked to make an offer for your timber. They have every right to know about any restrictions or limitations beforehand, and prior knowledge will prevent later surprises both for you and them. A good contract will be good for both parties.



CHAPTER TEN

DEVELOPING YOUR PERSONAL WOODLAND PORTFOLIO

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You Need a Comprehensive Forest Management Plan

Your long-term financial success will depend on your ability to determine first, where you are going, and secondly, exactly how to get there. Intuitively doing whatever seems right at the time will not yield favorable results. Top results will only occur if you make the effort to develop a thoroughly researched, well thought out plan of action for your woodlands. At Tennessee Timber Consultants, we specialize in the development of personalized forest management plans for our clients.

Developing anything, whether it be your financial portfolio, a shopping mall, or even landscaping your yard begins with knowing exactly what you want or hope to attain. That is, you need realistic short, intermediate, and long-term goals.

Goals relate to the general question of why you own woodlands in the first place. Presumably you have some reason, or reasons in mind for owning the property. What are they? What is your management timeline? Will your woodlands be a part of your estate and serve as a legacy for your heirs, or do you simply intend to divest yourself of your woodlands at some point in the future?

As examples; Woodland owner #1 plans to retire in about twenty years, so has elected to manage his property for the sole purpose of obtaining maximum income from the production and sale of timber for retirement purposes. Woodland owner #2 purchased land as a weekend retreat, but wants to improve timber values and receive periodic income. He further intends to leave the property as a valuable and scenic legacy for his children. These two owners have divergent, but potentially attainable goals.

Defining objectives requires that you be somewhat more specific. Objectives are measurable statements of your expectations of the benefits you hope to receive from your woodlands. Those could include maximizing dollar returns, improving habitat for specified species of wildlife, protecting scenic values over the property as a whole or only in certain areas, and protecting personal, private values like the old beech tree with grandpa and grandma's names carved into it. You cannot expect to attain your objectives if you cannot first clearly express what they are.

You may have one objective or many, but obviously they must be attainable and make sense. You cannot say that you intend to maximize long term revenue from the sale of timber without intending to make needed investments to do so. So, objectives must be realistic and practical. Where more than one objective is needed to attain the overall goal, they must be compatible, and any trade-offs scrutinized in very close detail. So, do not plan to maximize squirrel habitat while simultaneously planning to clearcut your entire property.

Policies are akin to your own personal "Rules of the Road." If you have any restrictions in mind for the management or use of your property then you must make them known to those who might be affected by them. Policies could include things like protecting fences during logging operations, restricting logging during rainy seasons, or protecting the view from your neighbor's house. One client several years ago refused to sell her timber to the highest bidder (a barrel stave manufacturer) because she disapproved of her white oak trees being used to support the whiskey industry. That was her policy, so she sold her timber for less money to a buyer who intended to saw the logs into lumber.

You will need a forester to provide guidance and information throughout your planning process. Foresters can put you on the road to success, but they are not mind readers. Before they can provide you with applicable, comprehensive information, you must first be able to fully express what the goals, objectives, and policies are for your woodlands. Think them out, and write them down.

Property Inventories

Goals and objectives must be based upon the reality of what you own. So, before you can have a clear understanding of whether or not your goals and objectives are attainable, you must have a detailed description and assessment of your property. To obtain this vital information, an inventory must be conducted, stand by stand, to determine current and potential conditions. A properly presented assessment should, as a minimum, contain two vital components.

First, you need a detailed inventory and description of the current and potential conditions in each stand. The information should include the size of the stand, the species of trees represented, current stocking, stand age, and site productivity. Other data could include current volumes, average diameters, tree grades, annual growth rates, and current value.

Secondly, you need a property map showing the location of each stand. Other map features could include houses, barns, fields, fences, roads, streams, cemeteries, wildlife openings, and other assets relating to the management of your woodlands.

A thorough and reliable property assessment is absolutely essential to responsible decision-making. With adequate study, woodland owners can prepare to do much of the planning themselves, but our professional advice will be required to complete the technical aspects of the plan.

Tennessee Woodland Portfolio Options

A personal financial portfolio normally contains several or many very different investments that you selected to meet your financial goals. In like manner, structuring your woodlands portfolio begins with determining all the alternatives that may be available to you. By knowing your investment options, you can finally select those that will yield the highest returns on your property.

Your attention is invited to Appendix I, containing **our unique Tennessee Timber Consultants** definitions for seventeen stand types most commonly found in Tennessee. More specifically, the table displays very broad comparisons among fifteen common woodland investment alternatives, plus two non-commercial stands. There are less common investment options that were not listed, as well as variations of those on the list. Yet for most landowners, the fifteen commercial stand types in the table offer the most favorable Tennessee woodland investment options. An approximate length of investment, cost, return, and risk was established for each stand. However, the information should only be used as a very general guide. Therefore, you are advised to use our table to initiate further, much more in-depth, investigations into your own specific investment opportunities.

Appendix II. offers our unique prospectus for each of the seventeen stand types just discussed. Each prospectus defines a financial objective, offers a management strategy, discusses associated benefits, and analyzes costs and risks. Most of the stand types can be found across the State, although others are specific to a limited region. Again, this information is offered to our clients only as a place to start thinking about establishing specific stand objectives and management strategies, while considering potential costs and risks.

You may not be able to match your existing stand conditions to the idealized conditions offered in the prospectuses. That is especially true for the majority of Tennessee's hardwood stands, which have been neglected or abused for generations. Therefore, it probably is not realistic to expect that they can achieve the high quality, and very high financial objectives defined within the best hardwood prospectuses. If that is your situation, the best you can do (with this generation of trees, anyway) is to manage what you have to approximate those same results. However, if you have well-stocked young hardwood stands on the right sites, or a thrifty stand of pines, then these prospectuses offer a basic outline for success.

Selecting Your Best Options

Our foresters can help you select the best financial alternative on a stand-by-stand basis. Once all of the selected options and new stands are drawn on your property map, you will see that you have created your own patchwork quilt, and diversified your portfolio!

Planning horizons must, of course, be determined for each stand including scheduling all activities such as intermediate and final harvests, reforestation components, establishing wildlife habitat projects, protecting scenic values, and so on. So, over time the pattern of your quilt will change. Walnuts may be planted in a field this year, a poor hardwood stand on a ridge may be sold and converted to pine next year, and a thinning may take place in a small hardwood stand five years from now. On a practical note, don't plan more than ten years into the future. After ten years, review the plan with our forester, "tweak" it as needed, schedule ten more years of activities, and proceed.

Your forest management plan will be a one-of-a-kind document. It will be your personal guidebook to long-term financial success through the thoughtful application of responsible forestry practices on your own private piece of the planet.



CHAPTER ELEVEN

PURCHASING WOODLAND

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Know Exactly What You Want, and Exactly Why You want It

Do you want to buy woodlands? Are you solely interested in a short-term, real estate investment, meaning that you intend to buy and sell property and timber for a quick profit? If so, you are probably reading the wrong publication. The following focuses on purchasing the right kind of land, at the right price, as a long-term forestry investment.

A forester told the following true, cautionary, tale a few years ago about a landowner in west Tennessee. It seems that a young man purchased wooded property shortly after the birth of his son. He planned that the timber would grow through the years and pay for his son's college education. Well, the son grew up and became ready to go to college, so the owner called this forester to carryout a timber sale. The plan was good, the timing was just right, and he called in a professional to maximize his rewards. The problem was, his timber was absolutely worthless. As a young man, the owner had purchased a very small stand of honey locust and other just plain junk trees. Needless to say, both the owner and his son were devastated to see their dream shatter against the hard rocks of reality.

The above unhappy story makes a very simple point. You must know exactly what you are doing before you spend a considerable amount of money buying land. While you might not make the obvious mistakes described above, there are lots of mistakes that can be made by unwary investors.

Know What the Total Property is Worth Before You Buy It

How much should you pay for timberland? No more than it is worth, of course, but the only way you can know the value for certain is by paying for a thorough appraisal of the entire property including all associated assets. You should also do your own up-front homework, and only spend your time and money on desirable properties that you have a reasonable opportunity to purchase.

To begin, you must determine the current "bare land value," which represents the value of the land itself without considering the value of any improvements or other assets such as trees, fields, existing leases, and so on. Certified real estate appraisers can

provide specific information about bare land values using comparisons with recent "comparable sales" within the County or region where the tract is located.

You may locate a tract for sale that is totally wooded, but most are not. For determining the value of assets other than timber, again use the specialized services of an experienced, registered, real estate appraiser.

