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Controlling giant hogweed: the scope of a concerted regional intervention

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Summary

Giant hogweed is an invasive alien plant that can severely burn the skin. The plant is not yet very prevalent in Bas-Saint-Laurent, and intervention in the region to date has focused on eradicating it during the first stage of its invasion. To that end, a consultation process was undertaken in 2015 under the leadership of the public health authority and the regional development collective (CRD), in collaboration with several partners. Significant mobilization around this common objective has helped establish the credibility of the process and facilitate its funding and significant progress on the ground.

Introduction

Giant hogweed (Photo 1) is an alien plant considered to be invasive, in particular because of the large number of seeds it can produce when the plants reach maturity (1). Since the seeds can float on water, they are able to travel and can be dispersed over distances of up to 10 km, thereby colonizing riparian areas (1).

From an environmental standpoint, the proliferation of giant hogweed poses a risk to biodiversity. From a public health standpoint, giant hogweed is a concern because it can cause severe skin burns. When in contact with the skin and activated by ultraviolet rays, the toxins in its sap can cause second-degree burns (2). A number of burns have been reported in recent years in Bas-Saint-Laurent, including a few that received media coverage but were not confirmed by health professionals.

Photo 1 – Giant hogweed

Source : CISSS du Bas-Saint-Laurent

Québec

The intervention ongoing in Bas-Saint-Laurent since 2015 aims to eradicate giant hogweed while it is still possible—during the first stage of its invasion. This approach, which arose out of a context that favoured the mobilization of partners and the sustainability of the project, has already had an obvious impact. The characteristics and factors that contributed to the success of the intervention will be discussed below.

The emergence of a concerted approach to controlling giant hogweed in Bas-Saint-Laurent

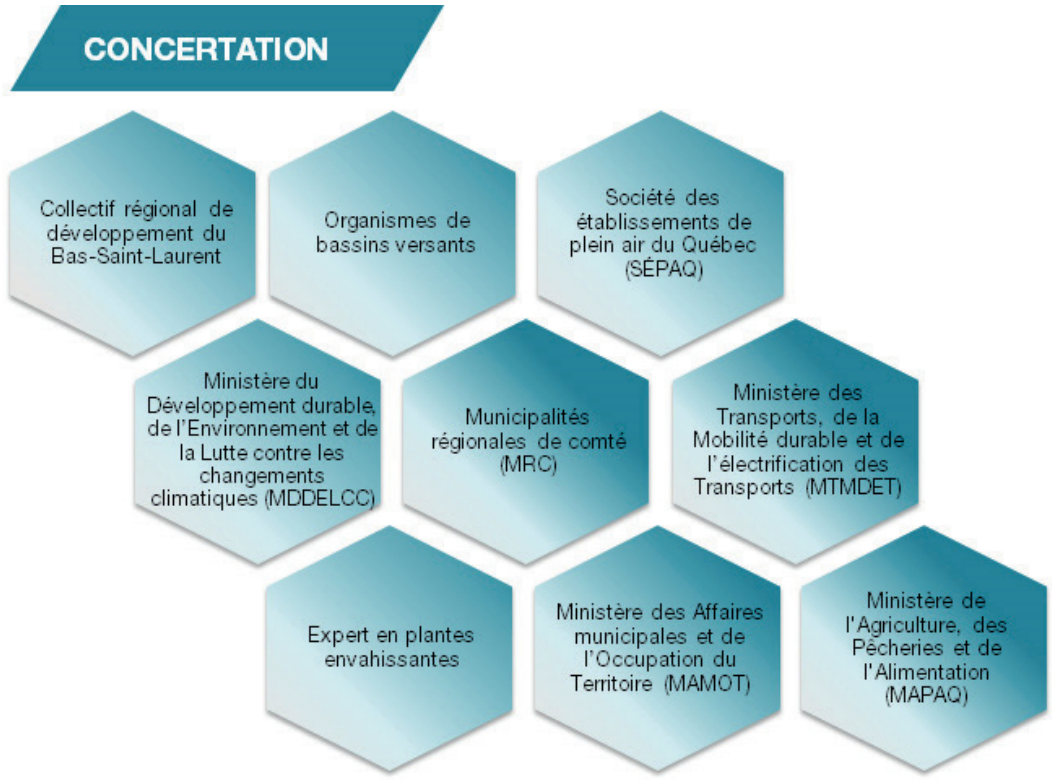
Establishing a structure for regional collaboration

