MOBILIZING NEW BRUNSWICK PRIVATE FOREST OWNERS TO FIGHT CLIMATE CHANGE

Submitted to the Senate Standing Committee on Agriculture and Forestry

by

New Brunswick Federation of Woodlot Owners

October 2, 2017

Propriétaires de lots boisés

N B

Woodlot Owners

The NB Federation of Woodlot Owners (NBFWO) is a provincial federation of regional woodlot owner organizations. The NBFWO promotes the economic and social interests of NB private woodlot owners by representing their views through a united provincial voice. The Federation is committed to the sustainable management of private forest resources to ensure they will continue to contribute to the economic, social, environmental and cultural well-being of rural communities across New Brunswick.

There are over 42,000 private woodlot owners in New Brunswick who own more than 70,000 parcels of land. They own a total of 1.8 million hectares of forested land. These 1.8 million hectares are 30% of the forested land in New Brunswick. Private woodlots are a major contributor to the economy of rural New Brunswick. The sale of round wood contributes more than $116 million dollars annually to the New Brunswick economy.

New Brunswick private woodlot owners have a long history of managing their forests for a range of economic, social and environmental benefits. They tend to manage their forests by working with nature rather than clearcutting and replanting.

Managed forests contribute to fighting climate change by removing carbon from the atmosphere through photosynthesis and storing it in their stems, branches and roots. A forest is considered a "carbon sink" if it absorbs more carbon than it releases. The carbon is released when biomass (trees) dies and decays due to forest fires, insects or disease. Management practices such as selection harvesting improve the health of the forest and reduce the risk of pests, disease and fire. Selection harvesting allows the forest to regenerate naturally and preserves the biodiversity. Healthy forests are better able to withstand stress, they are more resilient and adapt better to changing conditions.

Harvested wood processed into products used in house construction and other long lived wood products are a source of long term carbon storage. (Natural Resources Canada http://www.nrcan.gc.ca/forests/report/disturbance/16552) Wood products are an important substitute for materials like steel, aluminium, concrete or plastics, which require large amounts of energy to produce. In most cases the energy for processing and transporting wood is less than the feedstock energy stored by photosynthesis in the wood. Every cubic metre of wood used as a substitute for other building materials reduces CO2 emissions to the atmosphere by an average of 1.1 tonnes of CO2. If this is added to the 0.9 tonnes of CO2 stored in wood, each cubic metre of wood used saves a total of 2 tonnes of CO2. (Canadian Wood Council http://cwc.ca/fr/green/climate- change/). Wood fiber can also be used as a renewable source of energy for heating and electrical generation and can replace non-renewable sources.

Forest management has an important role in the carbon cycle by increasing the growth of the forest and the absorption of carbon. Careful forest management can reduce the incidence of forest fires, insect damage and disease by limiting tree mortality and the subsequent emission of carbon by harvesting trees at the optimal time. Each cubic meter of wood represents 0.9 tonnes of CO2 removed from the atmosphere, while carbon harvested from forests is replaced as forests regrow. (Canadian climate forum, Issue paper #4, Fall 2015. http://www.fpac.ca/wp- content/uploads/CCF- IP4- Forest- Nov2015-FINAL.pdf and Canadian Wood Council. http://cwc.ca/fr/green/climate- change/)

Incentives to woodlot owners to implement beneficial management practices that increase the carbon sequestration on their woodlots would increase the adoption of such practices and increase the rate of greenhouse gas mitigation. Silviculture can significantly increase the production of higher quality timber that will be available for substitution and also increases the volume of wood per hectare and therefore contributes to the total amount of carbon that can be fixed by New Brunswick family owned woodlots. Investments in the afforestation of old fields will increase the carbon sequestration capacity.

Forest management for carbon capture and storage provide both long- term and short- term economic benefits. The effects of silviculture activities enhance forest productivity and improve wood quality which results in higher value timber products being produced. These higher value products can be used as substitution products in construction. Gardner Pinfold (1989) reported that silviculture programs increase the productivity by 65.2 m3 per hectare on plantations and 69.7 m3 per hectare through the use of stand improvement activities. Each additional 10,000 cubic metres of wood fiber that goes for processing created 12 – 13 new jobs, so not only can the sequestration of carbon by private woodlots help to meet New Brunswick's GHG reductions but in doing so it will create additional jobs.

Sustainable development of the private woodlot sector requires stable, long term markets that return a reasonable profit to the woodlot owner. Wood biomass has the potential to increase the markets available to private woodlot owners while at the same time helping to meet the GHG reduction targets. Wood biomass is a renewable energy source whose only emissions are in the transportation and processing of the products. Investment in local markets and local energy production would increase the GHG reduction achieved from the use of this forest product.

Climate Change Opportunities

Climate change opportunities include the potential to sell carbon offsets from woodlots. In order for small woodlots to participate in the sale of offsets provisions will have to be made for aggregation. Aggregation of private woodlots will ensure that woodlot owners are able to achieve the economies of scale that will be required to allow private woodlot owners to participate in the market. Economies of scale are required to spread the administrative and verification costs as well as provide buyers with the volume of offsets required. Aggregation will also be necessary to ensure that there is a big enough pool to mitigate the risk of a natural disaster destroying a portion of the forest from which the offsets have been sold.