Finally, get an accurate appraisal of the existing timber. The only way to be certain of what the timber is actually worth is for one of our highly qualified forestry consultants to thoroughly evaluate existing stand values and conditions. Do not rely upon the expertise of a real estate agent or appraiser to judge timber values. Real estate professionals commonly rely upon comparable sales for determining total property, including woodland, values. This assumes they know enough about timber to compare one stand of trees with another, which is a major assumption when it is your money at risk. Always get a reliable timber appraisal from our foresters, and besides, if you buy the property, you will need it later anyway to establish your "basis" for federal tax purposes.

It is going to cost you money to get reliable appraisals for the property you are speculating to buy. Your only alternative is to guess at the values and hope you guessed right. Seemingly, guessing is not a sound basis for investing.

Always Consider Site and Stand Conditions

Purchasing decisions should always be based upon finding property with site conditions favorable for the establishment and growth of desirable trees. A tract that may be purchased at a bargain basement price might make it a good real estate investment, but the price has nothing to do with whether or not it can produce desirable timber. Remember, soil and related site conditions constitute the engine that drives the productivity of your forest. Buy land at a reasonable price, but if you want your timber business to prosper, buy land that grows trees very well.

As a rule, good farmland equals good timberland. The greater the productivity of the soil, the greater will be your corn, soybeans, or wood production. As with most crops, deep, well drained, silt loam soils are preferred for the rapid development of most valuable forests. Soils with a very heavy clay content often tend to stay too wet, while sandy soils are often arid. Shallow soils simply do not allow for proper root development, and often lack adequate moisture holding properties. A "hardpan" is an impermeable layer of clay or chert under the surface of the soil that similarly does not permit proper root establishment. Professional advice on evaluating soils can be provided by your local USDA, Natural Resources Conservation Service (NRCS) office. Find out all you can about the best soils in the county where you intend to buy land, because soils are basic to production. Our foresters can help you interpret the information.

Following many years of exhaustive research, government scientists have concluded, beyond any reasonable doubt, that water runs downhill. Rain falling on top of a mountain, ridge, or hill is absorbed into the ground, and slowly percolates downhill through the soil to collect on lower slopes and in the valleys below. The amount of available ground moisture dramatically affects tree growth. So, well-drained "low ground" is greatly preferable to "high ground." Land on mountaintops, or land that predominantly lies along hill or ridge tops should be avoided.

In like manner, direct sunrays dry the ground. The more direct the sun's rays, the more water trees need and use. At our latitude, hillsides facing towards the south or west are hotter, and therefore significantly drier, than slopes facing towards the north or east. The operative term is "significantly," because aspect, or the direction a hillside is facing, is a very important factor influencing hardwood tree growth on most sites.

Soil types, the position on slopes, and aspects generally vary throughout any given parcel of land. Importantly though, it is wise to purchase land with as many desirable characteristics as possible. Knowing what you do now, would you purchase land located on a mountaintop, extending down a west-facing ridge, with inherently arid soils? Not if you want to make a lot of money growing wood.

Stand conditions affect the timing of timber harvests. From a financial needs standpoint, how soon must you begin receiving income from the property? How much money will you need? Is timber revenue needed to offset the cost of purchasing the property? If so, will the timber on the tract meet your needs? Would cutting the timber immediately make good sense from a timber investment perspective, or should sales be delayed to maximize the return on your investment down the road? What are the trade-offs? Clearly, there is no single answer to the above questions, as far too many variables could apply. The important point is to know what you want, know why you want it, and know if the timber on the property you are considering for purchase will meet your short and long-term objectives.

As part of the appraisal process, our foresters can fully evaluate current and future stand conditions, and the productive capability of the property. We will help you understand what you are buying.

Determine in Advance the Total Cost of Establishing Your Business

So, you found the ideal property to purchase. The soils, aspect, slope positions, and stand conditions are all perfect. Best yet, the land can be bought at a very reasonable price. So, if you buy it, your new timber business is all set, right? Maybe.

As with any property purchase, be absolutely sure your deed includes a precise description of the land, and that it is verified by a licensed surveyor. Also, make certain to receive a guaranteed title, as boundary disputes in rural Tennessee are common.

Confirm that a timber company has not already purchased the timber, and is thereby holding a timber deed or contract as a lien against the property. In like manner, avoid purchasing land if someone else is holding the mineral rights. Do not purchase property unless you can control every aspect of what happens to it. In effect, be sure you know exactly what property you are buying, and that nobody else is claiming all or any portion of it.

If you are financing the purchase, should you sell off the timber assets to get out of debt? Most economists would immediately say yes. A better answer could be, maybe. Be very, very careful here. If we are talking about harvesting an under-stocked stand of poor quality hardwoods, the answer is unequivocally yes. If you have a recently thinned pine stand that is yielding a twenty plus percentage return on investment, then maybe not. Perhaps you should sell some of the trees to offset some of the debt, or all of the trees, or most of the trees, or this stand and not that stand, or.....! Who knows? You should know, and have a specific plan prepared before you buy the land.

Are you buying a wooded tract that is ready for management, or a tract needing immediate additional investments? Perhaps the property has several acres of fields or cut-over areas that you intend to plant with trees. How much will that cost? Are you prepared to go ahead with planting right away? The planting cost will go up every year if you wait. What are the road conditions on the property? Do water quality problems exist? If so, what will be the cost of repairs? Anyone who ever bought an old home will tell you of the many small jobs needed to bring the house up to conventional standards. Each of the small jobs cost money, and the total costs can soon mount to ugly levels. Don't under-estimate the cost of bringing wooded property up to maximum production. Get our forester's opinion.

Finally, and this is a very serious "Buyer Beware!" situation. Tennessee is filled with illegal garbage dumps, and rural woodlands are a prime target. These dumps may contain everything from household trash, to agricultural chemical containers, to industrial hazardous waste. Be doubly sure to check the property very thoroughly for signs of dumping. If you find a dumpsite, bring it to the attention of the seller or his agent and demand that cleanup of the site be included as part of the sale contract. Before closing the deal on the land, have the Tennessee Department of Environment and Conservation, Solid Waste Section, verify that the site has been cleaned up properly, so that it will never become your very own, and very expensive, nightmare.

Where and How to Locate Desirable Woodlands

A primary consideration in purchasing productive woodland should be keeping bare land costs at an absolute minimum. The land is the factory that produces your product, trees. Like any business, you do not want to become over-capitalized in fixed assets. The higher the cost of the land, the less financial incentive there will be for you and future generations to sustain your timber business.

Bare land values in rural Tennessee are normally only a fraction of those for comparable land in, or near, metropolitan centers. As with virtually everything else, supply and demand for land affects prices. Even some rural areas, such as parts of upper East Tennessee, are fast becoming a haven for retirement and vacation homes, which has led to escalating land prices. While some east Tennessee counties still have affordable land, you would be well advised to look towards regions such as the Cumberland Mountains and Plateau, Highland Rim, and very rural middle and west Tennessee.

If you have objectives in mind for managing specific types of timber, go where the best markets are. For example, if you are planning to grow loblolly pine, you should first look for land in the southern or western parts of the State. High quality hardwood markets are available state wide, with the highest hardwood prices historically found in east and west Tennessee, and the lowest prices on the Cumberland Plateau. A "choose and cut" Christmas tree operation will have to be located very near a metropolitan area, while a wholesale Christmas tree farm could be located just about anywhere. Knowing exactly what you want to do may guide you to where you need to go.

Finding land for sale is not difficult. Most people today use Realtors to market their property, so contacting local real estate brokers in the area you are interested in is a good place to start. Newspapers are another good source of information, and most rural counties have a local weekly paper. There you will find classified listings for property, some of which are notices from Realtors, while others offer property for sale by the owners. A surprising amount of land in rural counties is sold simply by word of mouth. Local contacts that you may have could provide the best leads to buy good land at rock bottom prices.

Negotiating a Land Purchase

Never pay more than the fair market value for property, and never pay more than necessary to get it. Therefore, get ready to "dicker." You will very likely be buying rural land from rural Tennessee families who have been "horse trading" for generations. Most enjoy it, and many are very good at it. This is no kid's game. It is strictly business, so do your homework. Consider the following simple, but important points when negotiating and closing a land purchase:

1. Know the total market value of the property prior to any purchase negotiations.
2. Define a negotiations' strategy that matches your own personality. Remain business-like and determined. Plan out every step of the negotiation process in advance and stick to your plan.
3. Never show your hand. You paid for your own appraisal, so it is privileged, and very valuable information. If the seller wants to know the appraised value, let them hire their own appraiser and forester.

