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LL.M. (Law)

GRADE / DEGREE

Faculty of Law

FACULTÉ, ÉCOLE, DÉPARTEMENT / FACULTY, SCHOOL, DEPARTMENT

Protecting Canada's Natural Ecosystems From Invasive Alien Plant Species : Is Sub-National Weed Control Legislation Up To The Task?

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PROTECTING CANADA'S NATURAL ECOSYSTEMS FROM INVASIVE ALIEN PLANT SPECIES: IS SUB-NATIONAL WEED CONTROL LEGISLATION UP TO THE TASK?

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Thesis submitted to the
School of Graduate Studies and Research
In partial fulfilment of the requirements
For the LL.M. degree in Law

Faculty of Law
University of Ottawa

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ISBN: 978-0-494-25801-9
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ISBN: 978-0-494-25801-9

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ABSTRACT

Invasive alien plant species pose a serious threat to Canada's natural ecosystems. It is the thesis of this paper that sub-national laws are important tools in combatting such species that are naturalized and spreading within provincial and territorial boundaries. Weed control acts in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, and Prince Edward Island and the plant health protection acts in New Brunswick, and Newfoundland and Labrador are a strong basis to combat invasive alien plant species.

However, since these laws were enacted for weeds in agro-ecosystems, they are not up to the task of protecting natural ecosystems from invasive alien plant species. In some provinces and territories, there is a need to fill gaps in the law and ensure that it applies in a clear and uniform manner to all natural ecosystems. Numerous other revisions are recommended to make applicable provincial and territorial laws more effective.

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CHAPTER 1: INTRODUCTION

In Canada, the presence of invasive alien plant species in natural terrestrial ecosystems[1] is evident from coast to coast; from the spotted knapweed (*Centurea maculosa*) invasion of British Columbia rangelands to the leafy spurge (*Euphorbia esula*) infestations of the aspen parkland in Manitoba and on to the broad expanses of purple loosestrife (*Lythrium salicaria*) in Nova Scotia wetlands. These species are widely recognized as a serious threat to biological diversity[2] and ecosystem functions.[3] While many invasive alien plant species arrived in Canada with early colonists, the increased traffic of people and goods in a globalized world hastens the movement of such species into new habitats, further placing natural ecosystems at risk.[4] Many Canadian landscapes continue to be

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1 An ecosystem is "a dynamic complex of plant, animal, and micro-organisms communities and their non-living environment interacting as a functioning unit". *Convention on Biological Diversity*, June 5, 1992, 31 I.L.M. 818. The term "natural ecosystems" used in this paper means ecosystems wherein the vegetation is comprised of endemic species. For example, agro-ecosystems that are cultivated and planted with crop species are not covered by this definition. Native rangelands would be considered natural ecosystems as would forests if they have not been logged and planted with alien tree species.

2 Biological diversity means "variability among living organisms including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." *Ibid.* It should be noted that invasive alien plant species may, in some instances, increase biodiversity by increasing species richness.

3 See Erich Haber, "Spread and Impact of Alien Plants Across Canadian Landscapes" in Renata Claudi, Patrick Nantel and Elizabeth Muckle-Jeffs, *eds., Alien Invaders In Canada's Waters, Wetlands and Forests* (Ottawa: Natural Resources Canada Publication, 2002) at 43, D.J. White, E. Haber & C. Keddy, *Invasive Plants of Natural Habitats in Canada: An Integrated Review of Wetland and Upland Species and Legislation Governing Their Control* (Ottawa: Canadian Wildlife Service Publication, 1993).

4 For a discussion of global trade and alien invasive species in general, see Michael Margolis, "Fending Off Invasive Species: Can We Draw the Line Without Turning to Trade Tariffs?" (2004) Resources 18, Marc L. Miller,"NIS, WTO, SPS, WIR: Does the WTO Substantially Limit the Ability of Countries to Regulate Harmful Nonindigenous

profoundly altered as these aggressive species often prove unstoppable once they have become established and begin to spread.

Canada's commitment to address the threat of invasive alien species dates back to 1992 when Canada became a Party to the *Convention on Biological Diversity.*[5] The Convention requires Parties to "as far as possible, and as appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species."[6] In 1995, the federal, provincial and territorial governments developed the Biodiversity Strategy[7] as a response to the Convention. The Strategy contained a number of strategic directions for dealing with invasive species including ensuring that "there is adequate legislation and enforcement to control introductions or escapes of harmful alien organisms."[8] While a few studies were commissioned to examine the regulatory regime for invasive alien species,[9] no action was ever taken to

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Species" (2003) 17 Emory International Law Review 1059, Mike J. Prather,"International Trade and the Bioinvasion: A Price for Everything and Everything for a Price" (2001) 10 Currents: International Trade Law Journal 45.

5 *Supra* note 1.

6 *Ibid.* art. 8 (h).

7 Canadian Biodiversity Strategy, *Canada's Response to the Convention on Biological Diversity* (Ottawa: Minister of Supply and Services 1995).

8 *Ibid.* at 45.

9 See Cathy Keddy, Murray Smith, & Brent Tegler, *The Role of Importation Control in Protecting Native Biodiversity: A Discussion Document - Recommendations for the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA)* (Ottawa: Canadian Wildlife Service Publication, 1999), John Donihee & Marshal Netherwood, *An Overview of Provincial and Territorial Regulation of Alien Invasive Species* (Ottawa: Canadian Wildlife Service Publication, 2001).

implement this provision of the Strategy.

A 2002 audit by the Commissioner of the Environment and Sustainable Development harshly criticized the federal government's slow response to control the movement of invasive alien species into and within Canada.[10] This prompted the federal, provincial and territorial governments to work collaboratively to develop an *Alien Invasive Species Strategy for Canada*[11] and a *Proposed Action Plan for Invasive Alien Terrestrial Plants and Plant Pests, Phase 1*.[12] The Action Plan identified the importance of sound legislation in protecting natural ecosystems from invasive alien plant species and concluded that:

> while current legislation in Canada provides a strong foundation for protecting plants and habitats from invasive alien species, complete analysis of existing legislation and policies of partner organizations is recommended in order to identify weaknesses, fill gaps, and ensure a

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10 According to the Commissioner, "the federal government has not responded effectively to invasive species that threaten Canada's ecosystems, habitats, and other species. Ten years after the federal commitment to prevent their introduction or to control or eradicate them, the number of invasive species in Canada continues to grow. We found that neither the United Nations Convention on Biological Diversity nor the Canadian Biodiversity Strategy has triggered an identifiable change in the government's approach." Commissioner of the Environment and Sustainable Development, *Report to the House of Commons Chapter 4, Invasive Species* (Ottawa: The Commissioner of the Environment and Sustainable Development Publication, 2002) at 1.

11 Federal/Provincial/Territorial Working Group on Invasive Species, *An Invasive Alien Species Strategy for Canada* (Ottawa: Government of Canada Publication, 2004).

12 Federal/Provincial /Territorial Working Group on Invasive Alien Plant Species and Plant Pests, *The Proposed Action Plan for Invasive Alien Terrestrial Plant and Plant Pests, Phase 1* (Ottawa: Government of Canada Publication, 2004). The Action Plan was approved by the federal, provincial and territorial Ministers for Wildlife, Forests and Fisheries and Aquaculture and, in October 2005, an implementation plan was also approved. Federal/Provincial /Territorial Working Group on Invasive Alien Plant Species and Plant Pests, *The Proposed Action Plan for Invasive Alien Terrestrial Plant and Plant Pests, Phase 2 - Proposed Implementation Plan* (Ottawa: Government of Canada Publication, 2005).

coordinated and mutually supportive approach.[13]

The provinces, territories and local governments are important organizations in controlling invasive alien plant species that have established and are spreading within their boundaries and a complete analysis of relevant laws at those levels of jurisdiction has yet to be done.[14]

It is the thesis of this paper that strong sub-national laws are important tools in protecting Canada's natural ecosystems from alien plant species that have become naturalized and invasive. Provincial weed control acts and other provincial and territorial acts currently apply to such species but much of this legislation was enacted over a century ago as a means to combat weeds in simpler, more easily managed, agro-ecosystems. It is important to examine this body of law to determine if it is up to the task of protecting more complex, natural ecosystems from invasive alien plant species. Where it falls short, the legislation must be revised to ensure it applies in a clear, uniform and effective manner. Otherwise, invasive alien plant species will continue to spread, placing many natural ecosystems at risk of irreparable damage.

This paper presents arguments in support of this thesis in two parts. The first part describes the current body of laws that applies to invasive alien plant species in natural

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13 *Ibid.* at 2.

14 Donihee & Netherwood, *supra* note 9, surveyed provincial and territorial legislation regulating invasive species but did not provide any analysis of the legislation identified.

ecosystems and its historical and ecological context. In this part, chapter 2 describes the challenges of finding appropriate terminology to describe the phenomenon of plant invasiveness in natural ecosystems, particularly in regard to the confusion that arises around the use of the words "weeds" and "invasive alien plant species." Chapter 3 discusses the history of weeds and weed control legislation in Canada. This chapter also sets out the key provisions of the current legislation that apply to weeds and invasive alien plant species and identifies their strengths and weaknesses. Chapter 4 shifts the focus to the ecology of invasive alien plant species in natural ecosystems, emphasizing the challenges of risk assessment, risk management and ecosystem restoration.

The second part of this paper presents an analysis of sub-national legislation as it applies to invasive alien plant species in natural ecosystems and makes recommendations as to how it can be strengthened. In this part, chapter 5 describes why law is an important tool in combating invasive alien plant species in natural ecosystems and proposes that the provincial weed control acts and plant health protection acts are an effective basis for combating invasive alien plant species. It identifies those provinces and territories where there are gaps in the law or the law does not clearly and uniformly apply to all natural ecosystems. This chapter recommends actions that should be taken to strengthen sub-national laws in this regard and it addresses the problem of invasive alien plants that spread from other jurisdictions. Chapter 6 recommends numerous specific provisions that will make laws for invasive alien plant species in all provinces and territories more effective in protecting natural ecosystems.

Jurisdictional authority over invasive alien plants, like other environmental issues, is shared between different levels of government.[15] However, this paper focuses solely on invasive alien plant species established and spreading in terrestrial natural ecosystems on private, provincial, territorial and local government lands. The sub-national laws examined in this paper fall within the constitutional authorities granted to provincial governments[16] as well authorities granted by the federal government to the territories under the *Northwest Territories Act*,[17] the *Yukon Act*[18] and the *Nunavut Act*.[19]

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15 For a discussion of federal and provincial jurisdiction over the environment see Jamie Benidickson, *Environmental Law* 2nd ed. (Toronto: Irwin Law Inc. 2002) at 25.

16 Constitution Act, 1867 (UK), 30&31 Vict., c.3. Provincial authority can derived form s. 92(13) powers related to "Property and Civil Rights in the Province," and s. 92 (16) powers over "Generally all Matters of a merely local or private Nature in the Province." In addition, provincial constitutional authorities to regulate invasive alien plant species can be found in authorities grants for "the Management and Sale of Public Lands belonging to the Province and of the Timber and Wood thereon " under s. 92(5), "Municipal Institutions in the Province" under s. 92 (8) and the enforcement powers under s. 92(15). Further authority can be found in the Constitution Act, 1982, s.92A(1) (b) which grants provinces exclusive authority to make laws in relation to the conservation and management of forestry resources.