Structured interventions to control giant hogweed in Bas-Saint-Laurent began in 2015, following a training session organized by the regional public health authority (DSPublique) in collaboration with a subject-matter expert. Many partners potentially affected by the giant hogweed issue were invited to this event, which gave rise to a better understanding of the problem and raised awareness of the possibility of eradicating the plant as well as providing an opportunity for the various partners to share their concerns. A working group coordinated by the DSPublique was quickly set up. Figure 1 shows the main partners involved in this working group.

Deployment of multi-faceted interventions

The action plan to control giant hogweed in Bas-Saint-Laurent is structured around **four major steps of intervention**: the continuation of awareness-raising and mobilization efforts with partners, the production of a description of the problem, the deployment of eradication actions in the field and follow-up of the previous steps. Although this sequence has made it possible to structure the interventions chronologically, it is an iterative approach requiring constant back and forth between the different steps named above, which are being refined as the interventions evolve. In addition, **three major levels of intervention** describe the chosen approach: individual, community and regional interventions. Table 1 presents examples to illustrate the levels and steps of intervention recommended in the context of the approach to control giant hogweed in Bas-Saint-Laurent.

Figure 1 – Partners affected by the issue of giant hogweed in Bas-Saint-Laurent



Source : CISSS du Bas-Saint-Laurent

Table 1 – Examples of interventions in the action plan according to the different levels and steps of intervention

STEPS	LEVELS		
	Individual	Community	Regional
Awareness and mobilization	• Informing the public and raising awareness about the problem	• Raising awareness among entrepreneurs and other partners (agriculture, excavation, etc.) about the problem	• Leading a regional consultation for the control of giant hogweed
Description	• Raising awareness among the public to encourage the identification and reporting of plants to watershed organizations (OBVs) and municipalities	• Connecting partners and OBVs to report plants to be mapped	• Establishing lines of communication between MTMDET and OBVs concerning the location of plants
Actions	• Providing information to land owners when a giant hogweed intervention is planned on their land	• Identifying plants using in situ panels to prevent burns • Removing plants by OBVs	• Proposing a model municipal by-law on giant hogweed
Follow-up		• Visiting invaded sites several times Follow-up a year for three to five years	• Publishing an annual report via local and regional media

Challenges associated with field intervention

Interventions aimed at eliminating giant hogweed plants can be laborious, particularly because of the frequent confusion with cow-parsnip, a highly common native species in Bas-Saint-Laurent (see box at the end of this article). The work is further complicated by the risk of burns associated with handling the plant and by the plant's highly invasive nature, given that each specimen can produce about 15,000 seeds (3).

Persons working with giant hogweed should therefore be able to accurately recognize the plant and should wear non-absorbent protective clothing (synthetic and waterproof material) when handling it (Photo 2) (4). In addition, colonized sites must be monitored annually until the seed bank is depleted (5), as the seeds usually take five to six years to germinate (1).

Two types of methods can be used to control giant hogweed: mechanical methods and chemical methods. The former consists mainly of uprooting the plant at the root and the umbel section before the seeds are released. Uprooting is the recommended method in early summer when plants are recognizable but still small, to limit the physical effort required for extraction. On the other hand, cutting the umbel is more useful at the end of the summer, for example when a colony is spotted late in the season. However, this method simply prevents the spread of seeds without eliminating the plant. Moreover, as giant hogweed does not die until the seeds have spread, usually after its fourth year of life, cutting the umbel prolongs its survival (6).

Photo 2 **Non-absorbent protective garment worn during an intervention on giant hogweed**

