

## Examples of Natural Resources Opportunities

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Have you ever heard the expression that “he cannot see the forest because the trees get in the way”? Although we often think of our forests as collections of trees, it is certainly true that there is far more to the forest than just the trees. Not all forests can be profitably managed for timber production. In many cases the forest soils are just not suitable for growing high quality timber. Sometimes the timber resource has been diminished or ruined by previous poor management practices or acts of nature such as ice storms.

Landowners should be aware of alternative income opportunities whether their woodland is growing saw timber or not. It may be possible to generate income from more than one strategy if the landowner has the energy, knowledge and necessary resources. This morning I would like to briefly examine some alternative income opportunities that may be possible for forest landowners in the Northeast.

I live in Greene County, which is located in upstate New York, approximately 100 miles north of New York City, 30 miles south of Albany. My county consists of approximately 540,000 acres of which more than 82% are forested. At least 53% of the county is owned by non-resident landowners. We have lost 75% of our dairy farms in the past 25 years with much of the farmland reverting to forest. Many of the remaining landowners are struggling to pay the increasingly higher taxes on their forested land. It saddens me to see land that has been in a family for many generations sold to developers because of the tax burden.

One of the first suggestions I offer to landowners in my county is to consider leasing part of all of the forestland to a hunting club. Proximity to a major metropolitan area increases the likelihood that sportsmen may be willing to lease your land. You need to decide exactly what type of hunting you can offer, when you will allow hunting and what the specific rules and regulations will be for the use of your property. You also need to be aware of any local legislation that may have trapping and or firearm restrictions.

The most popular type of hunting is big game hunting for whitetail deer and black bear. Landowners can allow only bow hunting on their property if they desire. Although the legal hunting season for big game may last as long as several months including bow and muzzle loading, landowners can restrict access to a week or two.

In the past twenty years turkey hunting has become very popular in the Northeast as many states have successfully re-introduced these magnificent birds. New York State has two separate seasons for wild turkey hunting. Gobblers may be taken in the both the spring and fall seasons. This allows landowners to offer both seasons for hunting leases. If small game hunting is included as part of the lease the land may allow hunting for 5 months.

Contact your local office of the State Conservation department for the names and addresses of sportsmen’s associations. Many county Cooperative Extension offices may also be able to steer you towards a sportsmen’s club. There is no set fee for hunting leases which allows you to charge whatever the market will bear. I have heard of fees ranging from \$3.00 per acre to \$15.00 per acre per season, depending on the type of hunting allowed and how good the hunting is. You also have the right to restrict the number of hunters using your land if specified in the lease. Take some time to think this through before you actually sign the lease. Finally, you might want to ask your attorney to look over the lease you come up with before offering it to a club.

Leasing the land is an excellent option for non-resident landowners since the odds are pretty good that the land is being used for hunting whether the absentee landowner knows it or not. Hunting clubs who lease private land are usually quite willing to Post and patrol the land they are paying to use.

Resident landowners may not be willing to tolerate outside hunting on their land but there are certainly many other options in the area of recreational land use including bird watching and possibly viewing or picture taking of other wildlife. This is particularly appropriate if you have some unusual wildlife on your property such as this albino white tailed deer

Resident landowners have even more options for generating income. If your woodland consists of primarily sugar maple trees you may be able to start a maple syrup operation. I believe there are excellent opportunities in the maple syrup business but the start up costs can be prohibitive. For example, a new medium sized evaporator, let's say a unit that can handle the sap produced by up to 1,000 taps can cost more than \$7,000 alone. This does not include the costs of related but very helpful accessories such as a filter press and a vacuum system. Even a relatively small, hand operated, filter press costs about \$800 new and a vacuum system that can handle up to 1,500 taps costs about \$2,500.00. It is not difficult to invest upwards of \$20 to \$30,000 in a modest sized maple operation, not counting the cost of building a sugarhouse. Of course most of this equipment may be purchased used at a much lower cost. According to a study published in the North American Maple Syrup Producers Manual the average fixed costs per gallon of syrup produced which, is equal to the total fixed yearly costs divided by the number of gallons of syrup produced is about \$9.00 per gallon. That figure is for a 300-gallon output, which would require about 1,000 taps. The average variable cost per gallon for the same sized operation is about \$11.00 which adds up to a total cost of about \$20 per gallon. If the syrup is sold at an average price of \$32 per gallon, the producer can still net about \$12 per gallon. Once again, if we figure on a production of 300 gallons, the net income would be about \$3600. This same study calculates that an acre of sugarbush will support about 88 tapholes so you would need about 11 and a half acres to reach the 1000 taphole figure.