17 R.S.C. 1985, c-N-27.Relevant authorities are found in s. 16(c) "municipal and local institutions in the Territories including local administration districts, school districts, local improvement districts and irrigation districts" s. 16 (h) "property and civil rights in the Territories,".s.16(n.1) the management and sale of lands under the control and administration of the Commissioner and of timber and wood thereon, s.16 (m) "the preservation of game in the Territories," s. 16 (f) "generally, all matters of a merely local and private nature in the Territories" and the enforcement powers in s.16(u).

18 S.C. 2002, c-7.Relevant authorities are found in s. 18(1)(c) "municipal and local institutions,"s.18(1)(m) "the conservation of wildlife and its habitat, other than in a federal conservation area,"s. 18 (1) (q), public real property - including timber and wood on that property - under the administration and control of the Commissioner, s. 18(1)(x) "generally, all matters of a merely local and private nature," and enforcement powers in 18 (1)(y).

19 S.C. 1998, c.28. Relevant authorities are found in s. 23(1)(g) "municipal and local institutions in Nunavut," s.23(1)(l) "property and civil rights in Nunavut," s. 23 (1) (v) "generally, all matters of a merely local and private nature in Nunavut", s. 23 (1)(s) "the preservation of game in Nunavut"and the enforcement powers in s.23(1)(w).

This paper does not deal with the trans-boundary movement of invasive alien plant species or their import, export or sale. These activities raise more complicated jurisdictional issues and require a clear understanding of the applicable federal law. That understanding is only now evolving as the federal government is currently considering the use of the *Plant Protection Act*[20] as a legal basis for addressing the risks of invasive alien plant species, particularly for alien plant species being imported into Canada.[21]

CHAPTER 2: TERMINOLOGY

2.1 INTRODUCTION

The terminology used in this paper requires clarification at the offset given that the paper deals with legislation that applies to "weeds" but analyses it in relation to "invasive alien plant species." The need for clarification also stems from the considerable confusion that arises from the inconsistent use of terminology in the literature[22] and the common use of highly subjective language to describe plants and plant invasions.[23] This chapter explains why the word "weed" will only be used herein when examining the historical and current weed control legislation of that title and provides the rationale for using the more

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20 S.C. 1990, c.22.

21 *Supra* note 12 at 33.

22 David M. Richardson *et al.* "Naturalization and Invasion of Alien Plants: Concepts and Definitions (2000) 6 Diversity and Distributions 93 at 93.

23 See P. Binggeli, "Misuse of Terminology and Anthropomorphic Concepts in the Description of Introduced Species" (1994) 25 Bulletin of the British Ecological Society. 10.

objective phrase "invasive alien plant species" in all other parts of the paper. This discussion about terminology will inform the discussion on legal definitions in chapter 6.

2.2 THE DIFFICULTIES OF DEFINING A "WEED"

In 1956, the Weed Society of America simply defined a "weed" as a "plant not growing where it is wanted".[24] This definition reflects the highly subjective nature of the concept of a "weed" given that:

> "Weeds" and "weediness" are two ideas that have been constructed and reconstructed across millennia. The flora which have come to be called weeds and we, the species which have called them that, have been contesting places for something like ten thousand years.[25]

During that long history, the concept of a "weed" has been inextricably linked to the culture and outlook of those peoples who have competed with these plant species.[26] Correspondingly, how one designates a plant as a "weed" depends on the person, place, time, and culture. The personal perception of "weeds" is also reflected in the colourful words used to describe them. They may be described as "noxious" or "nuisance"

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24 Weed Society of America, "Terminology Committee Report" (1956) 4 Weeds 283 at 283. An even more vague definition has been offered by Myers & Bazely who consider that "weeds are plants growing out of place or plants whose value has not yet been discovered.", Judith H. Myers & Dawn R. Bazely, *Ecology and Control of Introduced Plants* (Cambridge: Cambridge University Press 2003) at 1.

25 Neil Clayton, "Weeds, People and Contested Places" (2003) 9 Environment and History 301at 303.

26 Clinton L. Evans, *The War on Weeds in the Prairie West, An Environmental History* (Calgary: University of Calgary Press, 2003) at 2.

depending on how unwanted they are at any particular time.[27]

While the search for an objective meaning for the word "weed" has proven fruitless,[28] there are contrary opinions about the value of using the word in relation to plants that have invaded natural ecosystems. It has been argued that the word "weed" is a well established term[29] meaning "plants that grow in sites where they are not wanted and which usually have detectable economic or environmental effects."[30] Linking the meaning of the word to detectable economic or environmental effects goes some way to making the word less subjective but does not render the word more acceptable from a scientific perspective. The word "weed" remains largely used in relation to invasive plant species in agro-ecosystems and their control. It is now less commonly used in the ecological literature describing plants invading natural ecosystems.

However, in spite of the lack of a scientific definition for the word "weed", experts have been able to agree on what plant species should be designated as such in regard to agro-ecosystems.[31] This has been reflected in the ever-evolving list of plants labelled "weeds"

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27 The use of the word "noxious" to describe invasive species in particular implies adverse effects on or annoyance to humans.

28 As Evans has pointed out "Botanists and plant taxonomists have provided little assistance in this search for meaning because they have long been conscious of the subjective and hence anthropocentric nature of the term and the plants that it describes". *Supra* note 26.

29 *Supra* note 17 at 101.

30 *Ibid.* at 98.

31 *Supra* note 26 at 4.

or "noxious weeds" under provincial weed control acts. Chapter 3 of this paper, which describes the development of provincial weed control legislation, will use the word "weed" to describe invasive alien plants in agro-ecosystems. This provides historically correct terminology since the term "alien invasive plant species", which is used through the rest of the paper, is only of recent origin.

2.3 THE MEANING OF "INVASIVE ALIEN PLANT SPECIES"

A number of different terms have been used to describe invasive alien plant species in natural ecosystems. They have been called "environmental weeds"[32] or "exotic plant invaders."[33] However, some consistency appears to be developing in the biological literature with the more common use of the term "invasive alien plant species". Since this is also the terminology adopted in current Canadian policy documents,[34] this paper uses the term "invasive alien plant species" as well.

While it is important to decide on the appropriate terminology to use in this paper, it is also important to define clearly what is meant when the words "invasive alien plant species" are used. The complex biological phenomenon of plant invasiveness provides a particular challenge in crafting any definition, especially given that plants become

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32 For example, see Jann Williams & Carol J. West, "Environmental Weeds in Australia and New Zealand: Issues and Approaches to Management" (2000) 25 Austral Ecology 425.

33 For example, see Ryan M. Keane & Michael J. Crawley, "Exotic Plant Invasions and the Enemy Release Hypothesis" (2002) 17 Trends in Ecology & Evolution 164.

34 *Supra* note 12.

invasive in stages that may not be always be discreet.[35] This paper proposes not only to provide a clear definition for "invasive alien plant species" but also to use and define another term, "naturalization", to provide a more accurate and refined phase-based description of plant invasions in natural ecosystems.

Key to the definition of "invasive alien plant species" is an understanding of what an "alien plant species" is. An "alien plant species" can be defined as a plant species "that has been introduced by human action outside its natural past or present distribution."[36] It is important to note that an alien plant species can be beneficial or harmful[37] and it can be introduced accidentally or intentionally. An alien plant species may become naturalized; that is, it may establish self-perpetuating populations unsupported and independent of humans.[38] In some circumstances naturalization may be the first phase of a plant invasion but, in other circumstances, the plant species might simply continue to exist in localized populations that do not pose a threat to natural ecosystems.

Should a naturalized alien plant species begin to spread throughout the ecosystem, it is

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35 Robert J. Colautti & Hugh MacIssac, "A Neutral Terminology to Define "Invasive" Species" (2004) 10 Diversity & Distributions 135 at 135.

36 *Supra* note 12 at 3. Admittedly, it is not always easy to determine what the natural past or present distribution might be, given that plant species' ranges may expand or contract dramatically over time.

37 All crop plants in Canada are alien plant species. For example, corn originated in Mexico. See Kevin O. Pope, et al., "Origins and Environmental Setting of Ancient Agriculture in the Lowlands of Mesoamerica" (2001) 29 Science 1370.

38 *Supra* note 22 at 98.

considered a "invasive alien plant species" when such population increase threatens natural ecosystems. The increase in populations of a naturalized alien plant species may also threaten the economy, society, and human health.[39] However, the definition used here is limited to threats to natural ecosystems reflecting the particular focus of this paper.

CHAPTER 3: THE PROVINCIAL WEED CONTROL LEGISLATIVE FRAMEWORK: HISTORY AND CURRENT STATUS

3.1 INTRODUCTION

The origins of provincial weed control legislation are firmly rooted in the need to reduce economic losses due to weed infestations in agricultural crops. Even before Confederation, governments viewed legislation as an important tool in the war against weeds and that view still prevails over a century later. This chapter gives a brief history of weeds in Canada, traces the history of provincial weed control legislation and examines the array of acts that can be applied to invasive alien plant species. It sets the stage for a discussion about how the current laws must evolve beyond their original purpose of combating weeds in agro-ecosystems, to protect natural ecosystems from invasive alien plant species.

3.2 A HISTORY OF WEEDS IN AGRO-ECOSYSTEMS

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[39] *Supra* note 12 at 3.

Some of the weed species that thrived in the crops of early settlers in North America were native species.[40] However, most weeds were intentionally or unintentionally introduced from Europe by the early settlers themselves. Weed seeds were imported as contaminants of grain seed or animal feed[41] or they may have clung to transported animals or implements. Packing materials and ships' ballast, which was commonly dumped on shore, may also have introduced weeds into North America.[42] Settlers intentionally brought plants with them for food, medicinal or ornamental purposes, or to serve for other uses such as dyes or fibers.[43] Some of these plants escaped cultivation to become agricultural weeds.

Once a weed species became established and infested crop lands, it often spread quickly. This happened both between Canada and the United States, as well as within Canada, from one region to another. This occurred through a number of different mechanisms that were well described by the federal Department of Agriculture in 1932:

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40 For example, common milkweed (*Asclepias syriaca*) is a native species that is considered a weed in agricultural crops. See Prasanta C. Bhowwmik & John D. Badeen, "The Biology of Canadian Weeds 19 *Asclepias syiaca* L." (1976) 56 Canadian Journal of Plant Sciences 579.

41 Wild oats *(Avena fatua)*, one of the most serious weeds of grain crops, was introduced by early settlers in this manner. M.P. Sharma & W.H. Vanden Born, "The Biology of Canadian Weeds 27 *Avena fatua* L." (1978) Canadian Journal of Plant Sciences 141 at 146.

42 Haber, *supra* note 3 at 46.

43 *Ibid.* One example of a weed brought to North America to serve multiple purposes is butter-and-eggs or yellow toad flax (*Linaria vulgaris*). It was likely introduced into North America for ornamental purposes but it also was used in folk medicine and homeopathy, as an insecticide or as a source of yellow dye. This plant was also considered to have "religious and magical attributes." See Marc. A. Saner, et al., "The Biology of Canadian Weeds. 105 *Linaria vulgaris* Mill." (1995) 75 Canadian Journal of Plant Science 525.

