NTERVIEW WITH TOWN OF ROCHESTER RESIDENT AND FORESTER, MICHAEL CALLAN
Interview by Amy Fradon

Welcome again to the Conservation Conversation Corner!! We're excited to post this interview with Rochester's own, Michael Callan who is a forester for the DEC among other titles. We have such a wealth of people in Rochester who know so much about our natural resources and Michael is surely one of them.

I had the pleasure of spending an entire morning with him walking through his woods and listening and learning things about trees I had no idea there was to learn! Trees are a fascinating and important "community" and play a vital role in the smooth running of our planet. I have an even deeper respect for them and for the people who manage them since meeting Michael.

I hope you will enjoy this wonderful interview and that it will inspire you to take a walk in your own near by woods.

1.) Where do you live and what do you do?

My name is Michael Callan and I live on Berme Road in Kerhonkson with my wife Malena and two daughters Madeleine and Jennifer. We are fortunate to own 35 acres of land that is forested with a wonderful assortment of trees. I studied Resource Management and Forest Biology at SUNY ESF and graduated in 1992 with a BS degree. I am a member of the Society of American Foresters and am a Forester employed by the NYS DEC located in New Paltz. As a DEC Service forester, I am dedicated to maintaining the long-term health and productivity of our forests. My primary duties as a DEC Forester are to provide forestry advice to private landowners in the DEC Region 3 counties of Ulster, Sullivan, Orange and Rockland. My services are provided at no cost and I visit 40-50 landowners each year. Funding for my position comes from grants provided by the Forest Service at this time. I also administer the Forest Land Enhancement Program (FLEP) which is a cost-sharing program designed to promote sustainable forestry practices. As a Society of American Foresters member, I strive to advance the science and practice of forestry to ensure the use of forest ecosystems and forest resources to benefit society. As a forest landowner, I hope to be able to pass on my land to my children.

My first job was a Forestry Technician employed by the DEC in the northern Catskills (DEC Region 4). There I worked on state reforestation areas marking timber and pulpwood for harvest, conducting forest inventory & regeneration surveys and tending young stands of trees recently planted or naturally regenerated. I worked primarily in conifer plantations established in the 1930's by the Civilian Conservation Corps. These once marginal agricultural lands have been transformed into productive and self-perpetuating timberland that is providing our society with not only wood products, but all the non-market values large forested blocks of land provide society. I am very proud to have worked with such a system and currently strive to help landowners understand the potential benefits of forest management.

2.) Why is it important to know about our forests and trees?

I feel it is important for everyone to learn about our local forest resource because our urbanizing society demands large amounts of goods and service while at the same time removes from productive use a large part of the resource base. It is obvious to me that a greater understanding of trees, forests and forest dynamics is needed to allow what is left of our working landscape to continue working. It is more responsible to use local lumber to build and furnish our homes and locally grown firewood to heat them. Imported lumber uses plenty of fossil fuels to transport them as well as risks importing insect and disease pests.

3.) What are some of the most common trees in the Town of Rochester?

The most common tress in Rochester include the oaks: red, white, chestnut, black and pin; hickories: shagbark, bitternut, pignut; maples: sugar, red, silver, striped; ash: white, black, green; birch: yellow, black, white, grey; pine: eastern white, pitch, red; eastern hemlock, American beech, trembling aspen, boxelder, cottonwood, black cherry, American elm, sycamore, red cedar, eastern hophornbeam, ironwood, shadbush, black walnut, butternut, black gum, flowering dogwood and hackberry. Rochester has a moderate climate so this allows a great variety of trees and plants from around the world to be grown here as well.

4.) What is the history of our current forest and what are the traits of a healthy forest?

Our current forest is the regrowth that has occurred over the last one hundred years or so. Just about every acre was cleared for some reason. The level and less rocky areas were used for agriculture and the best soils still sustain farming activity. The more marginal lands were used for pasture but they were abandoned over time. The highest and steepest areas were cut for timber, fuel wood or hemlock bark. Very little thought was given to regeneration of these areas but the climate and soil conditions favor tree growth, so the results of this great natural reforestation are evident today. The current forest is a result of soil type, past land use, natural and artificial disturbance and time. When farming or clearing activity ended, the area grew up with shade intolerant tree species such as oak, cherry, ash, red cedar and aspen. The deer population at this time was very low due to several factors including unregulated hunting and this allowed these seedlings to grow undamaged. Forest fires where more common as well, favoring the deep rooted oaks over the more shallow rooted maples and birches.

