

Forestry without herbicides: the Quebec experience

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Background

Currently, there are four herbicides that are federally registered for use in forestry in Canada. Glyphosate accounts for over 90% of all usage. Provinces have jurisdiction over pesticide use on Crown forested lands. Given the unique political atmosphere of each province, coupled with varying amounts of forested land, it is perhaps not surprising that herbicide use varies considerably from province to province.

Québec is unique in that it is the only province in Canada that forbids the use of herbicides in forestry. The struggle to get herbicides banned began with concerned public citizens in the early 1980's and ended in 2001 when the herbicide ban was put in place. This paper covers the 20 years in between, detailing the Québec experience.

In the beginning

Herbicides were used to some degree in the 1970s in Québec, but it was not until 1983 that their proposed use became more intense and caused more public concern.³ In that year, the Ministry of Energy and Resources (MER) proposed their first aerial spraying project, which was to cover 10,506 ha in 1983 and 11,452 ha in 1984. The areas to be sprayed were in the north/northeast portions of Québec, and the herbicides proposed for application were 2,4-D and the highly controversial 2,4,5-T. During the late 70s and early 80s, pesticides (in general) and 2,4,5-T (specifically) was increasingly being scrutinized by people across North America and, indeed, the world because of its perceived harmful effects on human health and its persistence in the environment. The project would see 2,4,5-T used on 90% of the proposed area in 1983 and on 100% in 1984.⁴

Learning of this project, and particularly of the proposed use of 2,4,5-T, concerned citizens raised their objections to the provincial government.³ As a result, the MER requested a public consultation be undertaken so that public opinions on the project could be taken into consideration before spraying began. The Bureau d'Audience Publique en Environnement (BAPE) was asked to carry out the public consultation and began doing so in March of 1983.

***BAPE*⁵**

BAPE was created by the Québec government in 1978 and it now resides under the Ministry of Sustainable Development, Environment, and Parks. The Department's mandate is to inform and consult the general public in matters pertaining to environmental quality in Québec. Its mandate is not limited to forests but, rather, covers a wide range of environmental issues including proposed highway construction and hydro projects. The Department was created in order to allow the public to have a greater say in issues that affect their everyday lives. BAPE is made up of seven full time members who are appointed by the provincial government.

When BAPE is asked to undertake a consultation, the President puts together a commission—usually made up of part time members whose expertise is somewhat specific to the consultation requested. The commission members present the proposed project to the public who, in turn, is asked for their comments and opinions, which are recorded and incorporated into final BAPE recommendations. These final recommendations are based both on public comments received and on an analysis of scientific literature (both peer and non-peer reviewed) that is relative to the project being evaluated.^{4,9}

1983 Commission on the aerial spraying of herbicides in forestry

Public consultations took place from April to June of 1983 in four towns that spanned the province (Rouyn in the north, Montréal in the south, and Rimouski and Carleton in the east on the Gaspé Peninsula). In all, around 2,000 comments were given to BAPE from a wide array of people, including university professors, biologists, government researchers, representatives of social and environmental NGOs, and members of the general public. The widespread consultation process strengthened the

conclusions presented by BAPE to the government in that the conclusions represented the values of the Québec public at large, rather than, for instance, just those who lived in the areas that would be most affected by the herbicide spraying. Of the 84 memoirs received prior to the consultations, public concerns fell into one of the following four categories: human health risks, environmental harm, a preference for mechanical methods of vegetation management for job creation purposes, and a desire for alternative forest management strategies.⁴

Several key conclusions came out of the 1983 consultations that would set the stage for the eventual ban on herbicide use in forestry. First, it was concluded by the Commission that 2,4,5-T was potentially extremely toxic and posed a significant threat to human health and, therefore, should not be applied in forestry. This conclusion was based partially on cited scientific literature and partially on comments received by experts who contended that evidence had been mounting for several years prior to the consultations on the deleterious effects of 2,4,5-T.⁴ It was also recommended by the Commission that, although 2,4-D was less toxic than 2,4,5-T, its use should be stopped as well. As a result of these conclusions, the Québec government implemented an immediate ban (1983/84) on the use of both herbicides. Around this time, Ontario and Saskatchewan also implemented the ban on 2,4,5-T (although not on 2,4-D, which is still used in Ontario).³