> New weeds are introduced on farms with grass, clover or other commercial seeds and commercial feeding stuffs, which often contain vital weed seeds. They are spread from district to district through various transportation facilities, such as railways, and become disseminated within a locality in stable manure from towns and cities, and through threshing machines and farm implements. The wind carries weed seeds long distances, not only in summer but with drifting soil and over the surface of snow. Streams distribute them along their courses. They are also distributed by herbivorous animals, through the stomachs of which the seeds pass undigested; or they attach themselves by special contrivances such as hooked and barbed hairs, spines, gummy excretions etc. to passing animals.[44]

However, the opportunistic nature of weed species was not the sole reason for their success in establishing and spreading throughout Canada. The establishment of a "weed-friendly" style of agriculture, adopted especially in Ontario and the prairie provinces, also contributed significantly to the ever-growing problem of weeds.[45]

As agriculture expanded across Canada, federal and provincial agriculture departments sought to educate farmers about the importance of weed control.[46] Economic losses remained high since the early forms of weed control—hoeing, hand-pulling, summer

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44 Department of Agriculture, *Weeds and Weed Seeds Illustrated and Described* (Ottawa: Department of Agriculture Bulletin No 137, 1932) at 1.

45 *Supra* note 26 at 60. A number of factors contributed to a Canadian "weed friendly" style of agriculture, including the commonly adopted system of planting grain one year followed by a year in which the land lay fallow. This was in contrast to the British approach to weed control by rotating grain crops with turnips. Turnip crops allowed effective control of weeds by hand weeding and hoeing.

46 Some examples of educational materials for farmers include J. Hoyes Panton *Weeds of Ontario* (Ontario: Ontario Agricultural College and Experimental Farm, Bulletin 91, 1893), George H. Clark & James Fletcher *Farm Weeds of Canada* (Ottawa: Department of Agriculture Publication, 1905), and Department of Agriculture, *Weeds of Alberta: Their Identification and Control* (Edmonton: Alberta Department of Agriculture, 1941).

fallow, and seed-cleaning—were labour intensive and inefficient. A priority was placed on finding a chemical means of weed control but early weed control chemicals such as chlorates proved of limited success.[47] In 1947, the herbicide 2,4-D became commercially available as the "silver bullet" to reduce economic losses due to agricultural weeds.[48]

The use of 2,4-D and related chemicals by Canadian farmers increased dramatically over the 1950s and 1960s[49] but weed resistance and concerns about ecological impacts associated with their use spurred research into new forms of weed control. New herbicides were developed but the most significant advance in combating weeds came with the availability in the early 1990s of herbicide-tolerant transgenic crop plants. These crops are now commonly planted throughout Canada as the war on weeds continues.[50]

3.3 LEGISLATING THE WAR ON WEEDS

3.3.1 A Historical Perspective

The serious problem of weeds in early Canada caused governments to take strong action, forcing individuals or companies allowing weeds to grow on their property to destroy

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47 *Supra* note 26 at 156.

48 *Ibid.* at 163.

49 *Ibid.* at 165.

50 In 2004, 77% of Canada's canola hectarage was planted with genetically modified varieties. Clive James, *Preview: Global Status of Commercialized Biotech/GM Crops* (Ithaca, N.Y.: ISAAA Briefs No 32, 2005) at 6.

those weeds in the interests of the common good. Weed control was thus embodied in a number of different statutes. Since weeds were often spread along railways and roads, legislation governing railway and road companies sometimes mandated weed control on company lands.[51] Early legislation that established local governments for cities, towns, and municipalities also provided the authority to make by-laws controlling thistles and weeds both on municipal roads[52] and private lands.[53] This authority reflected the fact that local governments are often best positioned to detect weed infestations before they become wide spread, and are able to take quick action.

Governments also took steps to enact legislation that specifically targeted problem weeds, especially Canada thistle (*Cirsium arvense*). The earliest of such legislation was Nova Scotia's *An ACT to Prevent the Growth and Increafe of Thiftles on Lands in this*

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51 For example see, *The Quebec Railways Act,* S.Q.1869, c. 51, s. 70, *The Railways Act of Ontario*, R.S.O. 1877, c. 165, s. 99, *The New Brunswick Railway Act*, S.N.B.1891, s. 83, *The Nova Scotia Railways Act*, R.S.N.S. 1900, c.99, s. 266, *The General Road Companies Act*. R.S.O.1887, c. 193, s. 46. These Acts provided that a mayor, head of a municipality or Justice of the Peace could give notice to destroy the weeds. If the company failed to comply with the notice, it could be fined and billed for expenses incurred in cleaning up the lands.

52 *For example see, An Act to Provide for One General Law for the Election of Municipal Corporations and the Establishment of Regulation of Police in and for the Several Counties, Cities, Towns, Townships and Villages in Upper Canada,* 1849, 12 Vict. c. 81, ss. XXXI (21), *Municipal Code of the Province of Quebec*, 1870, 34 Vict. C.68, s. 778.

53 *For example see, The Towns' Incorporation Act* , S.N.S. 1888, c. 4, s. 269 (12), *The Municipal Act*, R.S.N.S. 1900, c. 70, s.134 (31), *Municipalities Act,* R.S.N.B.1877, c.99, s. 96 (30), *The Municipal Act*, R.S.O 1887, c. 164, s. 489 (22). *An Act to Consolidate and Amend "the Winnipeg Charter"*, S.M. 1918, c. 120, s. 700 (201). *The Municipal Ordinance*, O.N.W.T. 1894, s.16. compelled owners or occupiers to destroy weeds. If the by-law was not complied with the weeds could be destroyed at the owner's cost. *The Rural Municipalities Act,* R.S.S.1908-9, c. 87, s. 200-207 went further to appoint inspectors to enforce the *Noxious Weeds Act* and to allow expenses for destroying weeds to be recovered as taxes against the property.

Province,[54] enacted in 1758. This Act provided for county Justices of the Peace to make regulations for the control of Canada thistles each year[55] and to appoint inspectors to enforce the regulations.[56] Anyone who neglected their duty to control weeds was fined.[57] Failure to pay the fine had serious consequences, in that a warrant could be issued by the Court for seizure and sale of the offender's goods and chattels.[58]

Lower and Upper Canada also enacted legislation to control weeds. Lower Canada's *An Act to Prevent Agricultural Abuses*[59] of 1850 provided that any owner or proprietor of land could give notice to an owner or proprietor to destroy weeds on adjoining lands or common, which were not sown to crops and where noxious weeds were growing.[60] If the notice was not complied with, a complaint could be made to a Justice of the Peace who could impose a daily penalty for the time that the weeds remained standing.[61] The Act also prohibited the scattering of the seeds of any noxious weeds[62] and provided for the Surveyors and Overseers of Highways to destroy weeds on roads, canal banks, rail-road

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54 A.S.N.S. 1758, c. VI.

55 *Ibid.* s. I.

56 *Ibid.* s. II.

57 *Ibid.* s. III.

58 *Ibid.* s. IV.

59 13&14 S.L.C. 1850, c. 40.

60 *Ibid.* s. XLIII.

61 *Ibid.*

62 *Ibid.* s. XLIV.

lands and all public works and places.[63]

In 1865, Upper Canada enacted the *1865 Canada Thistle Act of Upper Canada,* which imposed an annual duty on every occupant of land to cut down Canada thistles.[64] The Overseer of Highways was charged with cutting thistles on highways or road allowances and providing notice to owners, possessors, or occupants of lands to cut thistles growing on their lands.[65] If the notice was not complied with, the Overseer could enter the land, cut the thistles,[66] and deliver the bill to the owner, occupier, or possessor of the lands for payment.[67] Failure to pay the bill would result in the municipal council collecting it as taxes.[68] A similar process was established for Canada thistles growing on railway property, with the exception that the Clerk of the municipality would provide written notice to the Station Master to cut the thistles.[69]

The weed control acts pre-dating Confederation established the fundamentals of modern provincial weed control acts in provisions establishing a duty for owners or occupiers to

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63 *Ibid.* s. XLV.

64 1865, 29 Vict. c.40 s. 1.

65 *Ibid.* s. 2.

66 *Ibid.*

67 *Ibid.* s. 4.

68 *Ibid.* s. 5.

69 *Ibid.* s. 3.

cut down weeds, the appointment of inspectors to see that the duty was met, and the actions that could be taken to destroy the weeds and penalize the offender. These are reflected in a later section of this paper dealing with current provincial weed control acts. However, there are broader trends in the historical development of weed control legislation that are of interest, since they reflect Canada's political growth as a nation, its settlement patterns and agricultural land uses, the growing problem of weed control, and the development of federal law for ensuring seed purity.

Annex 1 shows that, as new provinces were created within Canada, weed control acts had a high priority, often placing them among the first acts promulgated. The exception lies with the Maritime provinces where weed control legislation has only recently been introduced.[70] This may have been due to the smaller scale and more diversified nature of eastern agriculture.[71] It has been noted that "weeds cost eastern farmers money but they cannot be said to have threatened a farmer's very livelihood as they did in the West."[72]

The impetus for provinces to create weed control legislation was certainly the growing economic impacts of new weeds that sprang up with agricultural development across Canada. The 1877 weed control acts in British Columbia and Ontario applied only to

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70 While Nova Scotia may have enacted the first weed control legislation in British North America, it was 102 years after Confederation that a weed control act was in force for the province.

71 *Supra* note 26 at 120.

72 *Ibid.*

Canada thistle.[73] However, later weed control acts in these provinces and others would apply to a much greater number of weeds and include provisions to quickly "capture" new weeds by listing them in regulations.[74]

Some early provincial weed control acts also changed significantly in scope when they were amended to remove provisions prohibiting the sale of crop seeds contaminated with weeds and establishing grades for seed purity.[75] This followed the federal government's enactment of the *Seed Control Act* in 1905, which prohibited persons from selling seed unless it was free from certain weed seeds and ergot[76] and established grades for grain on the basis of weed seed contamination.[77] These provisions duplicated those in the provincial weed control acts but the federal government's legislation prevailed under

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73 *Thistle Prevention Act,* C.S.B.C.1877, c. 164, *Act to Control the Spreading of Canada Thistles,* R.S.O. 1877, c.188.

74 For example, while the first weed control act in B.C applied only to Canada thistle, by 1911, 11 weeds were listed as weeds subject to the Act. *Noxious Weeds Act*, R.S.B.C. 1911, c. 240, s. 2. By 1948, the number of weeds had increased to 43 and included any weeds declared in a regulation. *Noxious Weeds Act*, R.S.B.C. 1948, c. 76, s. 2. and Sch.

75 *Noxious Weeds Act*, R.S.B.C. 1911, c. 240, s. 11, *Noxious Weeds Act*, R.S.A.1907, c. 15, s. 13 (1), *Noxious Weeds Act*, R.S.S. 1909, c.122, s. 16 all prohibited the sale of seed containing noxious weed seed. The Alberta Act also prohibited possession of contaminated seed. These provisions were not present in new legislation enacted in these provinces by 1932. *Noxious Weeds Act*, S.B.C. 1931, c. 68, *Noxious Weeds Act* S.A. 1930, c. 28, *Weed Control Act*, R.S.S. 1930, c. 163.

76 S.C. 1905, c. 4. s. 3. Ergot is the resting body of the fungus, *Claviceps purpurea,* which parasitizes the grain of cereals and other grasses. Eating infected grain can cause ergot poisoning with symptoms of gangrene and hallucinations - known as "St. Anthony's fire" in the middle ages. *A Dictionary of Biology*, 3rd ed., *s.v.* "ergot".

77 *Seed Control Act, ibid.* s. 4.

the authority granted in Section 95 of the *Constitution Act, 1867,*[78] which held that the provinces could legislate in relation to agriculture but "only in so far as such legislation is not repugnant to federal law." Beyond the enactment of the *Seed Control Act*, the federal government's role in weed control was limited to education and research carried out by the Department of Agriculture.