The current conditions are much different. A higher deer population results in most young seedlings being browsed so heavily they never grow out of reach. Forest fires are rare and when they occur, are quickly put out. The over story trees cast shade that results in limited opportunities for germination and seedling establishment for replacements of the sun loving species. The current forest will continue to develop over time with shade tolerant species establishing themselves in the under story and deer selectively removing some of them. The species mix of the new forest will be influenced by available sunlight on the forest floor, tree cutting, seed dispersal and availability, micro climate conditions in the area of germination, density of plants growing in the shrub layer, deer browsing, fire and weather (wind storms, drought). The trend is for beech, sugar maple, ironwoods, white pine and black birch to become more common over time because these species are tolerant of the shady conditions present. The oaks, cherry, ash, aspen and red cedar are a reminder of the different conditions present at the time of establishment and will decrease in abundance as the years pass.

A healthy forest exhibits characteristics that can be generalized as follows: resilience, continuity and diversity. A healthy forest does not have to contain 100% live sound trees. The diversity of habitats created by standing dead and down woody debris is an important part of nutrient cycling and should be present or managed for. A healthy forest is able to renew itself so ample seed source, available growing space and a seedling and sapling layer of trees is important. Forest stands are the sum of all the individual trees living together. The ability of a forest stand to remain healthy has to do with each tree getting enough light, water and nutrients. The interaction between trees in the race for the sky is intense and the winners command a larger share of the canopy space. Their competitor is relegated to an inferior position in the canopy. Lower light levels can quickly (but sometimes not so quickly) kill this competitor. The adjacent trees then take advantage of this canopy opening and develop larger crowns and stronger stems. Sometimes these low vigor trees become hosts to any assortment of insect pests that take advantage of the weakened trees' defenses. Healthy trees handle insect attack by flooding insect burrows with gum or sap, eliminating or reducing the problem. Weakened trees have few resources to spare and as such act as a breeding ground for insect pests. If enough insects are

present, the defenses of even the most vigorous trees can be weakened. It is possible to help resilience of a stand by careful evaluation of each tree's position in the main crown canopy and selectively removing inferior positioned trees competing with larger, dominant trees. The challenge is to be able to thin out these usually small diameter and lower valued trees at the right time, and be able to afford to do this treatment. It would be better to do nothing if this kind of cutting cannot be done.

5.) What is the difference between silviculture and just cutting trees?

Silvictulture is the art of growing trees that are adapted to the soils and climate of a given area based on objectives such as time to maturity, desired product and regeneration methods to be used. It involves long term planning measured in decades with results that take 15-20 years to really see. Private landowners in our area are at a great disadvantage because of these facts. High taxation and the opportunity cost of growing trees on expensive real estate leads most landowners to do what makes short term economic sense: cut the biggest and best trees and then sell the land. The forest resource suffers because exactly the opposite should have happened. This kind of cutting is called high-grading and very often can happen if a landowner agrees to a cutting prescription where every tree above a certain diameter is cut. Other ways this happens is when a landowner wants the most money possible with limited numbers of trees cut. Since cutting a defective low value tree is as risky to a logger as cutting a tree that will yield high value timber, only those genetically superior individuals are taken. Opportunities to practice profitable silviculture are greatly reduced in these areas because defective and low value trees dominate the site. Since markets drive what is cut, little can be done without direct investment with a very long payback period.

6.) We have all heard the term "clearcutting", so how does silviculture justify clearcutting?

Clearcutting can be an appropriate regeneration method used in silviculture to perpetuate certain tree species. Forests in our area have been subjected to clearing, grazing, burning, thinning, draining and many combinations of these. The stands of trees that have developed from these extreme events have unique characteristics that a landowner may find valuable. For example, if the decision is made to regenerate oak trees on a given site, it is necessary to create conditions at some time in the future that will allow acorns to germinate and grow into seedlings and then saplings. A silvicultural prescription to achieve this may involve a controlled burn to reduce the amount of shallow-rooted competing vegetation and a reduction in the density of the main canopy to allow more light in and encourage growth. After a certain amount of time, if enough seedlings grow and advance to the sapling stage, it may be appropriate to release the young cohort of trees from the shade of the older ones. A clearcut would be used to do this, and a new, even-aged stand of trees allowed to grow until maturity. Shade intolerant oaks, pines, cherry, ash, aspen and walnut are managed under what is termed an even-aged silvicultural system in forester's terminology. Maple, beech, birch and hemlock are managed in uneven-aged systems so the lower light levels created by thinning allow for these shade tolerant species to reproduce, grow and replace the older trees.

7.) Is it important to maintain a diversity of tree species? How do different bird and animal species respond to different silvicultural systems?

Maintaining a diversity of tree species and habitats depends on the owner's goals. It is important to me. I am managing our property to encourage as many different habitats as possible. Open sunny meadows, areas dominated by shrubs, dry oak/hickory stands, rocky and open areas with pitch pine and red cedar, cool and moist maple and beech areas, wild apple and plum trees, dense conifer stands of hemlock, pine and spruce. Generally bird and animal species such as rabbits, deer, ruffed grouse, woodcock and songbirds such as Eastern Bluebirds benefit from even-aged systems and squirrels, woodpeckers, wild turkeys and songbirds such as wood thrush

benefit from uneven-aged systems. In our town, sunny openings and younger stands of trees would provide important diversity in the western parts of the town because this area is dominated by maturing forest. Conversely, older stands of trees in the central section of our town are important because of the current use as an agricultural area.

