A little over 100 years ago, James Pinchot, his son Gifford, and Yale University began a collaborative scientific forestry research project, based in Milford, called the Milford Experimental Forest. It is believed to be the first forest research station in the United States, comprising approximately 3,000 acres. Forester Peter Pinchot, grandson of Gifford and great-grandson of James, has recently renewed study of the Milford Experimental Forest, now about half its original size, in conjunction with the Washington, DC-based Pinchot Institute for Conservation.

The Institute is a conservation and forestry policy think-tank, with Peter Pinchot serving as chairperson. The Institute's board includes environmental activists, timber industry executives, government officials and academics. Local representation on the Pinchot Institute board includes Richard L. Snyder, of Snyder Quality Llamas, and *Milford Magazine* Editor-in-Chief Sean Strub, who recently sat down with Peter Pinchot to talk about conservation issues and recently-revived study of the Milford Experimental Forest.

Snyder: Let's start at the beginning. Before much of the woodlands of Pennsylvania were clear-cut, what kind of forests did we have here?

Pinchot: It was a chestnut oak forest for the most part, running up the spine of the Appalachians into the Pocono Mountains. It is no longer called the chestnut oak forest because the chestnuts are gone.

Snyder: That was the early 20th century, because of blight. Does that mean there was not much white pine, which is prolific today?

Pinchot: There was a lot of white pine, and hemlock. The white pine was cut for masts and was floated down the Delaware. That was the first tree that got cut out. By the 1850s, a lot of the white pine had already been cut over.

Snyder: Who was doing the clear cutting?

Pinchot: If you go back in our own family, my great-great-grandfather, James' father Cyrille, made his living essentially as a timber entrepreneur. He would buy up land, cut the logs, float them down the Delaware and sell the land to farmers.

Snyder: To what extent did the clear-cutting influence your great-grandfather's views on proper land use?

Pinchot: Tremendously. There are two sides to that. He was very sensitive about the aesthetics—the whole landscape view which brought him into his relationship with the Hudson River School of painters. He also recognized that the whole economy declined after the loss of the forest. After the forest disappeared, there was not a lot of good agricultural soil so this did not become a thriving farm community.

Snyder: So this is about economics. First an exploitation of a resource, which became exhausted. Then, the economy had to find a way to continue.

Pinchot: Which was the development of the tourist industry with the inns, then big hotels. Most of the attempts at agriculture were abandoned not too long after they began. It was just a progression of abandonment.

Snyder: Was there any active replanting?

Pinchot: Some, which is what was going on at the Experimental Forest in the early 20th century. There was a lot of planting of the pine species, including red and white pines. There were some plantations of hardwoods. People did not know at that time how easily hardwood forests would regenerate. That is what the work of that first forest research station was; studying each species trying to figure out what its regeneration was, how it would reproduce itself, what kind of seeding patterns it had, what the light requirements were. They did this for 25 years, from 1901 to 1926, as part of the Yale School of Forestry. The Yale Camp was part of that.

Strub: What happened at the Yale Camp?

Pinchot: There were the very small Yale School of Forestry classes, which in the early stages were seven to 10 people per class. There were not a lot of people going into professional forestry at that time. People like Al Leopold, who was the father of wildlife biology, game management, conservation and land ethics, came through the camp. He was both a great scientist and a tremendous writer who captured the connection of people to nature and what that meant. He spent about 12 weeks over one summer and wrote wonderful letters. It was his first experience at doing any kind of field botany. He was in heaven, swimming in the Sawkill, going to the forestry school. He loved it.

Snyder: The woodlands had started to regenerate during this early 20th century period?

Pinchot: They were just starting, but at the Yale Forestry Camp, they were still working with the plantations. They were mostly planting pines, but also some hardwoods near the Delaware Water Gap. There was a second group that came to the camp who were not going into forestry as a career but were farmers or teachers or people who just wanted to learn how to manage the land. They had 60 or so of those students each summer. That was coed from the beginning, which was unusual. It was run by Yale but these were not Yale students. They were not necessarily college graduates.