3.3.2 The Current Sub-National Legislative Framework

3.3.2.i An Overview

There is no easy roadmap to the current provincial and territorial legislation for weed control. Annex 2 lists the numerous acts and regulations that make up this body of law and illustrates how diverse it is. While all provinces and territories have legislation providing for weed or invasive plant species control, they differ considerably in terms of how extensive that legislation might be. For example, the Yukon and Northwest Territories have no specific laws addressing weeds, invasive species, or plant pest control[79] while Alberta has enacted a weed control act, a pest control act that includes

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78 *Constitution Act*, 1867 (U.K.), 30 & 31 Vict., c. 3.

79 The lack of weed control legislation in the Territories may reflect the lack of agricultural development and, hence, less concern about weeds. However, invasive alien plants may soon pose a serious ecological threat to natural ecosystems in northern environments as was evidenced by the recent discovery of purple loosestrife growing wild in Alaska. Alaska already has several invasive plants originally planted as garden plants or flowers. See "Invasive Plant Found in Alaska" *The New York Times* (13 October, 2005), online: *The New York Times* <http://www.nytimes.com/aponline/science /AP-Purple-Loosestrife.html>. Recently, the Northwest Territories has recognized the "need to investigate effective legislative tools to help control the introduction, eradication and management of invasive alien species." NWT Biodiversity Team *Biodiversity Action Plan - Report 2- Gaps and Overlap Analysis and Recommendations for Future Actions* (Yellowknife: Department of Environment and Natural Resources, 2006) at 48.

plant pests, and five other laws providing for weed or invasive plant species control in specific circumstances. For the purposes of discussion and comparison in this paper, the applicable provincial and territorial laws have been divided into the three general categories set out below:

(1) **Acts and regulations with broader purposes than weed control**. This category includes provincial laws that establish local governments and the weed control by-laws that may be implemented by those local governments. Acts governing public safety and land management that provide for weed control are also included in this category as is Nunavut's wildlife protection legislation, which includes provisions for invasive species.

(2) **Acts and regulations drafted solely to address weed control**. This category contains the weed control acts which are currently in place in all provinces except Newfoundland and Labrador and New Brunswick.

(3) **Acts and regulations aimed at protecting plant health or agricultural resources from pests, including weeds**. This category includes the plant health acts in Newfoundland and Labrador and New Brunswick, as well as Alberta's agricultural pest legislation which includes plants as pests. British Columbia's pest management legislation, which provides for the management of weeds and invasive plants, is also

included in this category, as is the Yukon's *Agricultural Development Act,*[80] which establishes a council to advise on agricultural weeds and pests.

A more detailed analysis of these three categories of provincial and territorial weed and invasive alien plant species control legislation is provided in the following sections. The revisions that are needed to make these laws more effective in protecting natural ecosystems will be described in later chapters.

3.3.2.ii Laws Not Specific to Weed Control

3.3.2.ii (a) Local Government Laws

Many local government acts provide express authority to local governments to make weed control by-laws within the broader context of nuisance abatement or property maintenance standards.[81] Weed control by-laws may also find authority in the "general welfare" provisions of local government acts that provide for the well-being of communities and protection of the environment, as is the case in British Columbia's

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80 R.S.Y. 2002, c. 4. No further discussion of this Act is necessary in this paper since its application to invasive alien plants has little substantive content.

81 See for example Alberta: *Municipal Government Act*, R.S.A. 2000, c-26. British Columbia:*Local Government Act*, R.S.B.C., 1996, c. 323, s. 725(1)(e). Manitoba: *Municipal Act*, C.C.S.M. c. M225, s. 233 (d), s. 234 (b). New Brunswick: *Residential Properties Maintenance and Improvement Regulation*-Municipalities Act, N.B. Regs. 84-86,s. 4 (c). Nova Scotia: *Municipal Government Act*, S.N.S. 1998, c.18,s.172 (1)(a). Prince Edward Island: *Municipalities Act*, S.P.E.I. 1988, c.-13, s. 64 (l)(ii). Quebec: *Municipal Code of Quebec*, R.S.Q. c. C-27, s. 546, s. 748. Saskatchewan: *Urban Municipality Act*, S.S. 1984 c-11, s. 127 (c).

Community Charter.[82] Regulations have been enacted under the Charter giving authority to municipalities to regulate and impose requirements for the control and eradication of alien invasive species.[83] However, an overview of weed control by-laws in many provinces reveals that the authority granted through local government acts may or may not be exercised, depending on local concerns about community aesthetics and the ecological, social, and economic impacts of invasive alien plant species.

Where weed control by-laws are passed by local governments, they vary considerably in their details and requirements. An example of a by-law that has little detail is the City of Victoria's *Property Maintenance By-law*, which requires that:

> 5. The owner and occupier of real property must not allow to be present on that property, trees, weeds, or other growths that;
> (a) because of their condition are likely to spread or become a nuisance to other real property in the vicinity, or
> (b) are so unkempt as to be unsightly to nearby residents.[84]

A by-law inspector has the authority to determine what weeds need to be controlled and in what circumstances the by-law is to be enforced. Other local government by-laws

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82 S.B.C., 2003, c. 26. Most notably, the general welfare provisions in local government acts have been subject to judicial consideration in regard to pesticide control by-laws. See *Canada Ltee (Spray-Tech, Societe d'assosage) v. Hudson (Ville)*, 2001 SCC 40, 40 C.E.L.R. (N.S.) 1 (S.C.C) [hereinafter *Hudson*] and *Croplife Canada v. City of Toronto*, 2005, 10 MP.L.R. (4th) 1, 2005 Carswell Ont 1877 [2005] O.J. No. 1896 (Ont. C.A.) [hereinafter *Croplife*].

83 *Spheres of Concurrent Jurisdiction - Environment and Wildlife Regulation*, B.C. Reg. 14/2004, s.2 (1)(b)(iii).

84 By-law No. 04-65 (26 August, 2004), s.5.

may be more specific by defining the weeds to be controlled as those plants designated in the province's weed control act.[85]

Less commonly, local government by-laws may be very detailed, listing the specific weeds subject to control and providing procedures for inspection, compliance, and enforcement. For example, in British Columbia, the Regional District of Central Okanagan's *Noxious Weed Control By-law* requires land owners and occupiers to prevent and keep weeds and grasses down below 20.32 centimeters (8 inches).[86] It lists one hundred species of noxious weeds and eleven species of grasses to which the bylaw applies.[87] Inspectors can be appointed [88] and notices issued for cleaning up property of weeds and grasses.[89] Where an order is not complied with, the Regional District may

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85 For example, the City of Portage la Prairie, By-law No. 02-8144, *Maintenance and Occupancy By-law* (27 May, 2002), s. 1 (1) (f) requires that property is to be kept clear of weeds as defined in the *Noxious Weeds Act.*

86 No. 179 (10 March, 2005), s.3. From a biological perspective, it seems strangely arbitrary to prescribe such a precise height to which grass and weeds must be cut. However, there are valid legal reasons why many by-laws include such a provision. In *Bell v. Toronto (City)*, 39 C.R.R. (2d) 152, 1996 Carswell Ont 3416 (Ont. Prov.Div.),[hereinafter *Bell*] the appellant, who kept a naturalistic garden, was charged with violating a City of Toronto by-law requiring that property be kept clear of "excessive growths of weeds and grass". The Court held that the word "excessive" was "completely subjective and essentially arbitrary" and, therefore, the by-law was void for vagueness. A new by-law had been passed imposing a 20 centimeter height restriction on weeds and grass and the Court saw this as evidence that the City recognized the subjectivity of the old by-law. The height restriction "at least provided some certainty in enunciating the standard which property owners must apply in assessing the "area of risk" and which inspectors must apply in enforcing the by-law."

87 *Ibid.* Sch. A.

88 *Ibid.* s. 4.

89 *Ibid.* s. 6.

carry out the required weed control but cannot use herbicides to do so.[90] Charges for weed removal and an administrative fee can be added to property taxes.[91] Anyone who violates the by-law is subject to a penalty of five hundred dollars and the costs of prosecution.[92]

The role for local governments in controlling invasive alien plant species in many provinces does not lie solely in enacting weed control by-laws. They may also be charged with appointing inspectors to administer and enforce provincial weed control acts. As Annex 3 shows, these obligations vary from province to province, ranging from Alberta's *Weed Control Act*[93] and Manitoba's *Noxious Weeds Act*[94]—where appointment of inspectors by the local governments is mandatory—to Nova Scotia's *Weed Control Act*[95] and Prince Edward Island's *Weed Control Act,*[96] where local governments have no obligations and the provincial governments alone appoint inspectors to administer and enforce the acts.

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90 *Ibid.* s. 8

91 *Ibid.*

92 *Ibid.* s. 13.

93 R.S.A. 2000, c. W-5. s. 5.

94 C.C.M.S. c. N110, s.11(1). Section 31(6) provides that, where a municipality appoints a weed control board, the board must appoint a weed supervisor with all the authorities and powers of a weed inspector.

95 R.S.N.S. 1989, c 501, s .6(1).

96 R.S.P.E.I. 1988, c W-2.1, s.10.

There is a complex interface between weed control acts that apply province-wide, and may or may not be administered and enforced by local governments, and local government weed control by-laws that local governments may or may not chose to put in place. In provinces where local governments must administer and enforce the weed control acts, they are less likely to pass weed control by-laws. This results in greater uniformity in the legal requirements for weed control on all lands throughout the province. In provinces where a weed control act provides no role for local governments and a local government decides to pass a weed control by-law, the by-law may apply to plant species not designated under the weed control act. This can result in a patchwork approach where a weed is controlled in one local area but not in another.

The legal landscape for weed control may be even more complex in provinces where each local government has the discretion to assume duties under the weed control act. The weed control act and the duties it imposes for control of designated weeds will apply province-wide. However, there are three possible scenarios that arise depending on what actions local governments chose to take. Firstly, the local government can chose to administer and enforce the weed control act but not enact a weed control by-law. Landowners in this local area would be subject only to a duty to control weeds designated under the weed control act. Secondly, the local government may chose to administer and enforce the weed control act but also enact a weed control by-law. In this local area, landowners will have a duty destroy those weeds that are designated under the weed control act and any others as required by the by-law. Thirdly, the local

government may chose not to administer and enforce the weed control act leaving it to the province. As with scenario two, the local government may enact a weed control by-law. Landowners in this local area would also have a duty to destroy weeds designated under the weed control act and any others that are designated under the by-law.

The confusion that may arise in situations where there is dual application of weed control by-laws and provincial weed control acts is well illustrated in West Vancouver where the local government does not administer and enforce the provincial weed control act. The *Good Neighbour by-law*[97] requires land owners to clear their land of the highly invasive plant giant hogweed (*Heracleum mantegazzianum*). Giant hogweed is not designated as a weed pursuant to British Columbia's *Weed Control Act*[98] and *Weed Control Regulations*.[99] However, the by-law does not apply to common toadflax (*Linaria vulgaris*), another invasive plant that may grow in West Vancouver which is designated as a weed in the provincial *Weed Control Regulations*.[100] Thus landowners have obligations to control and destroy different invasive alien plant species under different legal instruments administered and enforced by different levels of government.

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97 No. 4380,2004, (29 July, 2004). The purpose of the by-law is "to protect and enhance the well-being of the community in relation to good neighbour practises thereby reducing nuisances, disturbances and other objectionable situations."