8.) What are some of the threats that our local forests face now and in the future?

I view at least three major threats to our forest now and in the future. Any one of these threats leads to the destruction of individual trees but the greatest harm is the long term changes that these factors do to the dynamics of the forest. The first is the conversion of forest land into home sites. Forest land does make for attractive home sites and in a developing area with large amounts of forest land, a certain amount of this will happen. If town residents value forest land, taxes must be kept low. If annual holding costs can be paid through periodic timber sale income, some landowners will choose to grow trees. This does not address the opportunity cost of retaining a working, managed forest and is perhaps the greatest challenge landowners and town officials face today in our area. Society needs to step up and value forest land for the market and non-market products a forested environment gives everybody, not just for how many homes can be sited. Landowners should be compensated for any reduction in value these actions cause and the reduction in assessments viewed as a cost of keeping forest land intact.

Another threat as I see it is the presence of a deer population that is too high to allow for the reproduction of most tree species. Deer have thrived in the disturbed environment created because of the conversion of forest to farmland and back again. Hunters have served as the natural predator since the elimination of wild predators. Changing land ownership patterns are making hunting less effective and reintroduction of predators is not a practical approach. For the most part the seedling and sapling layers of most local forests are made up of two ironwood species, black birch, striped maple, white pine and beech. This differs from the current composition of our main canopy trees. Woodland plants such as ginseng, iris, lilies and Solomans seal are becoming harder to find as well. The ecological consequences will be determined by future ecologists but from a forest management perspective the effect is great. The delays and expense of creating a new age class of trees makes management much more difficult. In some locations fencing of limited areas with the proper light levels is the only way to achieve regeneration success. Hunting can be made more effective if hunters agree to harvest more female deer and non hunter landowners give responsible hunters access.

The threat posed by exotic diseases, insects, plants and animals is the third one I would like to talk about. Diseases such as the chestnut blight, Dutch elm disease, beech bark disease and dogwood anthracnose have greatly changed the character of our landscape. Sudden oak death is a fungal disease that infects oaks and is transmitted by infected soil in potted plants such as rhododendrons. It has not been detected yet outside of the west coast but may come our way. Insects such as the gypsy moth and hemlock woolly adelgid are causing problems in our area and the Emerald ash borer, Asian longhorn beetle, Sirex wood wasp and the viburnum leaf beetle are showing signs of movement. Plants such as Japanese barberry and stiltgrass, multiflora rose, tree-of-heaven, Norway maple and garlic mustard are plants that are quick to colonize growing space and exclude native species. Even the lowly earthworm, native worms were wiped out by the last ice age, are consuming the organic layer of our forest floors leaving a layer of rich humus that many native species seedlings do not germinate well in but exotics can be quick to use. The greatest damage to the forest occurs when a synergistic effect occurs. For example when Dutch elm disease kills the elms in a forest that is frequented by to many deer, greedy plants such as barberry and multiflora rose quickly grow and exclude native plants. The continuity of the forest comes into question in this series of events with the results being an area that is much more difficult to manage for many uses. The best way to prevent this unhappy situation is to learn to identify the various exotics and prevent the movement of them. Unfortunately it is too late as many exotics have established viable populations in our country. Early detection and elimination are only practical choices if problem species are discovered early in the colonization phase.

9.) How do you marry good forest management with financial opportunity, and what industries could be developed locally that would complement forest management?

Because of the long term aspects of forest management, owners who are actively planning for long term ownership are best able to benefit from forest management. A desire to retain the character of a forested tract of land helps as well. The financial opportunity to convert a forest into home sites is great, and unfortunately for the forest resource, almost always viewed by the owner as greater than retaining a working forest. Assuming a decision has been made to proceed with forest management, reducing the competition around dominant trees with logging operations that follow proper marking prescriptions will enhance the growth of the residual trees, foster regeneration and produce current income for the landowner. Future timber sales will yield better quality timber quicker due to the previous thinning and may represent a return to the landowner that justifies the cost of keeping the land as forest. The practice of firewood cutting is the way that individual landowners can enhance the value and health of their own forest land. Local businesses that use small diameter/inferior quality trees would provide a market for landowners who are resisting selling their high quality trees before they are mature but cannot to the cutting themselves. Current markets for such products are limited and do not represent a major outlet for the vast quantities that could potentially be produced. Investigation into the economics of a wood pellet production facility should be started. If it is determined that it is possible for such a facility to be located in our town, we should find people who would be interested in investing in such a business and help them get it started. By using this new market, landowners can profitably apply sound forestry techniques to their own forest land. Having individual landowners actively nurturing trees to provide them fuel, lumber and money makes good sense for them, but we all benefit because intact tracts of vibrant forests are all of that and much more.