The Commission also recognized that, at the time, mechanical methods of vegetation management were not well enough developed to serve as complete substitutes for chemical ones. They concluded that greater attention needed to be given to researching and developing these methods in order to adequately address public concerns over the use of chemicals in the forest.⁴

Introduction of Glyphosate

The ban on 2,4,5-T and 2,4-D in forestry in Québec was a direct response to public concern over the use of pesticides. Ironically, the ban of these two herbicides was quickly followed in 1984 by the federal registration of glyphosate—the number one herbicide used in forestry in Canada today. Glyphosate was described to be environmentally acceptable.³ It was seen by the forest industry, government, and some researchers as an appropriate substitute for the toxic herbicides used in the past, due to its ability to control unwanted vegetation while leaving human and animal populations and the environment unharmed. By 1985, this herbicide had become preferred by the forest industry in Québec, and between 1988 and 1993, 31,000 ha per year were sprayed with glyphosate.³ This represented a huge spike in herbicide use in general in Québec, with less than 15,000 ha/yr having been sprayed prior to this time period.⁶

The 1991 Commission on forest health and the *Stratégie*

The United Nations Conference on Environment and Development in 1992 brought sustainable development, including sustainable forest management, to the forefront of the international agenda. Like other governments around the world, Canada developed a National Forest Strategy in 1992. Around the same time, the Québec provincial government proposed a strategy for the sustainable development of Québec's forests.⁷ Once again, BAPE was asked to create a commission to evaluate the proposed strategy in light of public opinion. The proposed strategy was taken by BAPE to the Québec people through a series of public consultations across the province.⁸ During these consultations, a large number of the public again voiced their opposition to the use of *any* herbicides in forestry, citing their negative impact on human health and wildlife habitat as well as their persistence in the environment.⁸

One of the key recommendations that came out of 1991 BAPE consultation was that herbicide use be stopped completely within five years of the adoption of the government's proposed strategy. BAPE reasoned that this gave industry enough time to make the transition from chemical to mechanical methods of vegetation management. This recommendation became a key part of the strategy that was adopted in 1994 (*Stratégie de protection des forêts*), where the provincial government committed itself

to phasing out the use of herbicide use in Québec by the year 2001. There were two exceptions to the phasing out: (1) the blueberry plantations in Lac St-Jean (because of their economic importance to the region and because of their relatively small proportion of the total forested landscape) and (2) power line areas (right-of-ways—or ROW) where herbicides can be used if mechanical means do not suffice.

The 1997 Commission on progress and proposed scenarios⁹

Not everyone was happy with the government's new commitment in the *Stratégie*. Most notably, and perhaps not surprisingly, the forest industry voiced their opposition to what they deemed unreasonable timeframes and expectations. Some cited scientific research that indicated no adverse effects on human health and no environmental persistence.⁹ Additionally, many in the forest industry pointed out the risks that mechanical methods of vegetation management posed to workers and maintained that these risks outweighed any risks glyphosate posed.⁹ These dissents were heard in 1997 when BAPE was asked to undertake yet another public consultation in order to get the public's opinion on how successful, to that point, they felt the *Stratégie* had been in fulfilling its commitments. Despite these dissenting opinions, the Commission recommended, in their 1997 report, that the government maintain their commitment to phase out herbicide use by 2001, stating that the sharp decline in herbicide use (primarily glyphosate) since the adoption of the *Stratégie* indicated that the knowledge of and experience with mechanical methods were sufficient to warrant their complete substitution for chemicals.^{3,9} The Commission also maintained that glyphosate presented a greater threat to the environment than did mechanical methods of vegetation management and, thus, should not be used. At the same time, the danger to worker health associated with machines was noted; the Commission recommended that the government develop strict guidelines and training programs for workers employed in mechanical vegetation control.⁹ Lastly, it was held by the Commission that manual and mechanical methods would stimulate local economies by providing increased employment.

2001 and beyond

Herbicides have not been used in forestry on public lands in Québec since 2001. Their use on private lands continues, but the Québec government no longer gives any subsidies to private lots that use herbicides.