98 R.S.B.C. 1996, c. 487.

99 B.C. Reg. 66/85. Sch. A.

100 *Ibid.*

One other act included in this category also provides for weed control at the local government level. Alberta's *Agricultural Services Board Act*[101] places significant powers for weed control into the hands of municipal councils. The Act provides that an Agricultural Services Board may be established by the council of a municipality to advise on and help organize and direct weed control programs.[102] If the board finds, from investigation and inquiry, that weeds have infested land to the point that crop production is seriously hindered and the infestation threatens neighbouring lands, the board may make a report[103] and the council may declare the land subject to supervision, rehabilitation, or reclamation.[104] In certain circumstances, the board may recommend that control of the land be taken from the owner and occupant and that an order of reclamation be made by council.[105] Council may, through a by-law, take possession of the land and cultivate the lands, sow and harvest crops, destroy weeds, and take whatever steps may be necessary to reclaim and rehabilitate the land.[106] The severe measures that may be taken in the Act to deal with weed infested lands is also provided in some of the weed control acts discussed later.

3.3.2.ii (b) Land Management Laws

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101 R.S.A. 2000, c. A-10.

102 *Ibid.* s. 2 (b).

103 *Ibid.* s. 9(1).

104 *Ibid.* s. 9(2).

105 *Ibid.* s. 12(1).

106 *Ibid.* s. 12(7).

Several provinces also have land management legislation that contains weed control provisions for public safety and fire prevention purposes. Weeds and vegetation along rail lines must be controlled for clear sightlines and to provide a stable sub-structure for the track, so Saskatchewan's *Railway Act* requires provincial railway companies to control weeds on their lands.[107] The Northwest Territories *Camp Sanitation Regulations* also prohibit the operation of a camp unless it is maintained in a sanitary condition and is "clear of weeds, underbrush and tall grass."[108]

Fire control is the aim of Alberta's *Forest and Prairie Protection Act* which gives authority to the Minister to carry out measures considered advisable for prevention and control of non-indigenous invasive species infestations on lands.[109] A forest officer is empowered to seize any product where there are reasonable grounds to believe it has a non-indigenous species infestation.[110] The fire hazard posed by weed growth is also addressed in Ontario's *Fire Code,* which requires weed control in storage yards for

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107 S.S. 1989-90, c. R-12.s.33(a). The need for weed and vegetation control often involves the application of herbicides. *Meet Your Neighbour, The Railway in Your Community*, online at The Railway Association of Canada web site at <http://www.proximityissues.ca/english/MaterialsContent/en_community_brochure.pdf>

108 R.R.N.W.T. 1990, c. P-1, s. 3(1)(d).

109 R.S.A. 2000, c. F-19, s. 28. Section 2 provides that the Act applies to all lands in Alberta except those within the boundary of urban municipality except where explicitly included and federal lands where there is no fire control agreement with the province. The term "non indigenous species" is not defined in the Act. Clearly, non indigenous insect species such as the Asian longhorn beetle that kill trees and increase fire hazards are the targets of the Act but the Act would also apply to an invasive alien plant species that increases fire hazard.

110 *Ibid.* s. 34.4 (1).

lumber and forest products,[111] wood chips,[112] salvage,[113] and tires.[114]

Some land management acts aim to protect specific lands from weed infestations. Alberta's *Disposition Regulations (Provincial Parks Act)* requires sand and gravel dispositions holders within Alberta's provincial parks to control noxious weeds on the land granted and prevent their spread to adjacent lands.[115] Furthermore, the *Public Lands Act* requires that public lands dispositions holders in Alberta plant only seed free of noxious and restricted weeds.[116] They must also keep down and destroy noxious and restricted weeds on the land subject to the disposition.[117] Alberta's *Forest Reserves Regulation* also requires a person "to take all reasonable precautions to prevent the spread or introduction from outside a forest reserve into a forest reserve or from one part of a forest reserve to another part of a forest reserve of a restricted or noxious weed."[118] Any person who contravenes the regulation or the province's *Weed Control Act*[119] in a forest reserve is "liable for damages for the weed problems resulting from the activity to

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111 O. Reg. 388/97, s. 3.2.2.6.

112 *Ibid.* s. 3.2.3.4(1).

113 *Ibid.* s. 3.5.2.2.

114 *Ibid.* s. 3.5.3.6(1).

115 Alta. Reg. 241-77, s. 62. This action must be directed by a conservation officer.

116 R.S.A. 2000, c. P-40, s. 63 (a).

117 *Ibid.* s. 63 (b).

118 Alta. Reg. 42/2005, s. 3.

119 *Supra* note 93.

the owner or occupant (including the Crown in right of Alberta) adversely affected."[120]

Weed control on British Columbia's public lands is addressed in the *Forest and Range Practices Act.*[121] It requires that anyone carrying out range or forest practices on such lands must also carry out specified measures to prevent the introduction or spread of prescribed species of invasive plants.[122] *The Invasive Plants Regulation*[123] lists forty-two plant species that are prescribed as invasive plants pursuant to the Act.

3.3.2.ii (c) Wildlife Laws

Nunavut's *Wildlife Act*[124] establishes a regime for the management of wildlife and habitat that includes a provision addressing invasive species. It is prohibited to "release a member of a species into a habitat in which that species does not belong or never naturally occurred."[125] Any person who releases such a member of a species must also make every effort to recover it.[126] No compensation is provided when the invasive species is destroyed and any person who has so contravened the Act is liable to the

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120 *Supra* note 118, s. 4 (b).

121 S.B.C. 2002, c 69.

122 *Ibid.* s. 47.

123 B.C. Reg. 18/2004.

124 S.Nu. 2003, c. 26.

125 *Ibid.* s. 91(2).

126 *Ibid.* s. 91(3).

Government of Nunavut for any loss or damage to wildlife or habitat caused by the release, as well as all costs incurred in "pursuing, holding, or destroying" the member of the species.[127]

The invasive species provisions of the Act would apply to invasive plants.[128] However, the provision would not apply to alien plant species recently and deliberately introduced to the territory. This exclusion is due to the narrow definition of "species" which means:

> a species, subspecies, variety or geographically or genetically distinct population of wildlife that
>
> (a) is native to Nunavut, or has extended its range into Nunavut without human intervention, and
>
> (b) has been present in Nunavut for at least 50 years.[129]

3.3.2.iii Provincial Weed Control Acts

3.3.2.iii (a) Common Features

At the heart of provincial legislation for weed control are those acts drafted specifically for such a purpose.[130] As discussed earlier, many weed control acts have a long history in

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127 *Ibid.* s. 91(4).

128 *Ibid.* s. 2. A individual plant or seeds , pollen and asexual propagules is a "member" of a species.

129 *Ibid.*

130 Alberta: *supra* note 93. British Columbia*: supra* note 98. Manitoba: *supra* note 94. Nova Scotia: *supra* note 95. Ontario: *Weed Control Act*, R.S.O. 1990, c. W.5. Prince Edward Island: *supra* note 96. Quebec: *Agricultural Abuses Act*, R.S.Q. 1996,c. A-2. Saskatchewan: *Noxious Weeds Act,* S.S. 1984, c.N-9.1. Quebec's *Agricultural Abuses Act* does address other issues such as control of vicious dogs. However, it is included in this category and not the preceding one because the noxious weeds portion of the Act and the provisions of the *Regulation Respecting Noxious Weeds* R.Q. c. A-2.r.1 are similar to the weed control acts and regulations in other provinces.

Canada and, true to their origins as agricultural legislation, all current acts remain under the authority of provincial agriculture departments.[131] The acts share many common features in that they designate plant species as weeds and establish legal duties for the owners and occupants of lands and others to take action to prevent the spread of such weeds. Each act also has a process for compliance, penalties for contravening the act, and mechanisms for cost recovery when government action is necessary in the face of non-compliance. However, in spite of many common features, there are important differences in the acts that are unique to particular regions and provinces and these must be considered in any analysis of the legislation.

3.3.2.iii (b) Designation of Plant Species as Weeds

All legal duties in the weed control acts flow from the designation of particular plant species as weeds. In light of earlier discussions in this paper about the difficulties in terminology, it is not surprising that six of the eight provincial weed control acts do not define what a weed is. However, Prince Edward Island's *Weed Control Act* defines a noxious weed as a plant which, in the opinion of the Lieutenant Governor in Council, is "adversely affecting or is likely to adversely affect any person, crop or other desirable plant, animal or property."[132] Nova Scotia's *Weed Control Act* requires that all

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131 Provincial Departments responsible for administering the weed control acts are: Alberta: Agriculture, Food and Rural Development, British Columbia: Ministry of Agriculture and Lands, Manitoba: Manitoba Agriculture, Food and Rural Initiatives, Nova Scotia: Agriculture and Fisheries, Ontario: Ministry of Agriculture, Food and Rural Affairs, Prince Edward Island: Agriculture, Fisheries and Aquaculture, Quebec: Ministry of Agriculture, Fisheries and Food, Saskatchewan: Saskatchewan Agriculture, Food and Rural Revitalization.

132 *Supra* note 96, s .2.

designated weeds must be weeds classified in Class number one or Class number two.[133] Class number one weeds are defined as those capable of spreading from source to cultivated lands.[134] Class number two weeds are those capable of inflicting economic loss or ill health.[135]

All acts designate plant species as weeds by listing them in regulations,[136] with the exception of Prince Edward Island's *Weed Control Act*, which designates weeds through order in council.[137] The weeds designated pursuant to the acts not only include plants that are weeds in agro-ecosystems but also plants that are harmful to human health,[138] animal health[139] and, in a few cases, plants that are invasive of natural ecosystems.[140]

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133 *Supra* note 95, s. 3(3).

134 Weed Control Regulations N.S. Reg/57/68, Sch "A".

135 *Ibid.* Sch "B".

136 Alberta: *supra* note 93, s.1(1) British Columbia: *supra* note 98, s.1(1) Manitoba: *supra* note 94, s. 1 Nova Scotia: *supra* note 95, s.2(f) Ontario: *supra* note 130, 24 (1) (a) Quebec: *supra* note 130, s. (1)(a) Saskatchewan: *supra* note 130, s. 2.

137 *Supra* note 96, s.2.

138 For example, poison ivy (*Rhus radicans*) causes skin rashes and blistering. It is listed as a noxious weed in Ontario. General, R.R.O. 1990, 1096, Sch.

139 For example, death camus (*Zygodemus gramineus*) causes livestock poisoning. It is listed as a noxious weed pursuant to Manitoba's *Noxious Weeds Regulation*, Reg. 35/96 Sch.

140 For example, purple loosestrife, which is highly invasive of natural ecosystems is the only species that is subject to regulation as a weed in Prince Edward Island. *Purple Loosestrife Control Regulation*, P.E.I. Reg. EC629/91.

Native plant species,[141] as well as alien plant species, may also be designated as weeds.

Two points must be made in regard to the designation of native plant species as weeds pursuant to the weed control acts, both of which raise important issues for ecological conservation. Firstly, the designated native plants, like other designated weeds, are subject to the duty imposed on all land owners and occupiers to control or destroy them. The consequences to natural ecosystems resulting from the removal of such species or the use of particular methods to control or destroy them need not be considered when land owners and occupants meet their duties under the weed control acts. Secondly, in two instances, rare plant species have been included as weeds under the weed control acts and, hence, land owners have a legal duty to destroy them. Alberta's *Weed Regulation* designates all dodder (*Cuscuta* spp.) species as weeds but one such species is considered rare in the province.[142] Likewise, all native milkweed *(Asclepias* spp.) species are weeds under Ontario's *General Regulation* but five rare species of milkweed occur in Ontario.[143] The importance of correct and specific taxonomic identification of listed

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141 For example, poison ivy (*Rhus radicans*) is native to many natural ecosystems in Canada and designated as a weed under weed control acts in Manitoba, *supra* note 94, Ontario, *supra* note 130, and Quebec, *supra* note 130.

