Tree marking for pleasure and profit

by Ted Wilson

The Ontario Tree Marker Program is an innovative professional development initiative designed to enhance skills in sustainable forest management in southern Ontario, Canada.

In the early years of my career, I had the great good fortune to study and work in Canada. At that time, most jobs in the forestry sector were tied to management of industrial woodlands, primarily the vast areas of public forest on Crown Land. Professional forestry education, quite reasonably, focused on landscape-scale planning, management and operations, with tree planting and clear-fell harvesting being the dominant silvicultural activities. We studied soils, wildlife and habitats, sociology and economics, and many other aspects of sustainable forestry, but most of the technical elements were bedded in even-aged management thinking.

My first appointment as a forester was in southern Ontario, not far from Toronto, in a lovely landscape peppered with small towns, farms and "woodlots". Broadleaves dominated the forest scene, with only a small component of conifers, such as the majestic Eastern White Pine. As a Ministry of Natural Resources (MNR) forester, my role involved two main tasks: to manage small parcels of Crown forest that dotted the district; and, to support private owners in the active management and improvement of their woodlots.

There was strong interest in our forestry programme thanks to a tax relief available to private owners who had a 10-year management plan for their woodland. Known as the Managed Forest Tax Incentive Program, woodland owners with an approved plan were, and continue to be, eligible to pay only 25% of the municipal tax rate set for residential properties.

The first woodlot I marked in southern Ontario (1990). Most of the wood removed was mature and of poor quality, making space for natural regeneration and growth of the best mid-sized trees.

Typically, clients owned 20-40 ha of woodland linked to a house or small farm. Most of the woodlots in my "patch" (Cambridge District) were composed of Tolerant Hardwoods, a working group of species dominated by Sugar Maple. However, because my district was situated in the transition between the Carolinian (Hardwood) Forest to the south and the Great Lakes-St. Lawrence Forest Regions to the north, there was a remarkable diversity of trees to consider (Farrar 1995). In addition to the Sugar Maple, our broadleaved species included Beech, Black Walnut, Butternut, Basswood, several Oaks, Hickories, Birches (especially the valuable Yellow Birch), White Ash and in the far south, occasional specimens of Kentucky Coffee-tree and Sassafras. Conifers included Red Pine, Eastern White Pine, Eastern Hemlock, Eastern White Cedar, Tamarack and several Spruces.

At that time, in the late 1980s and early 1990s, most of the planning work was done by MNR foresters. We would first receive a call from an owner and arrange to visit their property. It was not unusual to arrive at the top of someone's drive to a humorous welcome, such as "Now then, don't tell me you're from the government and here to help!" And without any hint of irony, that's exactly what we did. We would walk over the property to assess its potential for timber production, and to learn about the values and priorities of the woodland owner. Then we would head back to the house for a "kitchen table encounter" (with coffee and "donuts", which are an essential part of Canadian life) to talk things through. Later we completed an inventory, and collected data on the species, size-frequency distribution, wildlife and overall health of the woodlot.

Back in the office a simple management plan was written up and returned to the owner for approval and signature. Looking back, this was a very special time and highly formative in terms of my own professional development and outlook. Halcyon days!

The most striking feature of my visits with forest owners in southern Ontario was that not one single person ever wanted to clear-fell their trees. Everyone had a multi-functional agenda.

Wildlife conservation, recreation and landscape, firewood and Maple syrup production were usually in the mix of top priorities. It was important to have red cardinals, squirrels, chipmunks and butterflies all around. But amongst all of this, most people also had a pretty good idea that they could improve their woodlot by actively managing the productive species and feeding the best specimens to a local hardwood mill, while retaining the poorer material

for firewood. It all made sound conservation and economic sense.

But how was a forester, especially a young forester schooled in plantation forestry, to manage a multi-species and often complex hardwood forest? The answers came from an understanding of the regeneration and growth requirements of each target species, and, critically, through an ability to mark the correct trees for removal at the first and subsequent interventions.

Nowhere in my professional experience have I been more aware that forestry is both an art and a science than when I was working up my numbers, determining the appropriate basal areas to target in each tree-size class, and then working through a wood with a colleague to identify the trees to stay and the trees to go. If you love trees and forests, then it is hard not to become totally passionate and mentally absorbed by the practice of tree marking.

In those days, tree marking skills were mainly taught as part of a tradition within the forestry community of southern Ontario. The best tree markers tended to be forestry technicians who built up a life-time of experience, often returning to the same woods on successive interventions. They knew woodlots where the quality of the timber was gradually improving, as a result of their careful selection and recruitment of the most appropriate specimens.

My teachers were the foresters I worked with at the district office, including Brian Batchelor, John Irwin, Bill Tilt, Dennis Orton, Bill Shunk, Joe Reid and Bruce Zavitz, all under the watchful eye of our manager, Sheref Yorgan. If we went to a neighbouring district, then the tradition was slightly different, informed by the distinct species compositions and local markets for hardwood. It was very much an apprenticeship, and like any situation in life where you "learn by doing", the thinking and the practice tends to stick!