4. Establish a reasonable, maximum figure in your mind that you will be willing to offer for the land that is equal to or less than the appraised value. Be reasonable, because sane people do not give land away.
5. Remember, the initial asking price for land is almost always higher than what the seller is willing to accept, so expect to see the property you want being advertised well above market value.
6. Even though property may be offered for sale at less than its true value, negotiate with the seller or their agent for a lower price anyway. Take every advantage of a bargain.
7. Always begin negotiations with a "lowball" offer. That is, offer significantly less than what you know the property is worth or what the seller is asking. Start low, but plan to go up later as necessary.
8. Most probably, your initial offer will result in a counter offer at less than the original asking price. That puts the ball back into your court. Your negotiations' plan should include exactly what your next and subsequent offers will be. It will not take very long for this "offer and counter offer" process to reach an agreement at, or hopefully below, your target price.
9. "Poor mouthing" is considered acceptable etiquette during all stages of the negotiations, while "crowing" after buying a bargain is not.
10. Sign an "Option," if you think it is necessary. If you have made a deal on a really good bargain, you need to close the transaction as soon as possible, and do not hesitate to put "earnest money" down to seal the deal. Use your attorney's advice, but be prepared to close the deal rapidly.
11. It should go without saying that property transactions should always be processed by an attorney.
12. If the seller will not accept your best offer, you simply need to find and buy property elsewhere. Do not allow yourself to give in, or "fall in love with the land," and end up paying more for the property than it is worth. There is more good, affordable land for sale out there that you will like, so go find it.

While negotiating the purchase of land, buy a bargain if you can, pay the fair market price if you must, but don't get taken to the cleaners yourself. Remember to be prepared, have a target, have a plan, stay on track, do not provide relevant information about the property, do not allow yourself to become distracted, and stick to your guns.



CHAPTER TWELVE

PARTING THOUGHTS

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Reviewing Some Basic Principles

Hopefully, by now you have learned that judiciously managing a forest requires a thoughtful blend of science, mathematics, individual desires, and business principles. Your financial success ultimately depends on your own personal knowledge, patience, and commitment.

It is unrealistic to assume that you can become an expert in all aspects of forest management and the timber products business. What is important is that you regularly call upon the knowledge and experience of the professionals at [Tennessee Timber Consultants](#).

Begin to understand relationships between sites and species of trees. Diversify your property into as many different stands as possible with different ages and timber types. Be an active manager, and seek opportunities to improve your investment returns.

Timber management is a very long term investment. Growing trees is not a "get rich quick" proposition. Forests will, however, provide a steady, relatively low risk, and very profitable return on your investments, provided they are managed properly and for the long term.

Most woodland owners are their own worst enemy. Very simply, they do not conduct their timber business in a business-like manner. Failure to understand what they have, failure to adequately plan, failure to monitor their investment, failure to understand the very basic in's and out's of the timber business, failure to use professional services, failure to conduct timber sales in a reasonable manner, failure to understand applicable tax codes, and failure to adequately develop their estate leads to one lost opportunity after the other. Successful woodland investing requires thoughtful, "hands on," decision making by a committed owner.

Being a Responsible Forest Steward is Smart Business

How would you feel if a few years from now people were saying about you something to the effect that,

"There goes Mr. and Mrs. Woodsowners. Have you seen their place? They have the best timber in the County even though it seems like they are logging something out there all of the time. And talk about wildlife! I hear hunters are standing in line to pay big bucks for a hunting lease on that place. The entire property is neat as a pin, and there's no mud to be seen anywhere. Yep, those folks have a real show place, and they are making quite a bit of money from it too!"

That would not be too bad, would it? Guess what? Some owners are already to that point, and you can get there too. You can significantly improve your profits while turning your property into a show place at the same time.

Over one thousand Tennessee timber owners are members of the American Tree Farm System. This worthwhile program, sponsored by the American Forest Foundation, represents 70,000 woodland owners nation wide. Membership in the System allows woodland owners to be recognized for their efforts, attend educational field days, and receive practical information through the "American Tree Farmer" magazine. The System also serves in an advocacy role on important forestry issues affecting private woodland owners at both the national and state levels. In Tennessee, the Tree Farm program is sponsored by the Tennessee Forestry Association in cooperation with numerous government agencies and private forestry interests. Most professional foresters can provide information on becoming a member.

The Tennessee Forestry Association in cooperation with the Division of Forestry and the University of Tennessee Extension Service has begun developing County Forestry Associations. These worthwhile, grass-roots organizations are for, and generally run by local woodland owners. Check on the status of such a group in your county, and if one has not formed yet, get involved in starting one.

Beyond achieving the important goals you have set for yourself and your family, you have both a unique opportunity and responsibility. How you, and more than 450,000 other woodland owners like you, attend to Tennessee's forests shall significantly affect our State economically, spiritually, and environmentally. So, your conscientious application of sound forestry practices over the long term is important not just to you. Remember that your fellow citizens are also stake holders, and that a valuable, responsibly tended private forest can be your personally crafted gift to future generations.

In her classic novel, "The Good Earth," Pearl S. Buck presented a clear, simple message that woodland owners would be well advised to remember. Private land in the hands of a responsible, thoughtful steward will provide a last measure of personal security after all other investments or assets are gone. Again borrowing from literature,

when Scarlet O'Hara's world was "Gone With the Wind," she understood that the good earth of "Tara" would always remain as the foundation upon which she could rebuild her life and fortune. Your good earth and your woodlands can also be "always" things for you, your family, and future Tennessee citizens.

What happens next is entirely up to you. It's your land, it's your forest, it's your dream, and it's your choice. The preceding and subsequent pages were provided by **Tennessee Timber Consultants** to help you structure a woodlands portfolio for your property by which you can grow MORE TREES, BIGGER TREES, and BETTER TREES. If you plan and manage your investment effectively to accomplish those three things, then you will be well on the road towards ultimate financial success.



APPENDIX I. COMPARATIVE PORTFOLIO INVESTMENT ALTERNATIVES

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The purpose of the following chart is to display general relationships among typical Tennessee woodland investments. No interpretation should be made other than to see, from a very broad perspective, how one stand investment might compare with alternative strategies. The definitions provided should only be interpreted in the broadest sense, and will not be true in all instances statewide. Woodland owners should always discuss their options with trained professional foresters before making a final decision regarding investment strategies.

STAND TYPE	TIME	COST	RETURN	RISK
International Upland Hardwood	V. Long	Low	V. High	Low
Domestic Upland Hardwood	V. Long	Low	Medium	Low
Low Quality Upland Hardwood	Long	Low	Low	Low
Pine Pulpwood	Short	Medium	High	Medium
Upland Yellow Pine Sawtimber	Medium	Medium	High	Medium
Bottomland Loblolly Pine Sawtimber	Medium	Medium	V. High	Medium
International Bottomland Hardwood	V. Long	low	V. High	Medium
Domestic Bottomland Hardwood	V. Long	Low	High	Medium
Low Quality Bottomland Hardwood	Medium	Low	Low	Medium
International Cove Hardwood	V. Long	Low	V. High	Low
White Pine Sawtimber	Medium	Medium	High	Medium
Hardwood Plantations	Long	High	Low	High
Paulownia Specialty	Short	High	V. High	V High
Walnut Specialty	Medium	High	V. High	High
Xmas Trees Specialty	V. Short	V. High	V. High	V High
Streamside Management Zones	DNA	DNA	DNA	Medium
Green Stands	DNA	DNA	DNA	Medium

TIME: The approximate relative term, or length, of the investment, defined as: Very Short = less than 10 years, Short = 20 years or less, Medium = 20-40 years, Long = 40 - 60 years, and Very Long 60+ years.

COST: Relative estimated costs/acre of expenses associated with the investment, defined as: Low = less than \$50.00, Medium = \$50 - \$150, High = \$150.00 plus annual costs for a few years, Very High = \$150.00 plus annual expenses for several years or perhaps throughout the term of the investment.

RETURN: Estimated relative annual returns on investments as a function of actual costs for average Tennessee conditions including growth and income defined as: Low = less than 6%, Medium = 6%-10%, High = 10%-15%, Very High 15%+.

RISK: Relative estimated investment risks for average Tennessee conditions.

DNA: Does Not Apply.

APPENDIX II. STAND PROSPECTUSES

Most investors have at least seen a mutual fund prospectus. The purpose of a prospectus is to allow investors to review detailed information about a particular mutual fund prior to them actually putting any money into it. A prospectus may or may not have been reviewed or passed by the Securities and Exchange Commission. However, they normally include very pertinent information including the manager's investment strategy, limitations, annual costs, and historic returns on investments over the short and long term.

As previously discussed, if we think about stands of timber along much the same lines as a mutual fund, then it would seem to be helpful for woodland owners to have the opportunity to review a prospectus for each of their woodland investment options. Timber investments are clearly not regulated by the Securities and Exchange Commission. Never the less, a prospectus for a timber stand only serves to provide woodland owners a simple, logical analysis of timber management alternatives.