Snyder: They were planting plantations and having instruction, but what kind of research was conducted?

Pinchot: They were doing research on "sylvics," which is the specific characteristics of each tree species, how they respond to water and light, how their seed is produced, how closely to plant them, when to thin them. This would be the basis of all forestry to come. Gifford Pinchot wrote a treatise on the eastern white pine, the black spruce and how to treat each species in different kind of conditions. Some of those studies came out of the Yale Forestry Camp and the research forest here in Milford.

Snyder: How was the forestry work viewed by the residents of the rest of Pike County? Was it considered a bit odd?

Pinchot: I don't think the work was considered odd, but the deportment of the Yale students may have been a whole different issue. They were a wild and wooly bunch, not always clothed and certainly not always sober. A large part of the executive pool of the forest service and a large part of the people doing consultancy to the major timber corporations were students at the camp.

Snyder: Why did it close?

Pinchot: James gave $300,000 to start the forestry school. One of the conditions he set for giving that money was that Yale would use it for a summer training facility for 25 years. This was a burden because Milford was not all that close to New Haven. Yale wanted to bring its research forest closer to home. Gifford Pinchot never practiced forestry as far as I can see, on his own piece of land. He had 191-million acres to practice forestry on in the national forest system and that was probably enough for him. He was also state forester in Pennsylvania, so he had the two-million acres of Pennsylvania State Forest system.

Snyder: What is the practice of forestry and how is it expressed when you look at the land today?

Pinchot: Good forestry nurtures the best trees to continue to grow until they become economically mature or until they have fulfilled their function through wildlife management, aesthetics, or whatever your goals are, but it is very goal-driven. If you have a badly managed forest, through benign neglect, which is what happened through our forests, or somebody coming in and high-grading,—taking out the very best trees and leaving the junk—you will have a mal-formed forest that will not grow up to be very useful economically, aesthetically pleasing or effective for wildlife maintenance. You can do good things with timber harvesting or you can do bad things. The difference is whether you are practicing forestry.

Strub: Is there much old growth left in Pike County?

Pinchot: In our part of the Sawkill Gorge, we have huge white pines and hemlocks that are very big, but they are on very wet soil and grow very rapidly. The size of a tree, itself, is not an indication of old growth. If you go up to the trees, you will find woven wire on the ground, which means the pasture went right up to the edge of the Sawkill Gorge. That is an indication that those are not old growth trees. They are old trees, probably 130 or 140 years old, but they are not the original trees. People are mapping out old growth all over Pennsylvania and they are not finding a lot of it in our region. That is not to say there is none.

Strub: Are you saying most of the forests around here are the result of benign neglect or high grading?

Pinchot: I would say the majority of the forests are in one of those conditions, or a result of clear-cutting. There are some forests that are being managed well. Blooming Grove, for instance, has a pretty good program going. Certainly the state forests are managing their areas well. Here's an interesting fact that very few people know, and I have seen only one reference to this so I can't tell you that I know it from anything other than reading it from one book: apparently in the 1880s, the Blooming Grove Hunt Club was the first place that sustained guild forestry was attempted in this country. It had nothing to do with Gifford Pinchot or James. This preceded their interest in practical forestry. Blooming Grove has been at this business in one way or another for a long time. I am not all that familiar with their forests right now, but I do know that good forestry management is being practiced there.

The first step of good forest management is to do a complete inventory of what is on the ground. The next thing is to describe a set of long-term management goals that encompass timber production, wildlife, aesthetics, water quality and the whole set of values that affect the larger community. Those are implicit in the way the Bureau of Forestry manages its land. They may not always be doing a perfect job, but they are starting from the right place, which is to look 100 years in the future and say 'what are we doing now that is going to influence the way this landscape is going to look like a long ways into the future.' They have a suite of different values that they encourage on their land and they are going through long-term planning processes to implement them.