142 Reg. 171/2001. Sch.1. *Cuscuta gronovii* is a rare species of the Dodder genera in Alberta. Linda Kershaw, et al., *Rare Plants of Alberta* (Edmonton: University of Alberta Press 2001) at 177. While this species is considered rare by biologists, it is not protected under the *Wildlife Regulation*, Alta Reg. 143/1997 or the *Species at Risk Act*, S.C. 2002, c.29.

143 *Supra* note 138. While the rare milkweed species are not legally protected under the *Endangered Species Act*, R.S.O. 1990, c. E. 15 or the *Species at Risk Act*, *ibid.*, the Province has declared that the Act will not be enforced in relation to these species. See Mike Cowbrough "Milkweed Species in Ontario" online at Ministry of Agriculture and Food, Government of Ontario <http://omafra.gov.on.ca/english/crops/facts/milkweed.htm#milkweed>. However, enforcement is not the issue at hand given

weeds is particularly highlighted in these circumstances.

Since weeds pose problems of different magnitudes in different habitats and locations, the weed control acts may provide for designation of weeds in different categories. However, these categories are not consistent between provinces. British Columbia's *Weed Control Regulation*[144] has categories of provincial and regional weeds. Quebec's *Regulation Respecting Noxious Weeds* establishes three categories of weeds: weeds growing in cultivated lands and pasture lands;[145] weeds growing on the borders of roads, highways or streets, along railways, electrical energy transmission lines, and ditches on farmlands, vacant, or unoccupied lots;[146] and weeds growing in listed counties.[147] Alberta's *Weed Control Act* provides for three class of weeds: restricted,[148] noxious,[149] and nuisance.[150] The remaining provinces designate only one list of weeds. Alberta's *Weed Control Act* and Ontario's *Weed Control Act* also provide for even more fine scale

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the legal duty in Ontario's Act , *supra* note 130, s.3, which requires that every person in possession of land must destroy all noxious weeds on it.

144 *Supra* note 99.

145 *Supra* note 130, s. 1.

146 *Ibid.* s. 2.

147 *Ibid.* s. 3.

148 *Supra* note 93, s.1(1) (p).

149 *Ibid.* s.1(1)(l).

150 *Ibid.*s. 1(1) (m). No definitions are provided for these categories of weeds but they are subject to different treatment in the Act, indicating that restricted weeds have the greatest impact while nuisance weeds have the least.

designation of weeds by allowing councils to pass by-laws, subject to Ministerial approval, listing local weeds for a municipality.[151] Likewise, British Columbia's *Weed Control Act* gives authority to municipalities[152] to establish a weed control committee,[153] which is then charged with compiling a list of noxious weeds for the municipality.

Even though a plant species may be designated as a weed, it may not warrant action to prevent its spread in all circumstances. Ontario's *Weed Control Act* does not apply to noxious weeds or weed seeds that are far enough away from any land used for agricultural or horticultural purposes that they do not interfere with that use.[154] Exemptions may also be provided for weeds on waste or sparsely inhabited lands pursuant to Alberta's *Weed Control Act* and British Columbia's *Weed Control Act.*[155]

The process for designation of weeds under the weed control acts suffers from several serious shortcomings. Firstly, none of the acts provide criteria whereby plants are designated as weeds, or such designation is removed.[156] Secondly, the acts make no

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151 Alberta: *ibid.* s. 7, Ontario: *supra* note 130, s.10.

152 *Supra* note 98,s.1(1). The Act includes regional districts in the definition of municipalities.

153 *Ibid.* s. 9(1).

154 *Supra* note 130, s. 22. This exemption applies to the duty to destroy weeds and the procedures for ensuring compliance.

155 Alberta: *supra* note 93, s.3, British Columbia: *supra* note 98, s. 14.

156 The removal of a plant species from the designation list may be called for when a weed is so widespread that control efforts are not economically viable or when a weed is eradicated from the province or a region of the province.

provision for expert advice on designation or removal of designation. Advisory committees established under several acts may provide advice on designations under the acts.[157] However, the expertise on these committees is not usually specified. The exception is any weed control committee that may be established under British Columbia's *Weed Control Act.*[158] It must include a member of a society "that has as a primary purpose the protection of the environment or the encouragement of anti-pollution measures."[159] One member must also be appointed by the Minister of Health.[160]

Thirdly, administering government departments have no obligation to review and update weed designations. The exception is Alberta's *Weed Regulation,* which provides a date by which the regulation expires.[161] Manitoba's *Noxious Weeds Act*[162] provides for a review only in limited circumstances. The Act contains a schedule of weeds but those

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157 Under Prince Edward Island's *Weed Control Act*, *supra* note 96, s. 13, the Lieutenant Governor in Council has the discretion to appoint this committee. Nova Scotia's *Weed Control Act*, *supra* note 95, s. 21 requires the Minister to establish a Weed Control Committee which must be consulted the designation of plants as noxious weeds. The Committee must include one member of the Nova Scotia Federation of Agriculture. Under Manitoba's *Noxious Weeds Act*, *supra* note 94, s. 39(1) the Minister may appoint a weed control advisory board to advise on "all matters related to the control and destruction of noxious weeds and on the ways and means of achieving the objectives of the Act."

158 *Supra* note 98, s. 9(1).

159 *Ibid.* s. 9 (1) (d).

160 *Ibid.* s. 9 (1) (e).

161 *Supra* note 142, s. 5.

162 *Supra* note 94.

species designated in a regulation are declared noxious weeds subject to the Act.[163] The Lieutenant Governor in Council may, by regulation, declare plants to be noxious weeds that are not on the schedule but the regulation ceases to have effect on last day of the session of the Legislature following the date of the regulation.[164]

Finally, none of the weed control acts provide for public comment on weed designations beyond that which might be provided in the regulation-making process. Nova Scotia's *Weed Control Act* provides for the designation of any plant as a noxious weed to be published in a newspaper but does not provide for public comment prior to such designation.[165]

3.3.2.iii (c) Legal Duties and Prohibitions

All the weed control acts establish duties for those who own, occupy, or possess land to prevent weeds growing on their lands from spreading to other properties,[166] but the strictness of those duties vary. In five provinces, the weed control acts place a duty on

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163 *Ibid.*s. 2.

164 *Ibid.*

165 *Supra* note 95, s.4.

166 The Provincial Crown or municipality may be designated as the owner of a highway. Alberta: *supra* note 93, s. 8, British Columbia: *supra* note 98, s. 12 , Manitoba: *supra* note 94, s.3 (3), 3(4), Nova Scotia: *ibid.* s.5 , Ontario: *supra* note 130, s.5, Saskatchewan: *supra* note 130, s. 3.

land owners and occupiers to destroy weeds.[167] British Columbia's *Weed Control Act* directs a land occupier to control weeds[168] in accordance with the regulations but provides no definition of what "control" means. In other provinces, where weeds are classified into different categories, the duty may differ for each category. Alberta's *Weed Control Act* requires that, as often as necessary, restricted weeds be destroyed,[169] noxious weeds be controlled,[170] and nuisance weeds be prevented from spreading or scattering.[171] Nova Scotia's *Weed Control Act* requires that Class One noxious weeds be destroyed "as often in every year as may be necessary to prevent the ripening of seeds."[172] Class Two noxious weeds must be destroyed "as often and at such times as shall be necessary to eliminate such weeds."[173]

Most weed control acts provide no guidance to determine if the legal duty to destroy or

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167 Manitoba: *supra* note 94, s.3(1), Ontario: *supra* note 130, s.3, Prince Edward Island: *supra* note 96, s.3, Quebec: *supra* note 130 s.7(2), Saskatchewan: *supra* note 130, s. 13. In Manitoba's *Noxious Weeds Act*, supra note 94, s.1 "destroy" means " to cut down, burn, kill by chemicals or toxic substances, or eradicate by any means whatsoever; and in regard to noxious weed seeds, means to burn or kill by any means whatsoever so as to prevent germination."

168 *Supra* note 98, s.2.

169 *Supra* note 93, s. 31(a) Section 1 (1) (c) provides that "destroy" means to "kill all growing parts of the weed, or render the reproductive mechanisms of the weed non-viable."

170 *Ibid.* s. 31(b) Section 1 (1) (a) provides that "control" means to "carry out measures to inhibit propagation of the weed, destroy the weed or carry out measures prescribed by an inspector for control of the weed."

171 *Ibid.* s.31(c).

172 *Supra* note 95, s. 4(1).

173 *Ibid.* s. 4(2).

control weeds has been met. In many circumstances, it may be impossible to fully destroy weeds given that some plants may survive herbicide applications, cultivation, or other eradication methods, and weed seed may lie dormant in the soil for decades. However, Saskatchewan's *Noxious Weeds Act* does deem compliance with the duty to destroy weeds when the owner or occupant "has performed on the land concerned, in due season and in a workmanlike manner, those acts commonly regarded in the district adjacent to the land as effective in controlling the noxious weeds on the lands."[174]

None of the weed control acts provide for the development of management plans to guide the actions of land owners and occupants in meeting their duties under the Acts, nor do they provide methods to destroy weeds within the context of such a plan. Since applications of herbicides and other weed control methods may raise concern for human health and the environment, this may be problematic. Several weed control acts simply list the methods that might be used to control weeds.[175] However, British Columbia's *Weed Control Act* addresses this issue to some degree by providing that regulations, in respect of the methods used to control noxious weeds, must only be made with the approval of the Environment and Land Use Committee established under the *Environment and Land Use Act.*[176] No such regulations have been made under the Act

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174 *Supra* note 130, s. 12 (2).

175 Alberta: *supra* note 93, s.1(1) (a)(c), Manitoba: *supra* note 94, s.1.Ontario: *supra* note 130, s. 4 (1), s. 4(2). Nova Scotia: *supra* note 95, s. 4(1) (4). Prince Edward Island: *supra* note 96, s 2.

176 *Supra* note 98, s. 16 (2).

but the province has other legislation, the *Forest and Range Practices Act*[177] and the *Integrated Pest Management Act,*[178] which adopt a management-based approach for weeds and invasive plants in particular circumstances.

Other individuals aside from land owners and occupiers may have duties imposed on them so that their activities will not result in the spread of weeds in the province. Anyone handling screenings must do so in a way that does not allow the weeds to spread.[179] Screenings are "matter removed in the process of cleaning or grading of cereal, forage or other crop seed."[180] Alberta's *Weed Control Act* takes the most stringent measures in addressing the spread of weeds through screening in that it requires licences for seed cleaning facilities.[181] Saskatchewan's *Noxious Weeds Act* and British Columbia's *Weed Control Regulation* each require a permit for removing screenings containing viable weed seeds from a grain elevator, or place of storage.[182] British Columbia's *Weed Control Regulation* also requires a license for feeding such screenings

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177 *Supra* note 121.