There is also a possibility that you may be able to rent tapholes to a nearby maple producer or sell raw sap to the producer. Seasonal taphole rental rates vary considerably but the range is between 30 and 70 cents per taphole per season. I strongly urge "would be" maple producers to carefully research this type of operation before getting started. Fortunately we have some excellent resource materials available in the Northeast such as the Maple syrup producers manual that I mentioned earlier. This excellent publication is available from many NY State county office of Cornell Cooperative Extension or from Deanna Owens who works for the Department of Natural Resources at Cornell. Deanna's email address and snail mail address are "Deanna Owens email [DLO3@cornell.edu](mailto:DLO3@cornell.edu) and snail mail 108 Fernow Hall, Cornell University, Ithaca NY 14853". We also have an excellent resource in Mr. Lew Staats, our Cornell Cooperative Extension Maple Specialist who works out of the Uihlein Sugar Maple Field Station, 60 Bear Cub Road, Lake Placid NY 12946. I would also suggest that you visit the Maple page of Cornell University's Department of Natural Resources web site <http://www.dnr.cornell.edu/ext/maple/>. The maple manual is very reasonably priced at about \$10 per copy or less. For those of you who are just beginning to become involved in maple syrup there is another excellent publication called "Maple Syrup Production for the Beginner" by Lew Staats and Anni Davenport which is also available from Deanna Owens or from the Department of Natural resources web page.

Well, so far I have talked about utilizing your land from two very different perspectives. The first places you in a very passive role by simply leasing your land or your sugar maples to others

who will do any necessary work. You just collect the money. The second perspective of actually starting your own maple syrup operation is quite labor and capital intensive but also provides you with the opportunity to maximize your resource. Some people can and do make a very nice income from maple. Now I would like to share some ideas that fall in between these two extremes.

Almost everyone who spends some time in the woods during the spring, summer and fall season has noticed that there is often a succession of beautiful wildflowers that begins in April and lasts until a hard freeze puts everything to sleep. Many, if not most, of these wildflowers and other herbaceous perennials such as ferns are generally not offered for sale at your local garden center. There are several reasons for this such as the limited availability of the plant from commercial growers or difficulty in mass producing the plant or just the fact that these plants have a peculiar ecological niche that is somewhat unique. In many cases the problem is that most urban residents are just not familiar with the plant because they don't spend time in the woods.

I think there is a good opportunity to grow or harvest some of these ornamental plants and market them locally. Indeed, a few mail order nurseries are now offering some of the more common wildflowers at prices that seem pretty exorbitant. For example, plants such as maidenhair fern are sold through mail-order catalogues for up to \$5.00 for a four inch potted plant. In NY State I have observed thousands of square feet of forest floor covered by maidenhair fern.

The beautiful painted trillium, although quite rare in most parts of the northeast might sell for as much as \$25 per bulb. Far more common and even locally abundant in some locations are the red trillium, which is also called wake-robin due to its early blooming and the white trillium. I have seen acres of white trillium in bloom in a state owned forest in upstate NY. These and other interesting and beautiful woodland perennials might be grown or wild crafted from your wooded land.