Snyder: Tell us more about the Milford Experimental Forest today and what its goals are.

Pinchot: This grew out of the family discussion that had been going on for 20 years about what do we do with this 1,400 acres of land in our hands. Is it a capital asset? Is this a conservation obligation? Is this a family pleasure place? Does it have some other meaning besides what it does to us as a family? Does the history have some meaning which we have to attend to? We have had this discussion in our family for a long time, which culminated in a discussion about five years ago over whether to put a conservation easement on the property. We have nine owners and it was an extensive discussion with many different opinions. We gradually worked our way through to doing a conservation easement with the National Lands Trust, which will mean that the land can never be subdivided. This includes everything except for 19 and a half acres at the intersection of Route 6 and Schocopee Road, which is commercially zoned. We are committed to keeping this as a single piece of property, whether it is in our hands, or not.

Snyder: What does the conservation easement mean for the future?

Pinchot: We are negotiating the terms with the National Lands Trust, but have signed an agreement in the family so that we have essentially ended the discussion about whether this will happen, and the basic terms. The development rights are split apart from the rest of the land. They go to the Lands Trust, which, by its charter, cannot actuate them. It never can be subdivided. This will always be a big block of land.

Snyder: Does this put restraints on things like pipelines or cellular towers?

Pinchot: It does not specifically mention those things, but they would have to be run through the goals of the conservation easement, which are to maintain this as active, and productive forestland. The other stipulation which we are designing into the easement, is that we want to transfer to the Lands Trust the right to invite researchers in to do research on the land. That essentially means that if we sell the land to someone else, it cannot be shut down as a research facility.

Strub: The ability to do that research is greatly enhanced by the documentation of what was once done there. Because that history enables someone today, 50 or 75 years later, to have a basis that teaches new things about it.

Pinchot: Yes, but it is not as good as if it had been continuously worked for that whole 100 years. We are coming closer to starting over from scratch than I would like.

Strub: Tell us a bit about how your family dealt with this as a family. It must have been tough, in some ways.

Pinchot: It is simpler if there is a single owner. The people who are the ultimate owners are nine of us who are second cousins. We tried a lot of different forms of discussion to see what would work. We tried going down the avenue of doing a democratic decision-making process. The process is the most important thing. How do you treat people with differing ideas? You must treat them with respect. We did not always do that. It quickly became apparent that there were going to be people who were going to be left out and that was not acceptable. Our goal was to maintain a family feeling. We ended up with a consensus decision-making process. That is not necessarily an efficient process.

Snyder: I would also assume that it is not just different feelings and values but different circumstances. The fundamental tension here would be between the highest economic value versus all the other

values that you mentioned. You would have different attitudes about the importance of the economic value.

Pinchot: That is why it is so hard to get to a consensus. What that means is that sometimes you have to buy out certain parts of peoples' interest. We ended up setting aside a small piece of land that had very high commercial value and saying, 'that's off the table; that will be something we can sell later on and raise some money to address the financial issues.'

Snyder: What sort of outside help did you have? Obviously there were the tax and legal issues but was there other assistance available for this process?

Pinchot: The Lands Trust was of considerable help. We worked with Andy Pitts in the Natural Lands Trust. He is very bright and understands human dynamics. Mostly, this was a process of the family talking to itself. We set up an e-mail discussion list. We had lots of conference calls. We got together. It would get out of hand then get back in hand. People said things they maybe regretted later. It took about four years to get through this discussion.

Strub: I would guess this was a resolution that satisfied people in the family and I would assume they are even proud of the outcome?

Pinchot: Very much so. Proud, because we are still a family, which is always a good thing.

Snyder: Had conservation easements been around 100 years ago, would your grandfather or great-grandfather have used them?