178 S.B.C. 2003, c.58. This Act is discussed in greater detail later in this paper.

179 Alberta: *supra* note 93, s. 33, British Columbia: *supra* 98, s. 4, Manitoba: *supra* note 94, s.6, Nova Scotia: *supra* note 95, s.18, Ontario: *supra* note 130, s.21 , Prince Edward Island: *supra* note 96,s. 4 , Saskatchewan: *supra* note 130, s.21, s. 25. Quebec's *Agricultural Abuses Act*, *supra* note 130, does not have provisions that address screenings.

180 Alberta: *ibid.* s. 1(1) (r).

181 *Ibid.* s. 36.

182 Saskatchewan: *supra* note 130 s. 21(1) British Columbia: *supra* note 99, s. 4 (1) (b) (i).

to livestock.[183] Anyone selling screenings must submit a report to the Minister.[184]

The movement of farm machinery and other vehicles can be a significant means to spread weed seeds. Several of the weed control acts prohibit transporting such items except in ways that will prevent the spread of weeds; they also indicate a duty to clean the items before moving them.[185]

Prohibitions are also established under the weed control acts for other activities that might spread weeds. The deposition of weeds and weed seeds in public places is prohibited in most acts.[186] British Columbia's *Weed Control Regulations* prohibits the planting of seed contaminated with a weed[187] and applying or selling for application any

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183 British Columbia: *ibid.* s. 4 (1)(b) (ii).

184 *Ibid.* s. 4 (3)

185 Alberta: *supra* note 93, s. 35, British Columbia: *ibid.*s.6 , Manitoba: *supra* note 94, s. 4, s. 5, Nova Scotia: *supra* note 95, s. 17, Ontario: *supra* note 130, s. 20 , Quebec: *Noxious Weeds, Regulation respecting, supra* note 130 s. 8, Saskatchewan: *supra* note 130, s 22. Prince Edward Island's *Weed Control Act, supra* note 96, s. 14 has regulation- making authority for the "transportation of any material or substance infested with noxious weeds" but such regulations have not been promulgated. One of the more interesting provisions regarding cleaning vehicles of weeds is found in Manitoba's *Noxious Weeds Act, supra* note 94. Section 4(2) provides that harvesting machinery that is being moved must have a copy of the Act's relevant section affixed to it. This requirement does not apply to a farmer's harvester only being operated on his or her lands. However, failure or neglect to comply with this provision on each farm or for more than one day is a separate offense for each farm or each day. How this provision furthers the goals of weed control is open to question, if indeed it is ever enforced.

186 Alberta: *supra* note 93, s. 34, Manitoba: *supra* note 94, s.7, Nova Scotia: *supra* note 95, s.16, Ontario: *supra* note 130, s. 19.

187 *Supra* note 99, s. 8 (a) (i).

fertilizer, lime, topsoil, or other substance containing a weed.[188] These provisions do not apply to areas where the weed is established.

3.3.2.iii (d) Process for Compliance

All the weed control acts have a strong, detailed process for ensuring compliance. As Annex 3 shows, they provide for the appointment of inspectors either by local or provincial governments to enforce and administer the acts. Inspectors have powers to enter onto lands or property to ensure that land owners and occupiers and others are meeting the duties established under the acts.[189] In Saskatchewan's *Noxious Weeds Act* and Nova Scotia's *Weed Control Act,* the inspector must consult with the land owner when weeds are found on lands.[190] If agreement cannot be reached for the destruction of the weeds, then an order may be issued.[191] In the other weed control acts, there is no requirement to consult with land owners and occupiers before issuing an order for the destruction of the weeds.[192] In some acts, inspectors may also grant orders prohibiting the

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188 *Ibid.* s. 8 (a)(ii), 8(b).

189 Alberta: *supra* note 93, s.11 (2), British Columbia*: ibid.* s.3(2), Manitoba: *supra* note 94, s. 22, Ontario: supra note 130, s.12 (1), Prince Edward Island: *supra* note 96, s. 6, Quebec: REGS *supra* note 130 s. 5, Saskatchewan: supra note 130 s. 16. Dwelling houses are excluded from these provisions. Alberta's *Weed Control Act,* supra 93, s. 11 (2), 11 (3) also provides that where an inspector does not have permission of the land owner or occupant before entering a dwelling house, written notice must be given.

190 Nova Scotia: *supra* note 95 s. 9(1), Saskatchewan: *supra* note 130, s. 7(2) (4) Saskatchewan's *Noxious Weeds Act* also provides for notice to be given where the agreement is not being carried out to the satisfaction of the weed inspector.

191 *Ibid.*

192 Alberta: *supra* note 93, s.12 (1), British Columbia*: supra* note 98, s.4, Manitoba: *supra* note 94, s. 17 (2), Ontario: *supra* note 130, s.13 (1), Prince Edward Island: *supra* note 96,s.7, Quebec: REGS *supra* note 130, s.7 (4).

sowing of crops,[193] the removal or sale of fodder, hay or cleanings containing weed seeds,[194] or the renting of weed infested lands.[195]

There are circumstances where a weed control notice need not be provided before an inspector enters lands to destroy weeds. These are where lands are unoccupied,[196] owners are not located or outside the municipality,[197] or immediate action is required to prevent weeds from going to seed.[198] A weed control order may not be required in some acts for weed control on subdivided lands in a municipality.[199]

The weed control acts provide for appeal of a weed control order issued by an inspector. Such appeals can be to the Minister[200] or the provincial Chief Inspector.[201] Only Alberta's *Weed Control Act* provides for appeal to an independent committee that must

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193 *Supra* note 94, s.19(1) this prohibition applies only to lands infested with leafy spurge, field bindweed, Russian knapweed, toadflax or hoary cress.

194 *Ibid.* s. 20(1).

195 *Ibid.* 9(1).

196 Alberta: *supra* note 93, s.14(1), Manitoba: *ibid.* s. 18, Saskatchewan: *supra* note 130, s. 19(4).

197 British Columbia: *supra* note 98, s. 14(1), Manitoba: *ibid.* s. 19(3).

198 British Columbia: *ibid.* s.7(1), Manitoba: *ibid.*

199 Manitoba: *ibid.* s. 20(1), Ontario: *supra* note 130, s. 16(2).

200 Prince Edward Island: Supra note 96, s.11.

201 Ontario: *supra* note 130, s. 29(1),with further appeal to the Divisional Court. Nova Scotia: *supra* note 95, s. 12.

be established by the local authority.[202] It is surprising, however, that an appeal of a weed control order is not provided for in Quebec's *Agricultural Abuses Act*, Manitoba's *Noxious Weeds Act,* and Saskatchewan's *Noxious Weeds Act.*[203] If an owner or occupier does not comply with an order within a prescribed time period, the inspector can take measures to destroy the weeds.[204] However, there may be limits on the amount of land subject to such measures.[205]

A serious deficiency exists in many weed control acts in that they provide no direction to inspectors as to how duties should be performed with due regard for reducing impacts on the environment and human health. However, Nova Scotia's *Weed Control Regulation* provides that an inspector destroying noxious weeds must use reasonable care to reduce damage to the surrounding vegetation.[206] Ontario's *General Regulation* also provides that the destruction must be done in a manner "that is efficient and at a reasonable cost in the circumstances."[207] Furthermore, the inspector must only destroy weeds when he or she is of the opinion that the propagation of the noxious weeds would be prevented or substantially reduced by reason of their destruction, and, except in the case of poison ivy

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202 *Supra* note 93, s. 28 (6).

203 Quebec: *supra* note 130, Manitoba: *supra* note 94, Saskatchewan: *supra* note 130.

204 Alberta: *supra* note 93, s.17 (1), British Columbia: *supra* note 98, s.7(1), Manitoba: *ibid.* s. 8(1)(e), Nova Scotia: *supra* note 95, s.14 (1) , Ontario: *supra* note 130, s.15(1), Prince Edward Island: *supra* note 96, s. 9(1), Quebec: *ibid.* s. 7(5), Saskatchewan: *ibid.* s.17(4).

205 Saskatchewan: *ibid.* s. 17 (3).

206 *Supra* note 134, s. 5(c).

207 *Supra* note 138, s. 4(4).

and ragweed, that lands other than the lands on which the noxious weeds are growing are likely to be damaged by the propagation of the noxious weeds.[208] The inspector must not cause more damage to the property than is necessary for or incidental to entering upon lands and transporting equipment used in the destruction of the weeds.[209] Where destruction of weeds is taken in a growing crop, the inspector must not cause greater damage to the crop than is necessary for the economical and effective destruction of the weed.[210] It is notable that none of the acts provide for any consultation with neighboring land owners or the community in regard to action that an inspector might take in destroying weeds.

Manitoba's *Noxious Weeds Act* and Saskatchewan's *Noxious Weeds Act*, in particular, provide local governments with strong powers that directly affect individual property rights.[211] These acts allow local councils, by by-law, to declare areas to be weed infested.[212] If agreement cannot be reached with the owner, occupant, and anyone having a mortgage on the property, the council may, by by-law, enter the lands, take possession of lands, cultivate, sow, and harvest crops to destroy the weeds.[213] The owner or

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208 *Ibid.* s. 5(a)

209 *Ibid.* s. 5(b).

210 *Ibid.* s. 5(c).

211 Manitoba: *supra* note 94, Saskatchewan: *supra* note 130.

212 Manitoba: *ibid.* s. 10(1) Saskatchewan: *ibid.* s.26(1).

213 Manitoba: *ibid.* s. 10(3)(a), Saskatchewan: *ibid.* s. 26(1)(a). Section 27 (1) of Saskatchewan's *Noxious Weeds Act* allows an owner to appeal the by-law to the Minister.

occupant may be prohibited from sowing or harvesting crops or pasturing animals[214] and where the land is to be used for pasture, the municipality may lease it out for that purpose.[215]

Alberta's *Weed Control Act*[216] also has strong powers to force compliance with the Act in that the Minister can issue a "stop order". The order can be served on anyone who has or is contravening the Act, owns or operates anything that causes the spread of weeds, or has contravened a term or condition of a seed cleaning plant license.[217] Failure to comply with the order may be dealt with by the Court as a matter of civil contempt of the Court and an inspector, assisted by a civil enforcement bailiff, may enter onto the land to enforce the order.[218]

The weed control acts do not generally promote compliance by offering compensation for carrying out the duties established in the acts. The exceptions are Nova Scotia's *Weed Control Act,* which provides payments for a percentage of the costs of the original clean-up and maintenance of certain weeds[219] and Saskatchewan's *Noxious Weeds Act,* which

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214 Manitoba: *ibid.* s 10(3)(b), Saskatchewan: *ibid.* s. 26(1)(b).

215 Manitoba: *ibid.* s. 10(3)(c) Saskatchewan: *ibid.* s. 26(1)(c).

216 *Supra* note 93.

217 *Ibid.* s. 20(1).

218 *Ibid.* s. 20(6).

219 *Supra* note 95, s. 8, s. 9. An occupant may be reimbursed up to 70% of the cost of the original clean-up and maintenance of control of yellow nut sedge (*Cyperus esculentus*). Costs for original clean-up and maintenance of tansey ragwort (*Senecio jacobaea*) in

allows for compensation to be considered in agreements with those who own, occupy, or have other interests in weed-infested lands.[220]

3.3.2.iii (e) Process for Cost Recovery and Penalties

All weed control acts set out a mechanism for recovering costs from a land owner or occupant in circumstances where a weed inspector has enforced the act and taken action to control or destroy noxious weeds on lands. The inspector may submit an account of expenses directly to the owner or to the municipal council. If expenses are not paid, the council may enter any unpaid costs on the tax roll;[221] or, in the case of Nova Scotia's *Weed Control Act,* Prince Edward Island's *Weed Control Act,* and Ontario's *Weed Control Act*, such costs are collected as a debt owed to the Crown.[222] Saskatchewan's *Noxious Weeds Act* and Manitoba's *Noxious Weeds Act* place limits on the costs that can be collected.[223] Manitoba's *Noxious Weeds Act* further provides that a municipal council, upon recommendation of an inspector or the chair of the Weed Control Board, may levy such a charge up to $10 per acre against weed infested lands and this charge is collected

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Halifax and western counties and field bindweed (*Convolvulus arvense*) throughout the province are reimbursed at 50%.