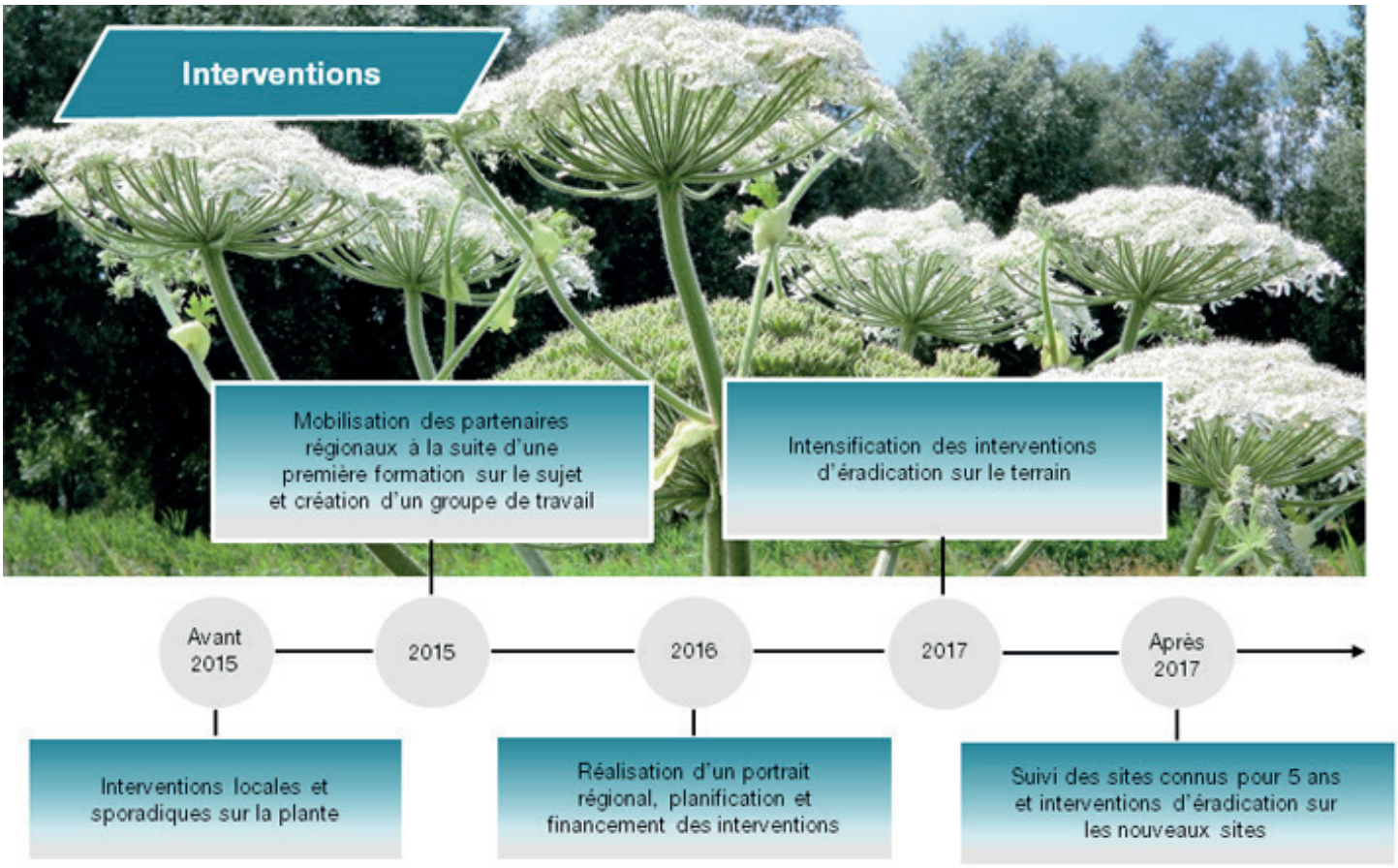
Source : OBV du fleuve Saint-Jean

Chemical methods involve using “an herbicide to kill the plant in the very short term” (4). This strategy must be repeated over time, as a single treatment usually fails to kill the plant. This method is generally used when the size of the colony exceeds the capacity of mechanical intervention. Sometimes both methods are combined to eliminate a colony (5).

Funding of interventions for sustainability

Given the significant mobilization around the issue, the structured approach that was advocated by the working group and the challenges of implementing these interventions without dedicated additional resources, the Forum de concertation bas-laurentien and the Bas-Saint-Laurent Integrated Health and Social Services Centre (CISSS) agreed as of 2016 to allocate an initial sum of $60,000 to the project over two years. The CRD, a structure aimed at supporting the Forum in managing the projects it finances, then joined forces with the DSPublique in coordinating the regional dialogue and reached agreements with the four local OBVs to fund their interventions to control and eradicate giant hogweed in the area. Figure 2 illustrates in more detail the actions surrounding the control of giant hogweed in Bas-Saint-Laurent since 2015.