Pinchot: I do not think there is any question that James would have wanted the land to have been maintained as a family asset, as an intact place for people to come, enjoy and do research. Those were his clear intentions.

Strub: It would have been very difficult to project 100 years into the future. You could not have imagined the circumstances of the development. The concept of a Home Depot did not exist.

Pinchot: One of the downsides of the conservation easement is that you have to be really careful that you do not lay into it restrictions which you would like to see for the next 20 years, but you have no idea of what is meaningful for the next 200 years. You have to put in the least restrictions that with which you can comfortably live. That is the object lesson of conservation easements. You cannot predict what the economic and social conditions are going to be and what people's needs are going to be.

Snyder: Where exactly is the Milford Experimental Forest? Does it all surround Grey Towers?

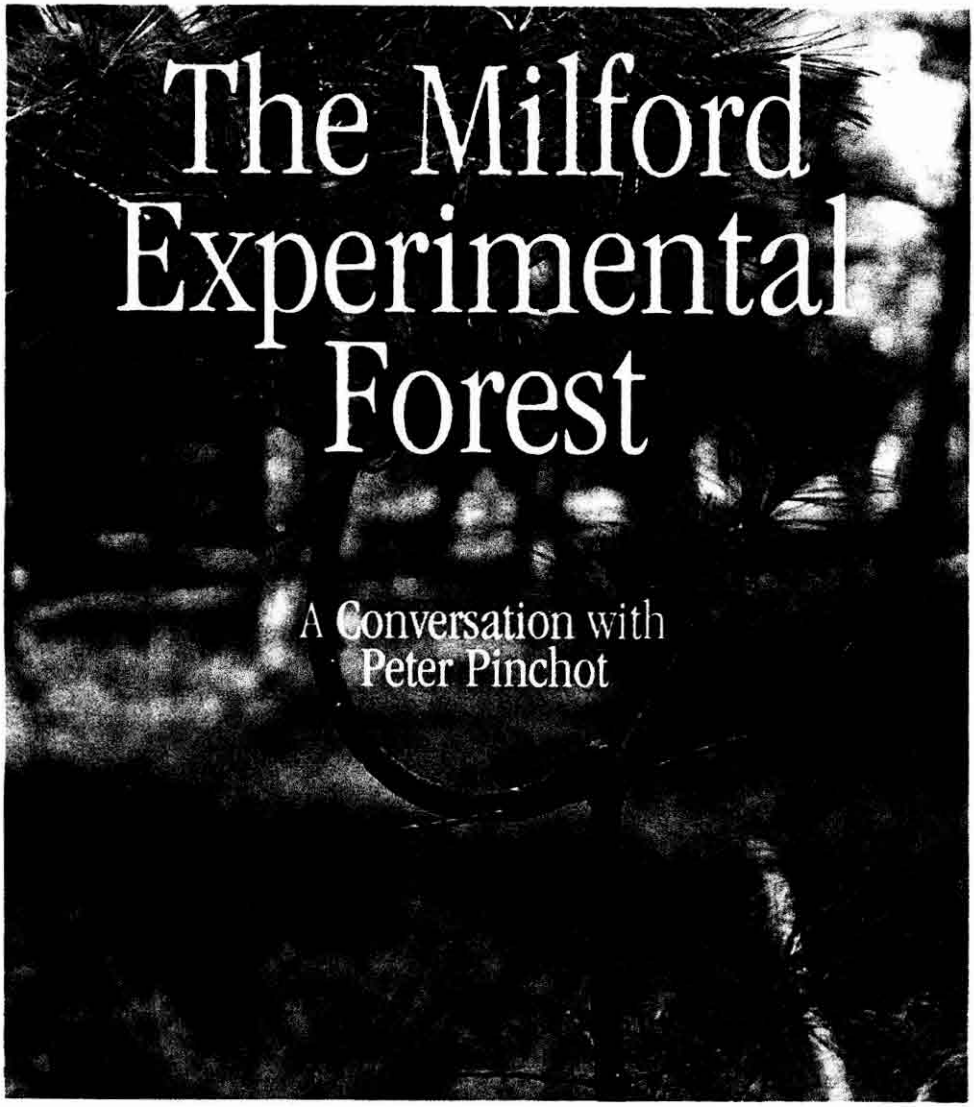
Pinchot: There are 200 acres next to Grey Towers and there are 1,200 acres on Schocopee Road bordering the Delaware State Forest. The good part is that our 1,200 acres are part of 14,000 acres of public land, and surrounding that land, there are a lot of hunt clubs, so there are about 25,000 acres that are protected right now as contiguous forest land.