The following provides a prospectus for each Stand Type listed in Appendix III, Comparative Portfolio Investment Alternatives. Again, these apply to general conditions across Tennessee as a whole, and may not be accurate for individual tracts. Woodland owners should always discuss their opportunities and risks with an experienced professional forester familiar with local conditions before they initiate any timber management investments.



INTERNATIONAL UPLAND HARDWOOD STAND

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OBJECTIVE

To attain a very high rate of growth and income through a long term forestry investment by establishing and harvesting a fully stocked stand within which most or all trees meet certain technical standards, including size and quality, making each of them highly desirable for trading in domestic, but more especially, export markets. The stand could provide periodic income as a secondary objective through the sale of surplus trees with below average potential for developing into premium individuals.

STRATEGY

A long-term investment approach to take full advantage of the sharp nationwide decline in the supply of, and increased domestic and overseas demand for high value hardwoods. To use existing, naturally occurring hardwoods on productive upland sites as primary assets for establishing the stand. To identify and develop an optimum number of trees with high value and yield characteristics. Periodic sales and removals of surplus, low value trees, a secondary objective, shall not be conducted if harvesting activities have the potential of damaging or reducing the numbers or the yield of high value individuals. High value hardwoods will be sold in one final harvest, and in accordance with knowledgeable marketing strategies to access export and specialty markets.

ASSOCIATED BENEFITS

Many woodland wildlife species require habitat found only in older stands of upland hardwoods. Benefits include high crowns for nesting needed by both game and non-game species, and high protein sources of food. Shaded understories provide optimum conditions for the long-term development of shrubs, herbs, ferns and wildflowers. Stands of stately hardwoods provide scenic values, and recreational opportunities.

COST

An advantage of this investment is establishing the stand using naturally occurring hardwoods. Following the final harvest of all trees, some site preparation costs may be needed to create optimum conditions for establishing the next generation of high value trees. Infrequent, low cost improvement measures may be required to remove competing trees with no value, or damaging vines. Added costs include consulting forestry and legal fees, administrative costs and taxes.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Low	Windstorms can cause partial or total damage, but occur infrequently.
Management Complexity	Low	Improper harvests to generate short term cash will significantly reduce long term returns. Grazing livestock will seriously damage hardwood stands. Failure to use a marketing specialist will dramatically reduce income.
Market Trends	Low	Short term demand, especially for export markets, must be monitored very closely.
Human Intervention	Low	Wildfire risks must be assessed locally, but are generally low. Timber thieves most often target very valuable trees such as are found in these stands.



DOMESTIC UPLAND HARDWOOD STAND

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OBJECTIVE

To attain a high rate of growth and income through a long term forestry investment by establishing and harvesting a fully vested stand of trees meeting certain technical standards, including size and quality, making them highly desirable for trading in domestic sawlog markets. The stand will provide periodic income as a secondary objective through the sale of surplus trees with below average potential for developing into average or high quality sawtimber. These stands differ from International Hardwood Stands in that they do not contain the species and quality of trees required for export markets.

STRATEGY

A long-term investment approach to take advantage of the sharp, state wide decline in, and demand for, average quality and above hardwood sawtimber. To use naturally occurring hardwoods on productive upland soils as primary assets for establishing the stand. To identify and develop an optimum number of trees with high value and yield characteristics. Periodic removals of low value trees shall not be conducted if harvesting activities have the potential of damaging, or reducing the numbers of, high value individuals. All high quality trees will be removed in one final harvest. Marketing strategies must be utilized with full knowledge of all available sawtimber markets, and current market conditions.

ASSOCIATED BENEFITS

Many woodland wildlife species require habitat found only in older stands of upland hardwoods. Benefits include high crowns for nesting needed by both game and non-game species, and high protein sources of food. Shaded understories provide optimum conditions for the long-term development of shrubs, herbs, ferns and wildflowers. Stands of stately hardwoods provide scenic values, and recreational opportunities.

COST

An advantage of this investment is establishing the stand using naturally occurring hardwoods. Following the final harvest of all trees, some site preparation costs may be needed to create optimum conditions for establishing the next generation of high value trees. Site preparation costs can be mitigated by marketing small and low value trees for pulpwood or chipwood at the time of final harvest. Infrequent, low-cost

improvement measures may be appropriate from time to time to remove low value trees or damaging vines. Added costs include consulting forestry and legal fees, administrative costs and taxes.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Low	Windstorms can cause partial or total damage, but occur infrequently.
Management Complexity	Low	Improper harvests to generate short term income usually results in loss of higher long-term revenue. Grazing livestock damage hardwood stands. Failure to use a marketing specialist will reduce incomes.
Market Trends	Low	Short term demand and market conditions must be carefully evaluated prior to sales.
Human Intervention	Low	Wildfire risks are generally low, but must be evaluated locally.



LOW QUALITY UPLAND HARDWOOD STAND

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OBJECTIVE

To accept a low rate of return through growth and income on a long-term forestry investment by maintaining a low quality stand of upland hardwoods where site conditions are not suitable for growing hardwoods with higher values. Wood products produced in these stands will be sold in low value markets such as chipwood, crossties, and pallet lumber. Returns could be enhanced quite dramatically in some areas of the State by changing the definition of these stands through planting a more valuable species such as loblolly or white pine.

STRATEGY

To conduct harvests periodically on an opportunity basis. Tree growth will be very slow, volumes low, and the species found will have little economic value other than in local, low value markets such as for cross ties, pallets, crating material, and chipwood. Tennessee has a vast surplus of this type of wood, so supply and demand factors are not driving prices higher at a rate much, if any, above normal inflation. Never the less, sales should be carried out in accordance with professional marketing strategies.

ASSOCIATED BENEFITS

The majority of these stands will contain a high number of low value oaks that produce acorns used by many native wildlife species. Periodic harvests also allow for the development of browse and cover habitat. Mature trees in these stands do not reach the majestic heights of those found in better locations, but do provide similar scenic benefits. These stands can serve a valuable role as fire breaks when they are adjacent to more valuable, but also more volatile stands of pine.

COST

The biggest cost associated with these stands is the loss of potential income had a more valuable species been planted. The low potential value of the stand does not warrant costs associated with establishment or periodic improvement practices. While it is always wise to consult with a marketing specialist, when very few acres or very low incomes are involved, forestry consultants may opt out of conducting the sale. Legal fees, administrative costs, and taxes will apply.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Low	Windstorms, though infrequent, can cause partial or total damage.
Management Complexity	Low	Failure to use a marketing specialist will usually result in lost income. Grazing livestock damage hardwood stands.
Market Trends	Low	Market conditions should be carefully evaluated prior to carrying out a timber sale.
Human Intervention	Low	Wildfire risks must be assessed locally, but are generally low.



YELLOW PINE PULPWOOD

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OBJECTIVE

To attain a high rate of return by establishing, maintaining, and harvesting short rotations of high production southern yellow pine stands used primarily by the pulp and paper industry. Loblolly pine is the species of choice for top production performance in most regions of Tennessee, although climatic conditions might dictate the use of virginia or shortleaf pines in cool or mountainous areas.

STRATEGY

To identify open lands or hardwood areas with very low productive capabilities for planting genetically improved pine seedlings at optimum spacings to maximize fiber production over a short term. At the earliest possible age, all trees in the stand will be removed in a single harvest. The sale must be conducted with full knowledge of current market conditions, and comply with accepted professional marketing strategies.

ASSOCIATED BENEFITS

Short rotation yellow pine stands can be utilized in combination with other stand types to provide habitat diversity for some species of wildlife. Young stands often provide good habitat for quail and other small game species, and as they age, they provide cover and winter shelter. Periodic prescribed burning in these stands after age 10 enhances their wildlife values particularly for quail, deer, turkey, and grouse. Loblolly pine is especially valuable and well suited for planting on old fields and gullies to control soil erosion.

COST

Most costs are associated with establishing the stand to include the cost of seedlings, preparing the site for planting, controlling competing vegetation, and paying for the planting. Intermediate herbicide applications may be necessary depending upon the development of hardwood competition. Costs are commonly associated with periodic prescribed burning to improve wildlife habitat.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Medium	Drought conditions can reduce seedling survival during the year in which the stand is planted. Insect pests can affect the stand at each stage in its development. Ice and snow damage can be severe in pine stands.
Management Complexity	Medium	Failing to plant the seedlings properly will reduce seedling survival and growth. Failing to properly control herbaceous and woody competition will reduce seedling survival and production rates.
Market Trends	Low	Demand and associated prices have generally been on an upward trend for many years. However, short-term market prices must be evaluated prior to carrying out a sale.
Human Intervention	Low	Wildfire risks are generally low, but must be assessed locally.