The 1994 *Stratégie* is a policy; it is not a law and, therefore, is not legally binding. However, if companies operating on public **or** private lands want to use herbicides, the government requires them to go through a BAPE process, which can be costly and time consuming. In addition, there is some thought that the influence of public opinion, has influenced forestry companies, most of whom do not want to risk their public image by attempting to use chemicals that the public has stated they don't approve of.¹⁰

The proclamation that herbicides would be banned brought about increased research into other methods of vegetation management, including alternative harvesting methods. Cutting with the protection of regeneration and soils (CPRS) is claimed by the MNR to have replaced all clear-cutting in Québec. This is a point of contention with some, who have expressed concern that, in effect, CPRS is no different from clearcutting.¹⁰ CPRS is similar to Ontario's careful logging around advanced growth (CLAAG). In boreal forests such as Québec and Ontario's, where balsam fir makes up a large proportion of the understorey at time of harvest, it has been suggested that neither of these methods adequately address either economically desirable regeneration (spruce) or natural regeneration (aspens) patterns.^{10,11} Québec uses mechanical vegetation management more than any other method (for an explanation of all methods, please refer to the associated paper in this series).

While mechanical methods eliminate the risk of human or environmental harm by chemicals, they present hazards of their own. Specifically, mechanical methods can pose risks to workers, and, although job creation was a major goal of implementing these sort of methods on a large scale in

Québec, companies now frequently report a shortage of available (willing) workers to carry out mechanical release treatments.¹⁰ Additionally, mechanical methods can cause soil compaction which may result in decreased nutrient availability to vegetation.¹² Lastly, advanced regeneration and planted seedlings may be damaged during mechanical site prep and/or release treatments. For these reasons, it has been suggested by some in industry and academia that the prudent use of herbicides in certain situations may have less overall negative impacts than alternative methods (such as mechanical methods).¹⁰

Other vegetation management tools that are employed in Québec include early planting, with seedlings being planted the spring following the final harvest. Additionally, larger planting stock is used in order to give it an advantage over competing (unwanted) vegetation.¹³

Summary

Québec is the only province in Canada that does not allow herbicides to be used in public forests. This ban was brought about by widespread public opposition to their use. The Bureau d'Audience Publique en Environnement, serving as a mediating organization between the public and the provincial government, provided the public with a means to get their opinions heard. This means was used by large numbers of Québec society including concerned citizens, scientists, academics, members of government, and members of the forest industry.

In addition to the role played by the general public and BAPE, the Québec government acted on the opinions voiced by the people of Québec. The essential ban put in place by the government has been maintained in the face of dissension from both the forest industry and, to some degree, the scientific community. Since the ban, many have accused the Québec government of succumbing to public pressure rather than relying on solid science to base forest-related decisions upon. In addition, the government has faced the threat of being sued by several pesticide companies who claim that the ban contravenes the North America Free Trade Agreement.

Academia played a role in the Québec experience as well. The BAPE commissions dealing with the use of herbicides relied partially on peer-reviewed scientific literature to base their recommendations on. Additionally, scientists and university faculty expressed comments at the BAPE consultations that were incorporated (like all other comments) into the final recommendations and report.^{4,8,9} Some academics have been among those who have criticized the government for their over-reliance on public opinion and under reliance on good science that has purportedly found little to no threat of glyphosate on human health, wildlife, or the environment.^{3,10} Others have supported the ban, asserting that there either is enough evidence of the deleterious effects of herbicides to justify the ban or that there is a need to use the precautionary principle in order to avoid potential risks to human health, wildlife, and/or the environment.¹⁴

The Québec experience addressed public concerns over the use of herbicides in forestry. Science and opinion both had a role to play in this experience. The mechanical methods of vegetation management that have replaced chemical ones, however, have brought their unique suite of problems to the forests of Québec. Additionally, the continued (albeit decreased) use of herbicides on private forested lands remains a concern for Québec residents, as witnessed by the BAPE consultations currently under way to determine the acceptability of herbicides being applied to private forested lands near La Tuque, Québec.¹⁵

Endnotes

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