Strub: What is the Experimental Forest trying to find out?

Pinchot: Trying to find out is one objective, but let's look at the threats to the forest 100 years ago. The original forest was gone, clear-cut by our species. We had pretty much wiped out most of the wildlife species. People were eating almost everything, including small mammals. There were no deer, no turkeys. The beavers were gone. Most animal populations were very suppressed. It wasn't just trees. Nature was beat way back. The problem was clear: bring back the forest because that was the habitat of most species. Bring the forest back and nature will come back with it. Now, we have a different set of problems. One of the major problems in this landscape, and it is ubiquitous around the world, is loss of habitat and habitat fragmentation, which is really the big issue here from an ecological perspective. That is being driven by development. This is the fastest growing county in Pennsylvania and one of the fastest in the nation. Only about 10 percent of Pike County has been put into big subdivisions. Over 30 percent is in public lands, and that is good. Another 10 or 15 percent, or more, is in big blocks of land owned by hunting clubs, or private owners who hold big blocks and have no intention of developing it. We are not going to see a lot of subdivisions in the next few years, I do not believe, because there are so many lots in the existing subdivisions.

Strub: That could change?

Pinchot: That will change in 20 or 30 years, and could change in 10 years. We will start going into that phase in the next 10 or 15 years. That will mean further fragmenting of the landscape. That is one issue.



The Milford Experimental Forest

A Conversation with Peter Pinchot

Photograph by Sandy Long

Another issue is exotic species that have had a profound impact on the landscape. By exotic species I mean any organism that is not native to this region. The ones that have had the biggest impact here, for the most part, have been diseases such as the chestnut blight and insects such as the wooly adelgid and the gypsy moth.

With the loss of the chestnut, which was the dominant tree species because of its prolific nut production—much more so than oaks or hickories—it was also the best timber species. It is gone from the landscape, except for saplings that sprout up and die back, but in terms of a functional part of the landscape, the species is gone.

Strub: What is the dominant species now?

Pinchot: We are at the break between what used to be the chestnut oak forest and what is now called the oak hickory forest. The hickories were always there, but were a lesser element. We are at a boundary between that and the northern hardwoods such as the sugar maple, red maple, beech and ash.

Strub: Could you see a circumstance where the oak and hickory become as decimated as the chestnut?

Pinchot: If the Asian longhorn beetle came through, it could happen, but I do not see it. There are several species of the oak and hickory. The gypsy moth came through and hammered the oaks, with high mortality. Now, we are in the process of losing our hemlocks to another Asian insect, the wooly adelgid.

Snyder: One of the biggest threats is not from an exotic species but one that has enjoyed the changes in habitat that humans have brought to this area. In fact, subdivisions are not a problem for the white-tailed deer.

Pinchot: They love it. They have corn, and all the horticultural crops they can eat.

Snyder: And, they have protection from their only predator—humans. We can't hunt in subdivisions.

Pinchot: Deer, ecologically, are at the top of the list right now.

Snyder: What do they do to the forest?

Pinchot: Deer eat all the regeneration of most species of trees. There is very little oak or hickory regeneration left in the forest. White pine, birch and red maple can in some cases get above the deer, but the deer are having a profound impact.