Figure 2 Actions surrounding the control of giant hogweed in Bas-Saint-Laurent since 2015



Source : CISSS du Bas-Saint-Laurent

i. Le Forum de concertation bas-laurentien réunit les préfets de chaque municipalité régionale de comté (MRC), les maires de plus grandes agglomérations du territoire ainsi que quelques acteurs de la société civile, dont le CISSS du Bas-Saint-Laurent.

Project discussion and outcomes

Several factors have informed the approach to controlling giant hogweed in Bas-Saint-Laurent, starting with the fact that the plant was not widely known in the area, leading to a dearth of information and resources to effectively address the issue. Even at the community level, the multiple challenges associated with giant hogweed eradication interventions, coupled with the limited resources available, have hindered the ability of communities to adequately intervene. In addition, media coverage of a number of burn cases suspected of being caused by exposure to giant hogweed has drawn increasing attention to the issue, raising concerns among the public, elected officials and partners.

Moreover, in addition to public health risks, the anticipated ill effects of the plant on the environment have led to the involvement of a number of partner organizations whose mission focuses on biodiversity, rather than health. The training offered regionally on the issue, followed by the implementation of a regional and intersectoral structure for joint action, co-led by DSPublique and the CRD, has made it much easier for partners to get involved and for structured actions to be planned. Finally, the choice by elected officials to split the resources and costs associated with future interventions between RCMs and municipalities has made it possible to bolster, better structure and dovetail the interventions already in progress. Figure 3 illustrates a range of factors that spurred the involvement of partners.

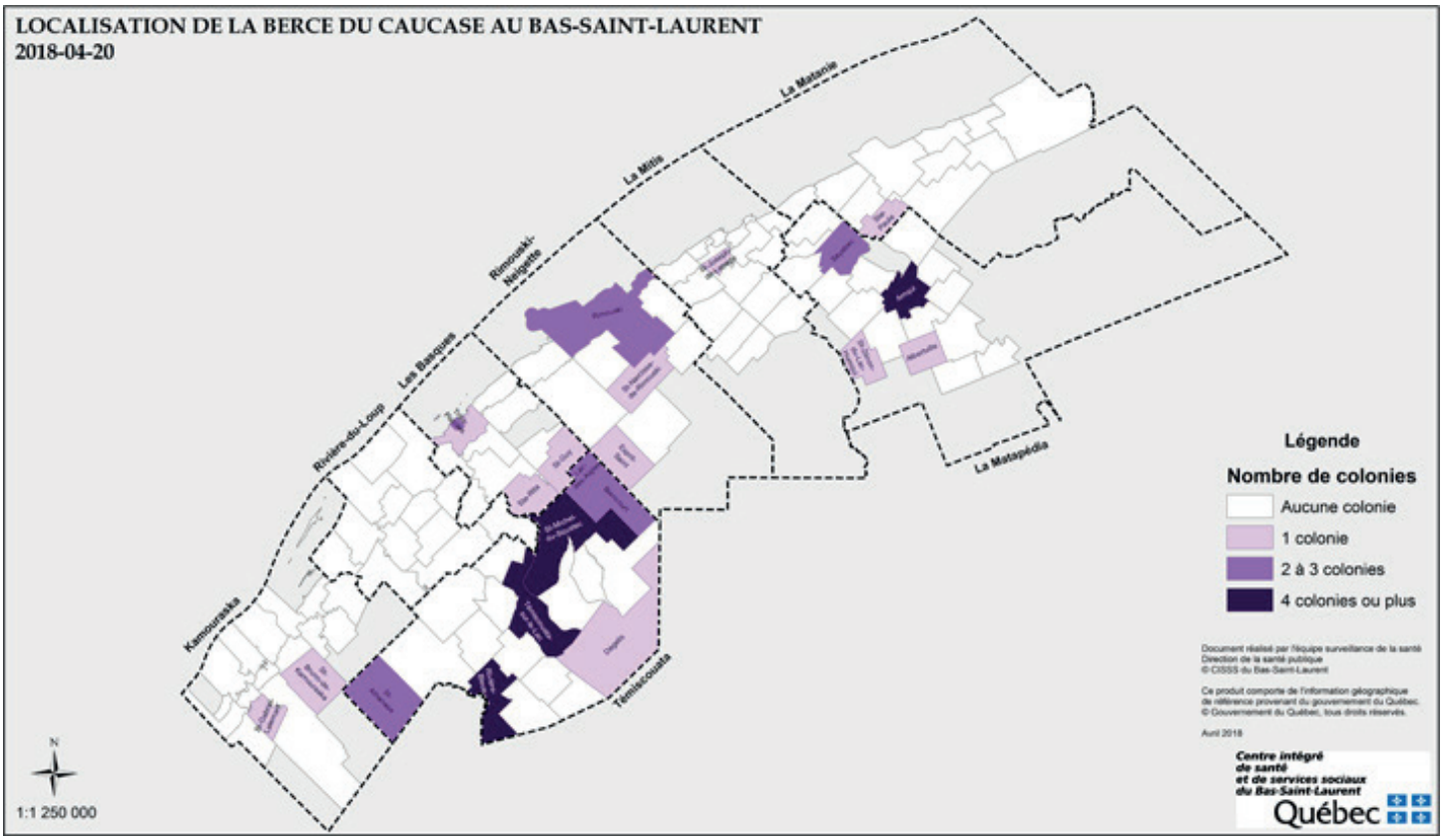
Figure 3 Factors that have spurred mobilization around giant hogweed