I must point out that many of these woodland herbaceous perennials are protected in NY and most likely elsewhere in the northeast. Prospective "wildcrafters" who are individuals who collect wild plants need to be very aware of the rules and regulations regarding collection of any woodland wildflower or fern. I would much rather see landowners growing these plants than simply gathering them. Unfortunately, there is very, very little information on propagating or growing these plants in the horticultural literature but I am sure that many of these plants can be grown in a suitable environment with patience and practice. The key to success might very well be the ability to recognize the ecological niche that these plants occupy in a forested environment and concentrating one's efforts to mimic those natural conditions. Certainly, not all woodlands are suitable for growing trilliums but perhaps you have the ideal forest for just such a purpose. You need to get out there this spring to observe and identify exactly what you have growing by itself.

If you find a nice patch of trilliums or lady's slipper orchids or maidenhair fern, jack in a pulpit, trout lilies, blood root, Solomon's seal or any other pretty plant, the odds are pretty good that you can grow more of them. As far as marketing is concerned, start with your local garden centers or nurseries. They may be very willing to sell your potted up specimens of unusual native plants. If you think you can produce more of these plants that can be marketed locally, contact some of the mail order nurseries or larger garden centers. Also, you need to check with your state department of Agriculture and Markets or the equivalent agency and your conservation department to find out if there are any restrictions or licenses required for harvesting, growing or selling these plants.

This ties in nicely to the next type of enterprise I will describe, which has a bit more resource information to help you with. In recent years herbal products, often sold, as “dietary supplements” have become extremely popular with consumers. In fact the herbal supplement industry generated more than 4 billion dollars in sales in 1998 alone in the United States. Two of the most popular herbs namely American ginseng and goldenseal are both native woodland plants that you might be able to grow in your forest.

American ginseng flowers in June and produces a cluster of beautiful red berries by late August or early September. The dried roots of wild American ginseng have been gathered and exported, mainly to China via Hong Kong, from the United States and Canada since the early 1700’s. Today American ginseng still grows wild from as far north as Quebec to as far south as parts of Georgia and as far west as Wisconsin. Last year the price paid to diggers or harvesters of wild ginseng from NY State averaged about \$500 per pound of dried root. It usually takes between 100 and 300 dried roots to make a pound. An excellent yield of dried “wild simulated” ginseng would be in the range of 150 to 200 pounds per acre of forested land.

Wild American ginseng is an internationally protected plant and therefore subject to Federal rules and regulations regarding it’s harvest. The only states that allow harvesting of wild Ginseng are those states, which have a conservation program, which is designed to ensure the plants long term survival. NY and Pennsylvania for example, have such programs but Massachusetts does not. Cultivated ginseng is not really subject to the same rules and regulations as is the wild plant, however, the most valuable ginseng is “so called” wild simulated ginseng. “Wild simulated ginseng” looks very much like truly wild ginseng. Indeed, once it is planted it is left pretty much alone for a period of 9 to 15 years or even longer. I believe that much of what is sold today as truly wild ginseng was actually planted by somebody many years ago. Prospective ginseng growers should keep good records as to where and when and how they plant ginseng to avoid future problems with Conservation authorities.

There is another type of ginseng growing called “woods cultivated” which involves growing ginseng for a period of 6 to 8 years in prepared beds in the forest, which are regularly tended. “Woods cultivated ” ginseng is usually weeded, fertilized, occasionally sprayed with pesticides and generally brings prices that are less than “wild simulated”.

I wish I could say that ginseng will grow easily in almost any forest but that is not the case. As I mentioned earlier for the ornamental plants, the key to success for this native wildflower is proper site selection based upon the ecology of the wild plant. These ecological conditions vary somewhat from region to region. For example, in much of the northeast, ginseng is often found growing near sugar maple or butternut trees whereas in the southeast it may be found near black walnut or tulip poplars. In NY, Pennsylvania, Illinois and southern states it is most often found on north or east facing slopes. In it’s northernmost range, in Quebec, it is more common on southern slopes.