Basically, we have relic forests—the old-time trees that matured before the proliferation of deer. The trees have no children. You cannot do a timber sale in this forest without building a fence, which can cost more than the net value of the timber you will be getting 50 years from now by having put the fence up. The only people who are doing fences are the state Bureau of Forestry, because they can justify a subsidy to have good forests. You put the fence up for five years to allow the regeneration to get above the ability of the deer to wipe it out.

Another impact from the loss of groundcover because of the deer is that most of the wildflower species are in heavy decline. Any organism that has used that as a protective cover, such as ground nesting birds, are not succeeding in getting a lot of surviving offspring because without protective cover, the predators come in and eat the eggs.

Management programs are extremely important. Up until this last year, Pennsylvania has been way behind the times compared to other states, in terms of deer management. The theory has been to protect the does and produce as many bucks as you can. The result has been to produce a population that has five to 10 does for every buck. You are hammering the bucks but that does nothing for the population, which continues to grow beyond the food supply.

(Continued on page 21)

Snyder: This does not result in a healthy deer population.

Pinchot: The deer are small, and sometimes starve in the winter. The bucks are not big, and that does not please the hunter. Many hunters have come to understand what the problem is. They complain that there are too few deer. In a sense, they are right, in that there are too few healthy bucks. On our own land, we have instituted a managed hunt. We are using the slogan "catch doe fever." We are encouraging our hunters to take as many doe as possible. We were constrained, up until this year, by the fact that you could get only two doe permits and have only three days to hunt does with a rifle. Only a very good hunter could take two does in three days. Bow and arrow, and muzzle-loaders extend the season a bit, but the efficiency of harvest goes way down. We have permanent plots for vegetation sampling so we know how much of which species are being browsed by the deer and as we start reducing the population the inventory of plants come back.

The bigger answer to what we are trying to do is that we are working with the Bureau of Forestry, Penn State University and a number of departments to establish about a 35,000-acre area surrounding the Delaware State Forest taking in Route 209, our land, part of Grey Towers and several landowners, to do a community visioning process to figure out how landowners come together to address this. We cannot manage deer on just 1,400 acres. Deer have big home ranges.

Snyder: How about reintroducing the mountain lion?

Pinchot: I would love it if you would be the person to propose reintroducing mountain lions. I would not like to be that person.

Snyder: I am informed that there are mountain lions in Pike County.

Pinchot: I believe that.

Snyder: I know a person who is quite sure that she saw one that her dogs had surrounded, and it was clearly a mountain lion.

Pinchot: If you talk to wildlife biologists who work for the state or federal government, they will tell you that these are likely pets that are released. I find that to be a myth. If there are a few mountain lions around, there may or may not be a breeding population. They are not controlling the population of deer. As for reintroducing the mountain lion, that may be politically difficult. They like things that move fast, like bicycles and runners. We, basically, are the carnivores. The system is way out of balance because of what we did 100 years ago.

Snyder: Back then, people taught their children to hunt. Now, perhaps the "Bambi factor" comes from city folks who have come to Pike County with a view that somehow hunting is wrong. What other experiments do you expect, beyond being part of the larger deer management program?

Pinchot: The original project we wanted to get going on was chestnut restoration. Chestnut is a charismatic species. It is such a dominant species, with short- and long-term benefit to both the economy and aesthetics. It is a long-term process and very important. We wanted to get going on the chestnut, but deer turned out to be a critical part of what is going on with the chestnut.

Snyder: Is it not correct that the chestnut blight continues, even though the chestnuts are gone, because there is another host?

Pinchot: Yes, but the chestnuts are not gone. There are still plenty in the forest. The blight does not kill the roots. It girdles the tree above the ground. The trees grow to six our eight inches in diameter, but never pokes its head through the canopy. It lives for 10 years, dies back, then sprouts up again. What is happening now is that the deer are eating the shoots and that is killing the roots. We either have to fence off all the chestnuts or go after the deer. That project, and most of the other ecological projects we wanted to work on, is off the books until we can get the deer under control.