Support would be needed to establish a system to allow private woodlot owners to participate in trading as a collective and also to be certified as a group, since individual certification is currently cost prohibitive. Support for the establishment of extension services to provide information and support for woodlot owners who wish to sell carbon will increase the amount of carbon that private woodlots will sequester and store and ensure that the greatest benefit is achieved. The establishment of carbon sequestering and sorting groups with cost-sharing support from government, delivered through the NB Federation of Woodlot Owners and its associated marketing boards, would increase the knowledge of private woodlot owners on the steps necessary to capture and store the maximum carbon in their woodlots and to GHG mitigation for NB and help it to meet targets.

The private forest industry would benefit from education and training on ways to reduce their GHG emissions, how to manage their woodlot for carbon storage and how to prepare for certification of their carbon storage. Support for new green technology, and innovations, adoption of new management practices, and extension activities such as field days to demonstrate the equipment to woodlot owners, show the appropriate management techniques and explain how carbon is measured and audited would be beneficial to increase adoption. NB Federation of Woodlot Owners is ideally suited to deliver such education and extension services to woodlot owners and is uniquely positioned to assist in research on private woodlots. We have a network of forestry professionals with an intimate knowledge of the private woodlots in their areas. We can provide access to private woodlots to be used as research or demonstration sites, can assist with the research work and data collection and help to disseminate the result to private woodlot owners.

New economic opportunities may arise in the forestry sector as a result of climate change. Increased growth rates as well as new hardwood species could open up market opportunities. Changes to the flora and fauna as well as changes in temperatures and growing conditions may open new opportunities for private woodlot owners to contribute to the economy in new and exciting ways. The use of forest biomass in local heating and electrical generation would remove this material from the forest where it is currently being left to decompose and use it to replace non-renewable sources of heat and electrical generation. Biomass can also be converted into any number of new and exciting products.

Forests provide ecological goods and services and can contribute to the health and well-being of citizens. Since private woodlots are generally close to the populated areas the health benefits of being in or close to a forest are more closely linked to private woodlots. If lands owners were compensated for the ecological goods and services that their land provided, in addition to carbon it could be a real opportunity for land owners to participate in climate change mitigation.

Private woodlots can play an important role in mitigating the impacts of climate change. Forest buffers along streams and on slopes help to protect the soil from erosion especially in extreme rain events. The forest canopy lessens the erosion impact of heavy rain fall on the soil by decreasing the velocity with which the drops hit the ground. The decrease in rain drop velocity results in less soil displacement as the drop hits the surface of the soil which results in more soil remaining in place and more water infiltrating the soil surface rather than running off the surface and taking soil with it. The forest floor also protects the soil by covering the soil and protecting it from direct exposure to rain droplets and the movement of water across the soil surface. The organic matter in the soil which is the result of the decomposition of leaves and the growth of small plants that thrive in the shade of trees, also increase the porosity of the soil and therefore the porosity and absorption capacity of the soil. As these properties increase they allow more water to be absorbed by the forest soil and held in place. Thus less water is left to flood storm drain systems and cause flooding in lower altitudes and downstream.

Forests also act as a buffer against increasing temperatures. Trees utilize sunlight to grow and as a result that energy is not radiated back into the atmosphere and a contribution is made to regulating temperatures. Trees also provide shade and shelter for wildlife and plants that will be impacted by

increases in temperature. Forests support much of the biodiversity that exist in New Brunswick and provide recreational opportunities that may become increasingly important as temperatures rise.

Forests also provide many additional environmental benefits. They filter the air we breathe and the water we drink. They also support much of the biodiversity and wildlife that we value.

In the United States, New York City has determined that it is much cheaper to keep water clean at the source as opposed to treating contaminated water. As a result, the City has invested in programs to share the cost with woodlot owners and farmers for the agricultural and forestry practices that contribute to a clean water supply. Closer to home, the city of Edmundston, NB has done the same thing, contributing to the cost of beneficial management practices on private land that is in the watershed that supplies the drinking water for the city. With ever increasing occurrences of high rainfall amounts it will be more important than ever to encourage the use of trees to hold stream banks and decrease the amount of soil lost through erosion into the water supply.

New Brunswick Federation of Woodlot Owners sees significant potential in the private woodlot sector to contribute to reducing New Brunswick's greenhouse gas emissions. One potential way to accelerate this potential would be through the establishment of a forest environmental management clubs. These clubs would be comprised of a number of innovative woodlot owners who would be keen to be the leaders in greenhouse gas reduction. A professional forested would be hired by each club to provide carbon management plans and provide extension services to the members. They would also be tasked with raising the general awareness of woodlot owners about the best management practices that maximize carbon sequestration and storage, through workshops and field day that would be open to all woodlot owners.

Managed woodlots also provide beautiful vistas and so contribute to the tourism industry. The beautiful vistas, particularly in the fall are a source of tourism dollars to the rural communities and add to the beauty of our nation.