There are a few generalizations that are applicable for growing woodland ginseng almost anywhere it grows which I will share with you. The main requirement is a densely shaded forest floor where 80 to 90% of the sunlight is intercepted by the trees. It prefers moist, but well drained soil that is reasonably fertile and quite high in calcium with fairly high levels of organic matter. It requires good air circulation, which means a high tree canopy and not too many competing shrubs or small trees nearby. It is often associated with other woodland perennials such as the trilliums I described before or maidenhair fern. Other good indicator plants in NY State include red or white baneberry and blue cohosh. If you have these plants growing in your forest there is a pretty good chance that you may be able to grow ginseng.

Later on I will list some very good resources for more information on how to grow ginseng. Cornell Cooperative Extension of Greene County will be sponsoring an international ginseng growing conference this September 8,9 and 10 in the beautiful Catskill Mountain region of NY State. You may check out our website at [www.cce.cornell.edu/greene/](http://www.cce.cornell.edu/greene/) for more information about this conference. You will probably learn more at this three-day conference from legitimate researchers than you could learn from many months of searching the World Wide Web for accurate information.

Goldenseal is another internationally protected plant that has recently become very popular as an “alternative” herbal remedy. Unlike ginseng, which still is not recognized by Western medicine as having any pharmaceutical activity, goldenseal does contain alkaloids that have been and still are used medicinally. Goldenseal is grown under similar environmental conditions as ginseng. It too, is a shade loving herbaceous perennial that likes moist soil, high in organic matter and quite fertile. It has been reported as being a little bit easier to grow than ginseng or perhaps a little bit more tolerant of fertilizer. As is the case with ginseng well established markets exist for this native plant if it can be successfully cultivated. Unlike ginseng, it should be harvested after four or five years of growth for maximum returns. Goldenseal tends to die out in the center of a patch as the patch expands. During the past 15 years goldenseal prices have flocculated much more than wild ginseng but demand still remains strong at the present time. Once again I would remind potential diggers or growers to learn all the local regulations that apply before planting.

There are other “alternative” medicinal plants that grow in forests such as black cohosh, bloodroot, slippery elm bark, wild leeks, and perhaps others but very, very little is known about cultivating or marketing them. I suspect that these plants will continue to be “wild crafted” until a more reliable market is established.

I just mentioned wild leeks, which are also called ramps by many people. This is an example of a plant that is considered both a food source and a medicinal herb. This principle applies to garlic and to a lesser extent other members of the onion family. The same is true of several species of mushrooms or fungi that may be grown in our forests.

Probably the most well known mushroom species that is cultivated on wooden logs is Shiitake. Shiitake has been cultivated for many, many years on oak or related tree species. It does offer a potential use for wood that is leftover after a timber harvest. I wish I could say that I think there is great potential for large-scale production of shiitake on oak or other hardwood logs but advances in production techniques have resulted in somewhat of a glut on the market. Most shiitake mushrooms are now being produced in specially designed controlled environment structures that use pre-manufactured sawdust blocks. These controlled environment chambers do not fall into today’s subject matter discussion however I do believe that small scale shiitake production may be profitable if a landowner can find close to home, direct markets for the fresh mushrooms. Farmer’s markets offer just such an opportunity not only for shiitake but also for other woodland mushrooms that are just beginning to be recognized.

There are quite a few really delicious wild mushrooms that grow on dead and dying trees and some that grow on live trees. Others grow on the forest floor and pop up almost every single year in the same place at the same time. This first mushroom is commonly called the fried chicken mushroom. It is a fairly easy fungus to recognize with its overlapping brackets of yellow to orange flesh and lighter colored pores on the underside. It tastes remarkably like fried chicken breast with a similar texture to boneless chicken. This fungus appears every year on the same trees at the same time. A friend of mine who spends most of his free time in the woods sells this

mushroom at a farmer's market for \$10 per pound. A typical specimen weighs between 5 to 10 pounds. Next is a fungus commonly called the Lion's mane. It commonly grows on dead or dying beech, maple and oak and like the fried chicken mushroom it seems to reappear every year at about the same time. It is a very tasty fungus and sells at local markets for \$15 per pound with average specimens weighing two to four pounds. One last "tree stump" mushroom that I will mention has several common names including Maitake or hen of the woods. I personally don't think this mushroom is so great eaten fresh but it dries exceptionally well and is prized by many people who love to eat mushrooms. This species of mushroom sells for about \$5.00 per pound fresh weight but it is not unusual for a single specimen to weigh 40 or 50 pounds.