There are some very good reasons why tree marking is taken seriously in southern Ontario. Historically, forests throughout the region, especially on Crown Land, were subjected to various types of unregulated harvest, from clearcutting where strong pulpwood markets existed, to varying degrees of "selective cutting". This latter approach amounted to a form of high-grading that favoured removal of the better quality material and retention of everything else. Through time, these practices had a significant negative impact on forest health by reducing timber quality, growth, wildlife habitat, and species composition.

From the 1960s, it was recognised that single-tree or group selection, clear cut with seed trees, and uniform shelterwood silvicultural systems were most appropriate for the vast majority of forest types (OMNR 1998, 2004). Implementing sustainable forestry plans where there are partial-cutting systems requires tree markers who can select trees for harvest or retention based on tree size, vigour, quality, biodiversity concerns, and wildlife habitat value. The tree marker bears a high proportion of the responsibility for planning of harvesting operations and the future stand's health, vigour and ability to meet the needs of other forest values.

In 2014, some 23 years on from my time as a district forester in Ontario, I had the opportunity to return to the hardwood forests of southern Ontario, thanks to a travel grant from Woodland Heritage. Things have changed quite dramatically; there is no longer a network of forest districts across southern Ontario with teams of technicians doing tree marking on behalf of woodlot owners – everything is now done in the private sector. However, the traditions and skills associated with managing hardwood forest have not been lost. A dedicated team of MNR silviculture specialists has organised and now delivers a Tree Marker Training Program, which not only provides the necessary skills but maintains a register of certified tree markers who are qualified to work on both private woodlots and Crown forests.

The Level I Tree Marker course lasts 5 days and introduces students to a wide range of core skills and knowledge required for proficiency as a tree marker in both hardwood and pine stand types:

- ***Identification of tree species and understanding their silvical characteristics***
- ***Knowledge of the principal silvicultural systems, especially selection and shelterwood approaches***
- ***Familiarity with site and land features***
- ***Recognition of tree defect characteristics and indicators***
- ***Appreciation of tree quality and vigour, including the use of a tree classification system***
- ***Comprehension of stocking levels and structural types***
- ***Stand prescription design and work organisation***
- ***Appreciation of commercial values of species, products, and grades***
- ***Appreciation of wildlife habitat, biodiversity, and other ecosystem values***

Through a range of practical exercises and examinations, students are challenged to integrate, interpret and apply information to make appropriate decisions about individual trees and achieve the agreed management objectives for a stand. This is all undertaken at a training site, near Bracebridge, Ontario, where large plots have been laid out and subjected to a 100% inventory of standing trees, ground conditions, regeneration, tree health/decay and wildlife features. A large team of expert trainers are involved so that students can work in small groups and under close supervision (3-4 students per

A Tree Marker Training Plot, near Bracebridge, Ontario (2014). Students work in small teams to complete assessment of the stand and their results are compared with those of the expert practitioners.

trainer). Technical guides for tree marking, conservation and silviculture in southern Ontario provide important supporting information (Burke 2011; OMNR 1998, 2000, 2004).

Completing the course requires a series of formal exams and field tests, with a combined score of not less than 80% from the exams, and a minimum of 70% on each field test. Full certification can only be achieved at a later date, when a student arranges for a field audit of an operational marking project. Approved auditors will complete separate assessments in hardwood and conifer stands before a tree marker can become fully qualified and registered.

Tree marker certification is valid for up to 5 years in approved forest types. Thereafter, tree markers must attend a refresher course if they wish to continue with work on Crown Land. In addition, a Level II course is available, which qualifies tree markers to take on an auditor role. Although there is a necessary formality to the training program, it is also a highly rewarding and stimulating experience, and with high approval and satisfaction ratings from participants.

Concluding Thoughts

Becoming an Ontario Tree Marker is not a simple case of completing a short course; to become fully proficient requires a serious commitment to training, mentoring and continuing professional development, as well as accreditation. There is also an ethical dimension, as judgements about individual trees must consider the long-term health of the forest being managed. The Ontario Tree Marking Program links forest science and practice, but also demonstrates how a strong sense of camaraderie and common purpose can be engendered within a professional group working to achieve a greater good.

My trip to Canada in September 2014 was an opportunity to see for myself how forestry has developed over nearly a quarter century, and to learn about the evolution of tree marking in Ontario. As is the case in most other jurisdictions, government has stepped back from front-line delivery of many forestry services and new approaches that combine public and private sector partnerships have developed. The Ontario Tree Marker Program appears to be a good example of how this can be successfully delivered.

Acknowledgements

I would like to thank Woodland Heritage for supporting my study tour in September 2014. Thanks also to my hosts in Ontario, especially Scott McPherson, Ken Elliott, Fred Pinto, Andree Morneault and Scott Reid, for their passionate enthusiasm and hospitality, and for sharing their expert knowledge. I also thank John Pineau, formerly Chief Executive Officer of the Canadian Institute of Forestry, for kindly hosting me during a visit to the Canadian Ecology Centre.

Further Reading

Publications:

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Websites:

Ontario Tree Atlas. URL: www.ontario.ca/environment-and-energy/tree-atlas/

Ontario Tree Marker Training Program. URL: www.ontariotreemarkers.ca/

Ontario Ministry of Natural Resources and Forestry. URL: www.ontario.ca/rural-and-north/forestry

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