UPLAND YELLOW PINE SAWTIMBER STAND

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OBJECTIVE

To attain a high rate of growth and income from a medium term upland yellow pine investment established for the maximum production of pine sawtimber. Loblolly pine is the species of choice for most areas of Tennessee, although shortleaf pine may be more suitable in a few northern counties or mountainous regions. To take advantage of national trends indicating that southern yellow pine construction grade lumber shall continue to be in great demand while available supplies remain relatively constant. Certain individuals may meet quality standards which make them candidates for sale in even higher value pine pole markets. Intermediate harvests to remove pine pulpwood and small sawlogs shall be carried out to maintain optimum stocking and growth levels, and provide a secondary, periodic source for income.

STRATEGY

To develop pine stands in open areas or replace low value hardwoods on relatively arid upland sites. Stands will be planted with genetically superior seedlings on optimum spacings to maximize production and yield. Periodic thinnings will be conducted to remove either rows of trees or individuals with little potential for developing into high value sawtimber. At maturity, all remaining trees shall be removed in one final harvest. All sales must be conducted with full knowledge of current market conditions, and should comply with accepted professional marketing strategies.

ASSOCIATED BENEFITS

Young pine stands provide desirable habitat for quail and other small game. As stands mature, they provide escape cover and winter shelter for many species. Older stands should be periodically burned to maximize their benefits to wildlife including quail, deer, turkey, and grouse. Of all of the tree seeds used by wildlife throughout the South, wildlife biologists rank pine seeds second only to acorns in importance. Stands of tall, stately pines add diversity for wildlife and visual quality.

COST

Costs are primarily associated with establishing the stand. Those being, purchasing genetically improved seedlings, preparing the site for planting, the actual planting procedure, and controlling competing vegetation. Occasionally it is necessary after a few years to apply herbicides to release the young trees from competing

hardwood vegetation. Periodic prescribed burning for wildlife has associated costs, but also the associated benefit of reducing potential damage from wildfires.

RISK ASSESSMENT

Environmental: Medium Risk. Drought conditions can reduce seedling survival in the year in which they are planted. Insect pests can devastate pine stands, and the probability of damage by southern pine beetles increases with stocking density and stand age. Ice and snow damage can be severe in pine stands.

Management Complexity: Medium Risk. Failing to plant or establish the seedlings properly can cause seedling mortality and reduce growth. Failing to properly control herbaceous or woody competition will reduce seedling survival and production rates. Intermediate thinnings must be conducted at the right time in the right way to maximize income and maintain appropriate production rates.

Market Trends: Medium Risk. Pine prices have generally been increasing, but prices can fluctuate wildly over the short term. Local market conditions should be carefully evaluated prior to all timber sales.

Human Intervention: Low Risk. Wildfire risks are generally low, but must be assessed locally.

BOTTOMLAND LOBLOLLY PINE SAWTIMBER STAND

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OBJECTIVE

To realize a very high rate of growth and income by establishing, developing and harvesting a stand of loblolly pine sawtimber specifically targeted for an extremely productive bottomland site. To maximize yields through an intermediate term investment by planting tree seedlings in bottomland fields with the ultimate aim of selling mature trees in high value sawtimber and pine pole markets. Periodic thinnings shall provide secondary income while maintaining optimum stocking levels, maximizing volume and quality production, and assuring full site utilization.

STRATEGY

To plant genetically improved loblolly pine seedlings in highly productive bottomland fields to provide maximum returns on investment through a medium term timber management scenario. Periodic thinnings shall be carried out to assure the continued optimal growth and development of a proper number of remaining trees with the potential to develop into high value individuals. Initial thinnings may remove rows of trees for sale to the pulp and paper industry. Subsequent thinnings should be designed to identify and remove only those trees with the poorest characteristics. All thinnings shall contain some pulpwood, although those conducted later in the rotation should very likely include a significant amount of small sawtimber. At maturity, all trees remaining in

the stand shall be removed in one final harvest. All sales must be conducted with full knowledge of current market conditions, and within the framework of professionally administered timber sale procedures.

ASSOCIATED BENEFITS

Under favorable management, loblolly pine stands offer a multitude of wildlife habitat benefits for a wide variety of species. Young stands provide excellent habitat for quail and other small game species and later develop cover and winter shelter for many animals. Older stands provide understory browse for deer, pine seeds used by many species of birds, and insect foraging areas for turkey poults. Ideally, older stands should be periodically burned to provide optimum benefits. Stands of tall, stately loblolly pines, after they are burned several times, create an almost park-like atmosphere.

COST

Costs are primarily associated with establishing the stand including purchasing genetically improved loblolly pine seedlings, preparing the site for planting, the planting procedure itself, and the control of competing vegetation. It might be necessary to apply herbicides after a few years to again release the seedlings from competing herbaceous and woody vegetation. Periodic burning for wildlife benefits has associated costs.

RISK ASSESSMENT

Environmental: Medium Risk: Drought can cause seedling mortality in the year in which they are planted. Pondered water over a period of several months during the growing season due to beaver activity or other problems can result in the total loss of the stand. Insect pests can devastate pine stands, and the probability of damage from southern pine beetles increases with stocking density and stand age. Ice and snow damage can be severe.

Management Complexity : Medium Risk. Failing to plant or establish the seedlings properly can cause seedling mortality and reduce growth. Failing to properly control herbaceous or woody competition will reduce seedling survival and production rates. Intermediate thinnings must be carried out at the right time in the right way to maximize income and maintain appropriate production rates.

Market Trends: Medium Risk. Pine prices have generally been increasing, but prices can fluctuate wildly over the short term. Local market conditions must be carefully evaluated prior to all timber sales.

Human Intervention: Low Risk. Wildfire risks are generally low, and are usually even less so in bottomland situations, but should be evaluated locally. Wetlands regulations or recommended practices could influence planting in bottomlands, and loblolly pine is generally not considered a wetland species in Tennessee.

INTERNATIONAL BOTTOMLAND HARDWOOD STAND

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OBJECTIVE

To attain a very high rate of growth and income from a long-term bottomland hardwood forestry investment. To establish, develop, and harvest a fully vested stand within which most or all trees meet certain technical standards, including size and quality, making them highly desirable for trading in domestic, but more especially, export markets. The stand could provide periodic income as a secondary objective by removing surplus trees with below average potential for developing into premium individuals.

STRATEGY

A long-term investment approach to take full advantage of the sharp nationwide decline in the supply of, and increasing domestic and overseas demand for, high quality bottomland hardwood timber products. To use naturally occurring hardwoods on bottomland sites as primary assets for establishing the stand. To identify and develop an optimum number of trees with highest value and yield characteristics. Periodic sales and removals of surplus, low value trees, a secondary objective, shall not be conducted if harvesting activities have the potential of damaging, or reducing the numbers or yield of high value individuals. At maturity all trees in the stand shall be removed in one final harvest and sold in a manner consistent with normal professional marketing strategies.

ASSOCIATED BENEFITS

Older stands of bottomland hardwoods, especially when associated with wetlands, provide unique habitat for a wide variety of species of both game and non-game wildlife. Benefits include high crowns for nesting, and reliable sources of high protein foods. If seasonally flooded, these stands provide excellent waterfowl habitat. Shaded understories are ideal for the development of bottomland ferns, wildflowers, shrubs and herbs. Again, when associated with wetland areas, bottomland forests serve an important role towards protecting water quality. Stately stands of bottomland hardwoods provide scenic values and recreational opportunities.

COST

An advantage of this investment is having the opportunity establish a stand using naturally occurring hardwood trees. Following the final harvest operation, some costs will be incurred in preparing the site for the establishment and development of the next generation of trees. Infrequent, low- cost intermediate measures may be required to control damaging vines and other competing vegetation. Beaver control measures may be necessary depending on local beaver populations and activity. Other costs include consulting forester and legal fees, administrative expenses and taxes.

RISK ASSESSMENT

Environmental: Medium Risk. Stream blockages caused by beavers or other factors leading to permanent flooding will damage or destroy some or all of the stand. The potential for permanent flooding is particularly significant in west Tennessee.

Management Complexity. Low Risk. Harvests conducted solely to produce short term cash will significantly reduce long-term returns. Failure to use a marketing specialist will reduce returns.

Market Trends: Low Risk. Short-term demand, especially for export markets can fluctuate greatly, so must be monitored closely.

Human Intervention: Low Risk. Bottomland hardwoods are often associated with wetland environments that are closely regulated by several government agencies. Special logging requirements must be included where wetlands are involved. Cultural practices intended to maintain, or otherwise affect stream flow may require permits. Failure to meet all regulatory mandates could lead to hefty fines levied against the property owner.

DOMESTIC BOTTOMLAND HARDWOOD STAND

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OBJECTIVE

To attain a high rate of growth and income from a long-term bottomland hardwood forestry investment. To establish, develop and harvest a fully vested stand in which every tree meets certain standards, including size and quality, making them very desirable for trading in domestic markets. The stand should also provide periodic income as a secondary objective through the removal of low value individuals which do not have the potential to develop into high value trees provided that these removals do not have a negative influence on the remaining trees or overall returns from the stand. Ultimately, the final stand should contain a high proportion of extremely valuable trees.