Source : CISSS du Bas-Saint-Laurent

The concerted efforts have led to a better understanding of giant hogweed's geographical distribution in Bas-Saint-Laurent (Map 1), in addition to better equipping local stakeholders to intervene effectively and prevent the plant from spreading. They have promoted public awareness of the plant's health effects and the importance of reducing the risk of exposure. They were also an invaluable opportunity to partner with various local actors, including stakeholders from the municipal and health sectors, in line with the Démarche Prendre soin de notre monde [Taking care of our world approach] (7).

This process has contributed to more clearly outlining the roles of each individual partner, all while fostering a shared sense of collective success and motivating partners to collaborate on other issues. Finally, splitting the cost of tackling the issue, which respects no borders, has made it possible not to leave the public and municipalities dealing with this invasive species to their own devices, while also promoting interventions that are sustainable in the long term.

Map 1 Giant hogweed distribution in Bas-Saint-Laurent



Source : CISSS du Bas-Saint-Laurent

Conclusion

The approach deployed in Bas-Saint-Laurent stands out for its proactive, voluntary, concerted and collaborative nature. The choice to raise partner awareness through local training sessions seems to have led to voluntary mobilization around a working group before the issue becomes out of hand in the area. The intervention to control giant hogweed in Bas-Saint-Laurent has been bolstered by a sharing of responsibilities between the partners, including funding from elected officials and the CISSS, the leading of on-the-ground actions by the OBVs and the facilitation of the consultation process by regional organizations such as the CRD and DSPublique. The project also gained great credibility thanks to the support of a Université Laval expert, whose in-depth knowledge of the subject and experience in comparable contexts informed the choice of efficient strategies and made it possible to sidestep certain mistakes in managing the issue and promoting the involvement of the partners.

It appears to us that the essential foundations for the success of such an intervention are: 1) the involvement of elected officials and regional and local partners; 2) a regional consultation structure to take into account the concerns of all partners; 3) complete coverage of the Bas-Saint-Laurent territory to zero in on the problem and take action; 4) a financial investment shared among regional partners; and 5) medium- and long-term monitoring of the interventions and their progress.

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A word about cow-parsnip and common hogweed

Two other species of hogweed are found in Bas-Saint-Laurent: cow-parsnip (Heracleum maximum) and common hogweed (Heracleum sphondylium).

Cow-parsnip, a native species, can also cause burns, albeit less severe than those caused by giant hogweed (8).

The lesser-known common hogweed is mainly found in the Matapédia Valley. Unlike giant hogweed, this species is well established in the environment. It seems impossible to envision its eradication at this point (9). The favoured approach in the intervention regarding this species has been to reduce the risk of burns by controlling its presence in areas that attract the public (walking trails, children's parks, etc.) and to prevent it from spreading.

Acknowledgements

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Photo credit: OBV du fleuve Saint-Jean, pixabay.com.

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