Strub: How optimistic are you at being able to do that?

Pinchot: I am pessimistic if we cannot create a community-based response. There is no way to do it landowner by landowner, other than to fence your entire property.

Strub: What would they do?

Pinchot: They would encourage hunting, especially does. They would do the same thing we are doing on our land but do it on several pieces of land simultaneously. There is no solution to the deer problem that I know of, other than bringing the does back into balance. That could bring the whole population down to where you start regeneration of the forest. There are not many places where this has happened, but one is the Quabbin Reservoir in central Massachusetts. It is the water supply for Boston. There are about 75,000 acres of land around the reservoir and the issue became water quality because of the drastic changes in the vegetation. There was a huge public outcry against hunting. It took five years to get the idea through but it happened about four years ago. The result was a two-week rifle season, with three does per hunter. They had an average of three hunters per 100 acres. In three years, they brought the deer population down to a level where the vegetation started regenerating. This is similar to what is now possible in Pennsylvania.

Strub: Perhaps an education program is needed to get people to see their own hypocrisies. People who put out corn in their back yard to feed the deer do so at the expense of other species, including the chestnuts, hardwoods, wildflowers, ground-nesting fowl and others.

Pinchot: The deer issue is so overwhelming that it is keeping us from other projects. I am really interested in the forest as an economic resource, just in terms of standing timber. In order to manage it, you need to bring back the business of secondary processing locally. You do not make a lot of money by selling the timber to a mill and having it go to a furniture manufacturer down south. We need secondary product manufacturing here. One way is through landowner cooperatives. They are doing this in Wisconsin, Vermont and other areas. Here, our primary values in the forest are aesthetic, wildlife and recreation. Very secondary is timber income; it is way down on the list. We need to harvest red maple to allow the oaks to come back. We need to find a way to bring landowners together to get the kind of scale necessary. You can not have practical timber sale on a one-acre lot, but if you have 15 one-acre lots grouped together, you can have a forester come in and do a management plan. A kind of cooperative venture like that is something I would hope comes out of our deer management effort. Deer may be the first thing you must band together to deal with because it is hard to deal with deer individually on your own land. What the cooperatives are doing out in Wisconsin is fascinating. They use portable sawmills. They built solar kilns to dry the wood with no high-energy input. They take small red maples, six or seven inches in diameter, and make hardwood flooring out of them. Very often, the cooperative itself installs the flooring. This way, they get the complete income stream coming back to the cooperative and distributed to the landowners. The use of portable sawmills means that a lot of cut timber that big operations would leave behind is now being put to economic use.

Strub: Can people or property owners' associations have a forest management plan done for their own property? Who does it and how much does it cost?

Pinchot: We did a forest management plan on our 1,400 acres and it cost $1,500, which is not terribly expensive. You can get some help from the Bureau of Forestry, including getting someone to look at your property, tell you some things about it, and give you a list of forest management experts.

Snyder: The idea of cooperatives is intriguing because it becomes a communication and education process and can open the door to information on a wide range of subjects.

Pinchot: The way these are set up allows them to be certified through the program certifying that the wood is grown locally and is restoring health to the forest. The landowners know they are making money, but also can feel good that they are being good stewards of the land. The forester benefits from the economy of landowners banding together and doing a good management plan. These are being done by for-profit ventures without public funding. In one example, in Michigan, participating landowners agreed to put up the first $200 of timber per acre to get stock in the co-op. That generated about one million dollars. That enabled them to go to the Farm Credit Bureau for an $850,000 loan.

Snyder: This takes someone with the entrepreneurial drive, and the initial funding.

Pinchot: This initial funding is from the participants, not from an outside source. A lot of organization is needed.

Snyder: It all goes back to having inspired individuals wanting to make this happen.