STRATEGY

A long term management approach to take advantage of the nationwide shortage of, and increasing domestic demand for, high value bottomland hardwood timber products. To use naturally occurring bottomland hardwoods as primary assets for establishing the stand. To identify and develop an optimum number of trees with the highest value and yield characteristics. Periodic sales and removals of surplus, low value trees shall not be carried out if harvesting operations have the potential of damaging the remaining high value individuals. All remaining trees will be removed in one final harvest when the stand reaches maturity. Sales shall comply with professional marketing strategies.

ASSOCIATED BENEFITS

Older stands of bottomland hardwoods, especially when associated with wetlands, provide unique habitat for many game and non-game species of wildlife. Benefits include high crowns for nesting and reliable sources of high protein foods. If seasonally flooded, these stands provide excellent waterfowl habitat. Shaded understories are ideal for the development of ferns, wildflowers, shrubs, and herbs. Again, when associated with wetlands, bottomland forests are important for protecting water quality. Stately stands of bottomland hardwoods provide scenic values and recreational opportunities.

COST

An advantage of this investment is having the opportunity to establish the stand using naturally occurring hardwoods. Following the final harvest, some costs may be associated with creating the proper conditions for the establishment and development of the next stand of trees. Infrequent, low cost intermediate measures may be required to control vines and other competing vegetation. Control measures may be required to mitigate possible damage from beaver populations. Other costs will include consulting forester and legal fees, administrative costs and taxes.

RISK ASSESSMENT

Environmental: Medium Risk. Stream blockages caused by beavers or other factors leading to permanent flooding will damage or destroy some or all of the stand. The potential for permanent flooding is particularly significant in west Tennessee.

Management Complexity: Low Risk. Harvests conducted solely to produce short-term income will significantly reduce long-term returns. Failure to use a marketing specialist will reduce returns.

Market Trends: Low Risk. Short-term demand can greatly influence market prices, and must be thoroughly investigated prior to carrying out any sales.

Human Intervention: Low Risk. Bottomland hardwoods are often associated with wetland environments that are closely regulated by several government agencies. Special logging requirements must be included when wetlands are involved. Cultural practices intended to maintain, or otherwise affect stream flow may require permits. Failure to meet all regulatory mandates could lead to hefty fines levied against the property owner.



LOW QUALITY BOTTOMLAND HARDWOOD STAND

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OBJECTIVE

To accept a low rate of return through growth and income on a medium term forestry investment by maintaining a low quality stand of bottomland hardwoods where species or wet site conditions limit the development of a stand of higher value. Wood products produced in these stands will be sold in low value markets such as for pulpwood, cross ties, or pallet lumber. Unless site conditions prevent doing so, some of these stands might at some point be suitable for converting to planted stands of higher value hardwoods such as oak or green ash.

STRATEGY

These stands will typically contain a mixture of low value hardwoods such as red maple, sweetgum, hackberry, sycamore, and cottonwood. Very little price differential can be expected for trees with few defects or large diameter trees, so little advantage can be gained by growing trees in these stands over a very long period. Therefore, trees should be harvested on a periodic, opportunity basis and sold to local wood using industries. Growth and production rates may, in certain circumstances, be quite high, but unit values will remain low. Therefore, successful marketing will depend upon growing high total unit volumes to offset those low unit values. Tennessee has a surplus of low value hardwoods, so historically prices have not increased at a rate much, if any, above normal inflation. Regardless, sales should be timed to coincide with market trends and conducted in such manner as to comply with professional marketing strategies.

ASSOCIATED BENEFITS

Low quality bottomland stands do not provide as many wildlife benefits as do their International and Domestic Bottomland Stand counterparts primarily because of the lack of oak trees. They do, however, still provide high nesting and some soft mast for both game and non-game species of wildlife, and if seasonally flooded, provide waterfowl benefits. Bottomland hardwoods play an important role in protecting water quality. Depending in part on how wet the site may be, shaded under-stories can provide opportunities for the development of unique wetland varieties of ferns, wildflowers, shrubs, and herbs.

COST

An advantage of this investment is the opportunity to use naturally occurring bottomland hardwoods in establishing the stand. The expected low rate of return does not encourage the expenditure of funds for establishing or maintaining the stand. Some costs may be required to control beavers, particularly in west Tennessee. Added costs include consulting forester and legal fees, administrative costs and taxes.

RISK ASSESSMENT

Environmental: Medium Risk. Stream blockages caused by beavers or other factors leading to permanent flooding will damage or destroy some or all of the stand. The potential for permanent flooding is particularly significant in west Tennessee.

Management Complexity: Low Risk. Failure to use a marketing specialist could reduce returns.

Market Trends: Low Risk. Prices paid for these low value trees are always relatively low, but as with all sales, market timing is still important.

Human Intervention: Low Risk. Bottomland hardwoods are often associated with wetland environments that are closely regulated by several government agencies. Special logging requirements must be included where wetlands are involved. Cultural practices intended to maintain, or otherwise affect stream flow may require permits. Failure to meet all regulatory mandates could lead to hefty fines levied against the property owner.



INTERNATIONAL COVE HARDWOOD STAND

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OBJECTIVE

To attain a very high rate of return through growth and income from a long term forestry investment on cove sites unique to the Appalachian and Cumberland Mountains, and portions of the Cumberland Plateau. Though classified as hardwood stands, in actuality these highly productive coves often contain a mixture of valuable oaks, yellow poplar, walnut, and basswood, as well as components of white pine and hemlock. To establish and develop a fully vested stand in which every tree meets certain technical standards, such as size and quality, which makes them highly desirable for trading in overseas and domestic markets. The stand should also provide periodic income, as a secondary objective, from the removal low value individuals.

STRATEGY

A long term investment approach to take full advantage of the sharp nationwide decline in the supply of, and increased domestic and overseas demand for, high value hardwoods. To use existing, naturally occurring hardwoods on productive cove sites as primary assets for establishing the stand. To identify and develop an optimum number of trees with high value and yield characteristics. Periodic sales and removals of surplus, low value trees, a secondary objective, shall not be conducted if harvesting activities have the potential of damaging or reducing the numbers of high value individuals. High value hardwoods will be sold in one final harvest, and in accordance with knowledgeable marketing strategies to access export, domestic, and specialty markets.

ASSOCIATED BENEFITS

Many woodland wildlife species require habitat found only in older stands of cove hardwoods. Benefits include high crowns for nesting and sources of high protein foods needed by both game and non-game species. Shaded understories provide optimum conditions for the long term development of shrubs, herbs, wildflowers and ferns. Stands of stately cove hardwoods provide scenic values and recreational opportunities.

COST

An advantage of this stand is establishing the stand using naturally occurring hardwoods and associated species. Following the final harvest of all trees, some site preparation expenditures may be needed to create optimum conditions for establishing the next generation of high value trees. Infrequent, low cost improvement measures may be required to remove competing trees with no value or damaging vines.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Low	Wind, ice, and snow storms can cause damage to individual trees, but rarely destroy entire stands.
Management Complexity	Low	Timber sales conducted solely to produce immediate income (quick cash) will reduce long term returns. Failure to use a marketing specialist will reduce revenues.
Market Trends	Low	Short term demand could affect prices paid for standing timber, so current market conditions should be investigated prior to conducting timber sales.
Human Intervention	Low	Wildfire risks are generally low, but are historically high in certain coves of the Cumberland Plateau and Mountains.



WHITE PINE SAWTIMBER
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OBJECTIVE

To attain a high rate of growth and income from a medium term, fully vested, white pine plantation established specifically to produce high volumes of sawtimber. Intermediate harvests to remove surplus trees for small sawtimber shall be conducted as needed to maintain optimum stocking and growth for the remaining trees and provide a secondary source of income.

STRATEGY

To establish white pine stands on non-productive open lands, or to replace low value hardwoods on poor upland hardwood sites throughout east and portions of middle Tennessee. Stands will be planted with genetically improved seedlings on optimum spacings to maximize production and yield. Thinnings shall be conducted periodically either by removing rows of trees or by removing selected individuals with the least desirable characteristics. Small sawtimber trees shall be harvested and sold for manufacturing log homes. At some point, all remaining mature sawtimber trees will be removed in one final harvest. All sales must be carried out with full knowledge of market conditions, and comply with professional sale procedures.

ASSOCIATED BENEFITS

Recently established white pine plantations provide escape cover, nesting and food sources for quail and other types of small game and non-game species. Older stands provide nesting and roosting habitat as well as providing seeds as a food source for many species of birds including grouse. Stands of tall, stately white pines provide scenic values and recreational opportunities.