Although I just told you that all of these mushrooms grow wild, you can purchase spawn, which is a sort of propagation medium, for these mushrooms and for several others. In many cases the spawn is sawdust that has the specific type of mushroom mycelium growing in it. Shiitake logs are usually "planted" or inoculated with sawdust spawn that is pressed or injected into holes that are drilled into the log. Some of these stump mushrooms are inoculated by hacking a notch into the log or stump and pressing the spawn impregnated sawdust into the notch. Sometimes the notch is sealed with wax. Later on I will list at least one useful resource where you can purchase specific types of mushroom spawn.

Some types of mushrooms can be grown fairly easily on beds of hardwood chips. This can be a pretty good use for what might be considered a waste product if you have a wood chipper and woody brush to clear. One rule of thumb is that one cubic yard of wood chips occupies an area that is ten feet wide by ten feet long by three inches deep. For some mushrooms winter rye grain or seed is used as a media to grow the spawn on. Spawn is may be thought of as a type of vegetative "seed". Usually a five-quart bag of grain spawn is raked into a bed of woodchips. If all goes well the white colored spawn will grow into and on the woodchips themselves within a week or so. If nature cooperates with favorable weather you could begin to harvest mushrooms within two months.

One demonstration bed we planted in the Arnot forest near Cornell University yielded 43 pounds of mushrooms in a five-day period. Marketing of these and any other type of new or exotic mushroom will always present a challenge. One technique that seems to be very effective at local farmer's markets is to bring a small, portable stove and actually cook up some mushrooms for people to taste. Of course, you had better be pretty sure of what you are doing before you start hunting and eating wild mushrooms! It is really not that difficult if you limit yourself to only one or two easily identifiable species at a time.

The last possible income opportunity that I will mention is selling firewood. Once again you may be able to productively thin your woodlot for whatever purposes you want and still make some money in the process by selling the excess wood. The price of fuel oil hit \$2.00 per gallon this past winter in some places in NY and probably elsewhere in the Northeast. High fuel prices are a wonderful incentive for those of us who heat our homes with wood. I have no idea what fuel oil will cost next winter but I suspect the firewood market will be pretty strong. Seasoned firewood sells for about \$100 per full cord in my area and brings four times that price in NY City.

Now, in the remaining few minutes I have left I will share some useful resources with you.

### Growing Gourmet Mushrooms from A to Z

This is available, for \$2.00, from Cornell Cooperative Extension, Clinton County, 6064 Rte 22, Plattsburgh, NY 12901-9601. Orders must be prepaid with checks payable to Cornell Cooperative Extension - Clinton County.

Agroforestry fact Sheets # 13, 14, 15, 16. Numbers 14 and 15 are ginseng fact sheets and numbers 13 and 16 are goldenseal and mushroom fact sheets

Single copies are available for free from USDA National Agroforestry Center (NAC)

East Campus-UNL, Lincoln, Nebraska 685893-0822

Phone: (402) 437-5178))

### Proceedings and Invited Papers

National Resource Income Opportunities on Private Lands Conference

April 5-7, 1998

Hagerstown, Maryland

Available from Jonathan S. Kays, Regional Extension Specialist Natural Resources, University of Maryland Cooperative Extension Service, 18330 Keedysville Road, Maryland 21756)

“The Practical Guide to Growing Ginseng” by Robert L. Beyfuss

American Ginseng Production in the 21<sup>st</sup> Century Conference

September 8,9,10.

for more information call Cornell Cooperative Extension of Greene County  
(518) 622-9820 Fax (518) 622-0115 Website: [www.cce.cornell.edu/greene/](http://www.cce.cornell.edu/greene/) )