Climate Change Risks

Like any change there are always risks associated. Increased temperatures will allow for new pests and diseases to thrive. Some of these pests could pose a significant threat to the marketability of certain species. We already see a disease in red pine (Sirococcus shoot blight) that is threatening its commercial viability and moving north. As new diseases and pests arrive, management of the forest to mitigate the risk will be necessary.

There will also be risk from extreme weather. Heavy rainfall and high winds will result in more trees being uprooted and damaged by wind. If there are more ice storms or heavy wet snow events during the winter there will also be increased damage to trees. Both heavy, wet snow and ice will break branches.

The current commonly harvested softwood species are also slated to have their preferred range move north over the coming years. This may result in a change to the available markets and may require that

new value added products be researched and developed to replace current manufacturing as species composition changes. A diverse, well managed forest will be better able to adapt to this change than a plantation. In a diverse forest, there is more variety and so natural selection will play a larger role.

With increased temperatures and more variable moisture distribution there is a greater risk of forest fires. Forest management can play and important role in the management of this risk. Well managed forests have less dead wood and so provide less tinder to start a fire. Managed woodlots also have access roads that allow fire suppression better access in the event that a fire breaks out.

Repercussions of Carbon Pricing

Carbon pricing, could be very beneficial to land owners if it is used to pay land owners for the beneficial management practices that they employ. An incentive can be a very effective method of encouraging the adoption of practices which increase the amount of carbon sequestered. The sale of carbon offsets may be another way to encourage the sequestration of carbon, provided that the provisions are in place to make it economically viable for small land owners to participate. This will likely require policy provisions to allow small land owners to group together and be treated as a single entity for the purposes of verification and administration.

Another way that carbon pricing may be beneficial to woodlot owners is if the increased use of wood drives demand which in turn raises the value of their raw material.

The other repercussion of carbon pricing will be a rise in the cost of harvesting and transportation. All inputs will likely see a rise in costs. There is the potential that any increase in the value of the product could be consumed by the increased cost.

Role of Government

The role of government will be to ensure that the proper policies and procedures are in place to achieve the objectives without negatively impacting the economy or downloading the burden unfairly to the poorer citizens of the country.

Forests need to be a part of the solution if Canada is to meet its targets. The potential of Canada's forested land to sequester carbon is enormous. In order for this potential to be realized there will need to be policies in place. Forests will have to be managed for carbon sequestration rather than just as a source of low cost raw materials. Incentives and /or penalties will be required to ensure that the preferred management and harvesting techniques are employed. On private land, incentives will be much more effective than penalties. At the current price for timber, many woodlot owners are choosing to do nothing. An incentive program could be a very effective way to get them to manage their land.

Afforestation, the planting of trees in previously un-forested land will increase Canada's carbon sequestration potential. At the same time, tree planting will provide jobs and other social benefits.

Promotion of wood harvesting under a management plan, that mimics nature through the use of a partial harvest will be very beneficial. This type of forestry promotes biodiversity and increases the

adaptability of the forest. It maintains more carbon on an ongoing basis and continues to provide ecological services.

In order to achieve this objective there will need to be support for forest extension services and education. As land changes hands the new generation of woodlot owners are not knowledgeable about their forests and are looking for a neutral third party to advise them on how to manage their forest and to understand all the options available to them. They do not trust harvesters to advise them as they have only one goal in mind. Woodlot owner groups are uniquely positioned to do this.

In a carbon market it will be critical to ensure that small woodlot owners, who as a single owner only have a small parcel of land, are able to cooperate and work with other woodlot owners to participate. As a single entity they have a small land base but as a collective that have significant land holdings.

Verification and auditing systems will have to be adopted to deal with the small scale land owner. The systems that work on large tracks of land become too onerous for small landowners. Verification bodies should be third party and be set up so that they are not dependent on the people being certified to pay for the system. That is not to say that the person being certified should not pay a fee but if you are dependent on the people being certified to pay your salary it is difficult to be too critical. Perhaps such a system should be cost shared with the person buying the credits or completely paid for by the person buying the credits and in that way the validator would be accountable to the purchasing party. With the Marketing Board system in New Brunswick, we would be uniquely set up to deliver such a system.

Government support for research and development to make the best use of our forests, as any natural resource is critical. We need to be looking for the highest value end use from our natural resources.

Governments will have to ensure that poor and lower income Canadians are not disadvantaged by their lack of capital under any carbon pricing mechanism.

Thousands of Canadians woodlot owners are willing to directly contribute to helping solve a global climate change crisis. Recognition of the natural solar powered carbon capturing power of the tree and support to implement the necessary infrastructure and extension services required to maximize the natural potential of our family owned forests can result is a significant reduction in the net Canadian greenhouse gas emissions and provide job opportunities and economic vigor to rural Canada. In addition Canadians will continue to benefit from the contribution of forests to mental, physical, and spiritual health through opportunities to recharge and renew from a wide range of recreational activities, and a connection with something larger than themselves.

Submitted by,

Susannah Banks
Executive Director
NB Federation of Woodlot Owners
506-459-2990