COST

Costs are primarily associated with establishing the stand including: the purchase of genetically improved seedlings, preparing the site for planting, the actual planting of the seedlings, and perhaps the chemical control of competing vegetation. additional costs include consulting forester and legal fees, administrative costs and taxes.

RISK ASSESSMENT

Environmental: Medium Risk. Drought conditions during the year of planting can reduce seedling survival.

Management Complexity: High Risk. Failing to plant or establish the seedlings properly can cause seedling mortality and reduced growth. Failing to control competing herbaceous or woody vegetation can cause seedling mortality and reduce growth. Intermediate thinnings must be carried out at the right times in the right way to maximize income and maintain optimum growth rates.

Market Trends: Medium Risk. Reliable log cabin markets for white pine are not well developed in many areas of the State. Limited markets could reduce thinning opportunities. Existing and developing markets must be carefully assessed prior to establishing white pine stands.

Human Intervention: Medium Risk. Wildfires will devastate white pine stands, so wildfire probabilities should be closely evaluated for local communities with special emphasis in certain Cumberland Mountains and Plateau counties.



HARDWOOD PLANTATIONS

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OBJECTIVE

To attain a low to medium rate of growth and income, and/or associated benefits from establishing a short to long term hardwood plantation producing various timber products and wildlife habitat. A number of hardwood species may be selected for planting either in pure or mixed stands depending to a great degree on site conditions. Alternatives include several oak species, yellow poplar, green or white ash, sweetgum, cypress, sycamore, and cottonwood. How the plantation will be managed to produce wood products will depend, in part, on the species selected. An objective could be to grow sycamore or sweetgum on a short term basis for pulpwood, or the option could be to grow more valuable species such as oaks for a long term to produce higher valued sawtimber and desirable wildlife habitat. In the latter case, intermediate harvests could provide secondary income through the application of intermediate harvests conducted to maintain optimum stocking and production.

STRATEGY

To plant genetically improved (as available) hardwood seedlings in open areas on optimum spacings to maximize growth, yield and/or associated benefits. Site conditions must be carefully evaluated to determine the best species for planting to accomplish the desired outcome. Low value species planted solely for pulpwood such as sweetgum, sycamore, and cottonwood will be grown for a short period with all trees being removed in one harvest. Higher value species such as oaks and yellow poplar shall be grown as a long term investment and receive at least two intermediate harvests to remove those individuals with the least desirable characteristics while leaving a desirable stocking of potentially higher value trees. All trees remaining in these long term stands shall be removed in one final harvest. All timber sales must be conducted with full knowledge of current market conditions and comply with professional marketing strategies.

ASSOCIATED BENEFITS

Hardwood plantings can add diversity to a portfolio and increase total returns especially where otherwise idle lands become forested. Oak plantings can become especially important for many species of wildlife. All hardwood plantings can provide soft or hard mast as well as a variety of habitat components throughout the development of the stand. Under-stories of planted stands may contain native herbs, shrubs, and wildflowers as they ultimately develop in much the same way as do natural

hardwood stands. Rows of planted and intensively maintained hardwoods can offer a unique, manicured, almost park-like appearance.

COST

Sites must be prepared in advance of planting to eliminate competing vegetation, and if the area was formerly used for agricultural purposes then sub-soiling will be required. Large hardwood seedlings are needed to assure planting success, but planting large seedlings requires special tools, is time consuming, and is much more expensive than planting pine. Research has shown that intensive maintenance to control competing vegetation by disking or bush hogging between every row, and perhaps also applying herbicides is absolutely necessary for several years following planting for a hardwood plantation to have any opportunity to succeed. Other costs include consulting forester and legal fees, administrative expenses, and taxes.

RISK ASSESSMENT

Environmental: High Risk. Selecting the proper species to be planted on a given site is absolutely critical. Old field conditions often are not suitable for hardwood plantings due to past erosion of topsoil or agricultural practices. Drought conditions in the year of planting can cause significant seedling mortality. Ice, wind, and snow storms can damage planted hardwood stands.

Management Complexity: High Risk. Proper site preparation, the continued control of competing herbaceous and woody vegetation for several years, the acquisition of high quality seedlings, and the use of proper planting techniques are all critical to the successful development of the stand. Intermediate thinnings will have to be conducted at the right time and in the right way to ensure optimum wood production.

Market Trends: Low Risk. As with all hardwoods, prices have generally increased for high quality trees and species, but remained steady for low quality trees and species. Selecting the highest valued species for the given site is critical.

Human Intervention: Low Risk. Wildfires can seriously damage hardwood stands, but occur infrequently. Logging damage during thinnings will cause some damage to residual trees.



PAULOWNIA SPECIALTY STAND
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OBJECTIVE

To attain a very high rate of growth and income through the establishment and development of a short term paulownia plantation investment planted and cultivated on an appropriate site for the production of highly valued sawlogs that are currently in great demand for specialty markets in the Pacific Rim. The species is not native to the United States, but was imported from Asia many years ago. A prolific seed producer, paulownia is now found growing naturally across Tennessee. All trees in the plantation will be sold and removed in a single harvest.

STRATEGY

To take full advantage of the fast growing characteristics of the species and the current high demand and very high prices paid for paulownia wood in export markets targeting the Pacific Rim. To create a stand of paulownia seedlings planted on an optimum spacing. To properly develop and maintain each tree throughout the term of the investment so that each individual meets certain technical standards which makes it extremely valuable in the market place. Specific information regarding paulownia culture may be obtained by writing:

AMERICAN PAULOWNIA ASSOCIATION, INC.
Route 3, Box 1600
Sweetwater, TN 37874

All trees shall be sold and removed in a single harvest following an investigation of market conditions, and through the services of a marketing specialist.

ASSOCIATED BENEFITS

To include a short term, very high return investment as a part of an overall woodlands portfolio to improve overall returns from the property.

COST

Very high costs are associated with establishing and maintaining the stand including the annual pruning of each individual tree. Expenses associated with establishing the stand include preparing the site for planting, the purchase of high cost

seedlings, and the cost of planting the seedlings. Annual maintenance includes controlling competing vegetation by mechanical means, the application of herbicides, or both. The annual pruning conducted on each tree requires special knowledge and is labor intensive. Other costs include consulting forester and legal fees, administrative expenses and taxes.

RISK ASSESSMENT

Environmental: Low Risk. Wind or ice storms could damage these high value individuals. As of yet, there are no serious domestic insect threats, though paulownia canker has been noted in Tennessee.

Management Complexity: High Risk. Properly preparing the site for planting, locating and properly planting good seedlings, timely pruning and controlling vegetative competition are required for successful stand establishment and development.

Market Trends: Very High Risk. Markets are exclusively limited to exports to the Pacific Rim. At this time there is no domestic market for paulownia, therefore long term demand is a question. High prices are paid for slow grown trees, while lower prices are paid for relatively faster grown plantation trees. Demand fluctuates greatly at times.

Human Intervention: Medium Risk. Numerous cases of the theft of paulownia trees have been confirmed across the State.



BLACK WALNUT SPECIALTY STAND

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OBJECTIVE

To receive a very high rate of growth and income from a medium term investment in planting and cultivating black walnut trees, each of which shall be carefully grown to meet certain technical standards making them highly desirable for sale in domestic or overseas markets as valuable walnut sawtimber or veneer. After several years, the stand could also provide annual income from the sale of nuts, depending in part on total production and the availability of markets. Periodic income could also be received from intermediate removals of low value, small sawtimber size trees as the stand develops and over-crowding occurs, provided those removals do not damage the remaining trees.

STRATEGY

To identify a productive, well drained site with a relatively high ph level (alkaline) soil for establishing the stand. The site must be prepared in advance of planting to remove competing vegetation and afford the opportunity for annual maintenance. Stands should be planted with genetically improved walnut seedlings meeting technical standards which influence survival and growth. Annual maintenance will be required to control competing vegetation, and specialized pruning methods must be employed on every tree so that each develops into an extremely valuable individual. Markets for nuts will be located and efficient methods for nut collection and sales determined. For more detailed information on walnut culture contact:

AMERICAN BLACK WALNUT ASSOCIATION, INC.
1001 North 500 West
West Lafayette, IN 47906

Periodic timber sales will be carried out to maintain optimum stocking while removing the lowest value, surplus trees from the stand. All remaining trees will be removed in one final harvest.

ASSOCIATED BENEFITS

Black walnut stands can provide diversity to a woodlands portfolio and increase total returns by adding a very high return, medium term investment. Manicured walnut

plantations present a park-like appearance and can improve the aesthetic qualities of property.

COST

Very high costs are associated with establishing the stand, and annual maintenance and pruning. Expenses include preparing the site for planting, the purchase of high cost genetically improved seedlings meeting the technical standards needed to insure survival and rapid growth, annual maintenance to control competing vegetation, and specialized pruning as needed. Costs will also be associated with the collection, processing and shipment of nuts. Other costs include consulting forester and legal fees, administrative expenses, and taxes.

RISK ASSESSMENT

Environmental: Medium Risk. Walnut trees are very site specific requiring well-drained, fertile, alkaline soils. High quality seedlings must be planted in exacting weather conditions.

Management Complexity: Very High Risk. Competition from herbaceous weeds and woody growth must be carefully controlled in the first several years following stand establishment. Controlled pruning procedures must be followed to assure the development of high quality sawlogs and veneer. Intensive maintenance requires persistence spanning many years. Marketing absolutely requires the assistance of a marketing specialist.

Market Trends: High Risk. Very high returns are possible, but short-term swings in the market cycle are common. Trees grown too fast will not receive the premium prices paid for old, slow grown trees with a higher percentage of heartwood.

Human Intervention: High Risk. Timber theft is of especial concern as individual walnut trees have potentially high values. Wildfires can create tremendous financial losses as walnuts are not resistant to fire damage.

CHRISTMAS TREES SPECIALTY STAND

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OBJECTIVE

To attain a very high income from a very short term, though very high cost, forestry investment by establishing and growing a stand of Christmas trees. Each tree shall be cultured to meet all of the technical standards necessary for sale in wholesale and retail markets. Species selection and marketing methods must be tailored to best meet the desires of the owner and market. Though an individually demanding enterprise, woodland owners may enjoy very high returns by investing their own time and capital in a Christmas tree stand.

STRATEGY

To establish a very short term project with potentially very high returns by planting and developing a stand of Christmas trees containing an optimum number of valuable, manicured trees. Site, annual maintenance, shearing requirements, and market prices vary among species grown for Christmas trees. Therefore, selecting the right species to grow is a very important early consideration. Species commonly grown in Tennessee include white pine, virginia pine, scotch pine, fraser fir, and blue spruce. Detailed information about growing Christmas trees can be obtained by writing or calling:

Mid-South Christmas Tree Growers Assn.
P.O. Box 356
Sweetwater, TN 37874
(423) 337-5054

Trees are normally marketed wholesale to established outlets, local merchants, and Christmas tree lots, or retailed by the owner at his/her own lot, or at the Christmas tree farm itself through "choose and cut" merchandising. For most owners, starting on a small scale mitigates some of the risks and allows time for market development.

ASSOCIATED BENEFITS

Christmas trees can create diversity and increase total returns within a woodlands portfolio by providing a very short term, very high return investment. Many owners enjoy the challenge, "hands on work," and learning experience associated with successfully producing a stand of Christmas trees. However, at certain times of the year, managing a large stand is virtually the equivalent of having a second job.

COST

Owners must be willing to invest a substantial amount of their own time in the project from beginning to end. Initial expenditures include preparing the site for planting and later maintenance, purchasing genetically improved Christmas tree grade seedlings, and planting costs. Specialized equipment will be required such as mowers, sprayers, automated or hand shears, and at some future date probably a mechanical tree bailer. Other costs include liability insurance, fertilizer, insecticide, tree paint, netting material, advertising, and shipping. Probably the greatest expense, however, will be for the time and labor necessary to meet the exact timing demanded each year to maintain, spray, and shear every tree in the entire stand.

RISK ASSESSMENT

Environmental: Medium Risk. It is essential to match the species to be grown with the local site and climate. Insect pests can be a serious problem depending on the species grown.

Management Complexity: Very High Risk. High quality seedlings with desirable genetic traits must be obtained and planted under exacting conditions. The site must be properly prepared, and herbaceous and woody competition must be controlled annually. Shearing must take place exactly on time, and insects controlled as needed. It may be necessary to hire seasonal labor to help with needed work, but dependable labor may be difficult to find. Maintenance requires an unflagging commitment over many years.

Market Trends: Very High Risk. Owners must determine their market strategies before making the investment. Christmas tree markets in certain areas are virtually closed as supplies already far exceed demand. Wholesale and retail markets must be determined in advance and protected against intensive competition. Choose and cut operations are extremely susceptible to changes in the weather as customers are reluctant to visit tree farms during inclement conditions.

Human Intervention: High Risk. Some tree theft is probable unless owners live on the property where the trees are grown. Wildfires will totally destroy a stand of Christmas trees. Agricultural chemicals applied on neighboring properties can drift causing serious damage to the stand.



STREAMSIDE MANAGEMENT ZONES (SMZ's)

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OBJECTIVE

To apply the principles of responsible land stewardship and comply with all provisions of the Clean Water Act by protecting water quality values including water purity, aquatic life, streamflow, and water temperature through the retention of a corridor of trees, or Streamside Management Zone, alongside lakes, water courses, and intermittent streams. To provide income, as a secondary objective, from the removal of a limited number of designated, commercially valuable trees from within the SMZ only so long as such removals do not impair its integrity or purpose.

STRATEGY

To designate and protect Streamside Management Zones (SMZ's) in accordance with standards established by the Tennessee Division of Forestry for the implementation of Tennessee's Best Management Practices (BMP's). SMZ's function much like a large sponge to absorb water moving overland carrying silt particles. In other words, they serve as a filter strip to catch sediment dislodged by logging activities before it reaches a body of water. Tree roots stabilize stream banks and reduce "in stream" erosion. During harvesting operations, a limited number of designated trees may be extracted from within the Zone by skidder cables or other means. Never, under any circumstances shall equipment be allowed to operate within the stream course, or within the SMZ itself.

ASSOCIATED BENEFITS

Forested areas alongside rivers, streams, or lakes provide unique, valuable habitat for an assortment of wildlife including songbirds, squirrels, raccoons, and fur bearers. Many forms of aquatic life including some fish and many varieties of plant life are dependent upon maintaining stream quality. SMZ's in clearcut areas can provide wildlife travel lanes when they connect to adjacent forested stands. Forests provide a colorful backdrop for water based recreation. SMZ's help assure that streams do not become clogged with silt, thereby continuing to function and flow properly.

COST

The services of a professional forester or a properly trained logger will be required to lay out SMZ's, designate trees for removal, and design associated stream

crossings. Some timber income will be sacrificed to assure that SMZ's shall continue to provide valuable environmental benefits.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Low	These will be generally the same as those associated with a stand of bottomland hardwoods. Standards for establishing SMZ's are detailed as one of Tennessee's Best management Practices (BMP's). Improper activities within an SMZ can violate certain provisions of the Clean Water Act resulting in fines either for the property owner or logger..
Management Complexity	Medium	
Market Trends	Low	See risks for bottomland hardwoods.
Human Intervention	Low	See bottomland hardwoods.



GREEN STANDS

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OBJECTIVE

To establish or otherwise designate stands of trees whose overall purpose is to provide valued benefits other than timber income. Targeted benefits could include protecting scenic values, improving or maintaining wildlife habitat, maintaining a site for day or overnight camping, protecting archaeological or cultural resources, noise abatement, or maintaining privacy. By maintaining scenic and other values, green stands could actually sustain or enhance real estate values thereby offsetting the loss of timber revenues.

STRATEGY

To identify, retain, and manage stands of trees solely to meet highly desirable ownership objectives other than for timber income as defined in a comprehensive management plan for the property. A few trees might be removed from time to time to salvage damaged trees or maintain forest health. However, those trees will only be removed as necessary, and only in such way as to minimize impacts detrimental to meeting the purpose of the stand.

ASSOCIATED BENEFITS

Stands intended to protect scenic values also provide wildlife habitat, and vice versa. Green stands can provide all inclusive multiple benefits simultaneously. A small stand surrounding an old family cemetery, for example, might be extended a little to become a scenic buffer which can also serve as a wildlife travel lane.

COST

Lost timber income is the opportunity cost of managing for green stands. For example, retaining a ten acre stand for scenic values which also has the capacity to produce \$100 per acre per year in timber income does have a cost. However, the owner's desire's might be better served by foregoing the potential \$1,000 of income each year.

RISK ASSESSMENT

<u>CATEGORY</u>	<u>LEVEL</u>	<u>GREATEST CONCERNS</u>
Environmental	Low	The stand would have to be closely monitored to assure that it does not create a forest health risk. Old stands are especially subject to damaging influences from insects and diseases.
Management Complexity	Medium	Green stands must be clearly delineated, and have specific management objectives within and integrated into comprehensive management plans. Foresters, vendors, and contractors must be given specific instructions on establishing, managing, or protecting green stands.
Market Trends		Not Applicable
Human Intervention	Low	Letting it be known that archaeological or historic sites exist on a property could invite trespassing by unwanted relic hunters who would destroy the sites. Unless access is controlled, campsites may attract unwanted visitors.