220 *Supra* note 130, s. 23 (2)(c). This applies to lands infested with leafy spurge, field bindweed, Russian knapweed, toadflax or hoary cress.

221 Alberta: *supra* note 93, s.27(4), British Columbia: *supra* note 98, s. 8(1)(2), Manitoba: *supra* note 94, s. 29(1), Ontario: *supra* note 130, s.15(6), 16(7), Quebec: Regulations, *supra* note 130, s. 4, Saskatchewan: *ibid.* s.29(1).

222 Nova Scotia: *supra* note 95, s.14(6), Ontario: *supra* note 130, s. 18(3), Prince Edward Island: *supra* note 96, s. 9(4).

223 Saskatchewan: *supra* note 130, s.28, Manitoba: *supra* note 94, s. 27(3).

as taxes.[224]

The penalties for contravening the acts vary widely from province to province. Quebec's *Agricultural Abuses Act* has the lowest fines at $5 to $100,[225] while Alberta's *Weed Control Act* has some of the toughest penalties with fines of up to $5,000 and, in default, a term in prison of not more than sixty days.[226] The Act also sets a penalty for non-compliance with a Ministerial "stop order" at up to $1,000 per day that the offence continues.[227]

3.3.2.iv Agriculture and Plant Pest Acts

3.3.2.iv (a) Plant Health Protection Acts

Newfoundland and Labrador and New Brunswick do not have weed control acts but address weed control through plant health protection legislation. Newfoundland and Labrador's *Plant Protection Act*[228] and New Brunswick's *Plant Health Act*[229] are

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224 Manitoba: *ibid.* s.28(1). However, section 28(3) provides that notice of the levy must be served on the owner of the lands before March 1 of year in which charge is levied.

225 *Supra* note 130, s. 26.

226 *Supra* note 93, s. 38.

227 *Ibid.* s. 20(4).

228 R.S.N.L. 1990, c. P-16.

229 S.N.B. 1998, c. P-9.01.

administered by the provincial agriculture departments[230] and, like the weed control acts in the other Maritime provinces, local governments play no role in administering and enforcing the Acts. The acts set out general duties in regard to pest control, bolstered with strong powers for inspection, detention, and seizure, as well as powers to quarantine infested areas.

3.3.2.iv (a) (i) Application of the Acts to Weeds

The plant health protection acts are broader in scope than the weed control acts in that they apply to plants that are pests, as well as organisms such as insects and fungal, bacterial, and viral pathogens. Newfoundland and Labrador's *Plant Protection Act* only applies to weeds as pests; that is, plants that are "causing or capable of causing injury or damage to vegetable, a part, product or by-product of a vegetable or plant material or that which constitutes a biological obstacle to the control of a pest."[231] Weeds that only have an adverse affect on non-plant components of ecosystems or animal or human health would not be subject to the Act. New Brunswick's *Plant Health Act* applies to pests that are defined as causal organisms, insects, plant diseases, or weeds.[232] Weeds are designated in regulations,[233] but to date no regulations have been put in place for such

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230 Newfoundland and Labrador: Department of Forest Resources and Agrifoods. New Brunswick: Minister of Agriculture, Fisheries and Aquaculture.

231 *Supra* note 228, s. 2(g).

232 *Supra* note 229, s.1. A "causal organism" means a weed that causes or is capable of causing injury or damage to a plant and that is designated as such by regulation.

233 *Ibid.*

designations.

3.3.2.iv (a)(ii) Legal Duties and Prohibitions

While provincial weed control acts impose duties on land owners and occupiers and others to destroy or control weeds, the plant health protection acts focus on quarantine and government-directed action to control pests. Newfoundland and Labrador's *Plant Protection Act* prohibits any person from bringing into the province, transporting, selling, or disposing of, any plant, container, soil, machinery, or equipment that is infected or infested with a pest, except in accordance with the Act.[234] Furthermore, any person who suspects that a plant in his or her possession is infested or infected by a pest must immediately communicate this information to the Minister, along with particulars and relevant information regarding the source or origins of the infection or infestation.[235] Anyone in charge of land, buildings, or vehicles subject to inspection is required to give an inspector reasonable help to carry out his or her duties, and to provide the information that the inspector reasonably requires.[236]

New Brunswick's *Plant Protection Act* requires immediate notification to an inspector when anyone discovers or suspects that plants are infested or infected with pests.[237] This

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234 *Supra* note 228, s. 3.

235 *Ibid.* s. 5.

236 *Ibid.* s. 8(3).

237 *Supra* note 229, s. 16 (1) (2) .

requirement applies to a person who owns, leases, or otherwise uses land (or an occupant), and it only applies to lands where more than one quarter hectares of land is used for the purpose of growing one species of plant.[238] Any person who has carried out field or laboratory tests that confirm a plant is infested must immediately notify an inspector of the results.[239] There is a duty to give reasonable assistance to inspectors and furnish them with any records and materials as reasonably required.[240] This duty is imposed on a wide range of individuals including owners, employees, agents, or persons in charge of containers, vehicles, plants, pest substances, and things.[241]

New Brunswick's *Plant Protection Act* also sets out a number of prohibitions, including obstructing, hindering an inspector,[242] and giving false or misleading statements to an inspector.[243] The Act prohibits removing anything from detention or quarantine unless in accordance with Act,[244] knowingly having possession of an infested plant without the consent of inspector,[245] transporting any infested plant on a highway,[246] or using a

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238 *Ibid.*

239 *Ibid.* s. 16 (3).

240 *Ibid.* s. 4.

241 *Ibid.*

242 *Ibid.* s. 5.

243 *Ibid.* s. 4.

244 *Ibid.* s. 14.

245 *Ibid.* s. 17.

246 *Ibid.* s. 18.

container, vehicle, or equipment infested with a pest without treating it to eradicate the pest.[247]

3.3.2.iv (a) (iii) Process for Compliance

Both plant health protection acts provide strong measures for compliance. The acts allow for the appointment of inspectors[248] and set out procedures for inspection and searches to determine if there is compliance with the Act. Both acts require warrants to enter lands, vehicles, and structures. However, in Newfoundland and Labrador's *Plant Protection Act,* the warrant is only required when there are reasonable grounds to believe that a person has contravened the Act.[249] In these circumstances, and on instructions from the Minister, the inspector can order disinfection or treatment,[250] the destruction of plants or containers,[251] prohibition on movement of plants or containers except in accordance with the order,[252] and the production of documents for inspection.[253] Inspections, where it is reasonably necessary to determine if there is compliance with the Act, may be done without a warrant. In these circumstances, an inspector can make examinations and

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247 *Ibid.* s. 19.

248 *Supra* note 228, s. 6(1), *ibid.* s. 3(1).

249 *Supra* note 228, s. 7.

250 *Ibid.* s. 8(1)(a).

251 *Ibid.* s. 8(1)(b).

252 *Ibid.* s. 8(1)(c).

253 *Ibid.* s. 8(1)(d).

order precautions be taken against the pest,[254] inspect domestically grown and imported plants to certify if they are infected or infested,[255] and require a person to produce documents.[256]

Pursuant to New Brunswick's *Plant Health Act*, an inspector must seek permission of the owner or person in control before entering lands, buildings, or vehicles to do an inspection.[257] If permission is not obtained, a warrant is required except in cases where a vehicle is being searched, seized, or detained.[258] Inspectors have, where there are reasonable grounds to believe a pest was or is or will be present, broad powers of search, seizure, and detention. When the presence of a pest is determined, an inspector can make an order to contain and treat a pest.[259] Vehicles, equipment, and records such as software and hardware can also be seized as evidence of a violation of the Act.[260] Where immediate steps must be taken to prevent the dispersion of a pest, an inspector may use what force is considered necessary for taking samples to determine if a pest is present, and where a pest is found, for conducting treatments to eradicate the pest.[261] There are

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254 *Ibid.* s. 7(a).

255 *Ibid.* s. 7(b).

256 *Ibid.* s. 7(c).

257 *Supra* note 229, s. 3(2).

258 *Ibid.* s. 3(3).

259 *Ibid.* s. 7(1).

260 *Ibid.* s. 3(8).

261 *Ibid.* s. 3(6).

powers to quarantine places and detain vehicles until an investigation can be made to determine if a pest is present.[262] An order may also be issued to stop any person handling plants and pests in a manner that violates the Act, and make them comply with the Act.[263]

New Brunswick's *Plant Health Act* also provides for the Minister to apply to the Court of Queen's Bench of New Brunswick when there is failure to adhere to an order.[264] The Act also provides a right of appeal of a Ministerial order, demand or decision.[265] However, Newfoundland and Labrador's *Plant Protection Act*[266] provides no similar right to appeal.

Permits may be required in Newfoundland and Labrador's *Plant Protection Act* for nurseries,[267] and to exempt scientific work from the Act.[268] A certificate may also be required for plants coming into the province declaring that they are apparently free of pests.[269]

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262 *Ibid.* s. 7(5).

263 *Ibid.* s. 7(6).

264 *Ibid.* s. 9(3).

265 *Ibid.* s. 21(1).

266 *Supra* note 228.

267 *Ibid.* s. 10.

268 *Ibid.* s. 12.

269 *Ibid.* s. 4. This certificate is prepared by officials in the province of origin.

3.3.2.iv (a) (iv) Penalties for Noncompliance

Stiff penalties may result from noncompliance with the plant health protection acts. Offenses under Newfoundland and Labrador's *Plant Protection Act* can bring fines, on summary conviction, of up to $1,000 or six months in jail or both.[270] In New Brunswick's *Plant Health Act,*[271] offenses may vary.[272] Lesser offenses, such as failing to assist an inspector, may result in a fine between $140 to $575[273] with the maximum fine increasing to $1,070 for subsequent offenses.[274] More serious offenses—such as knowingly using a vehicle, or equipment that has been infested with a pest without first treating it to destroy or eradicate the pest—can result in a fine between $240 to $5,120,[275] with the maximum fine increasing to $7, 620 for subsequent offenses.[276] Furthermore, under particular circumstances, jail sentences of up to ninety days must be imposed.[277]

3.3.2.iv (b) Plant Pest Acts

Alberta and British Columbia has legislation aimed at pest control and management that also applies to weeds and invasive alien plant species. Alberta's *Agricultural Pests Act*

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270 *Supra* note 228, s. 15.

271 *Supra* note 229.

272 Offenses are provided in the *Provincial Offences Procedures Act,* S.N.B. 1987, c-22.2.

273 *Supra* note 229, Sch A, *Ibid. s.* 56 (3).

274 *Supra* note 229, Sch A, *Ibid.* s. 57 (c).

275 *Supra* note 229, Sch A. *Ibid. s.* 56 (6).

276 *Supra* note 229, Sch. A, *Ibid.*, s. 57 (f).

277 *Supra* note 229, Sch.A, *Ibid.* s. 63(1).

applies to nuisances and pests, which includes animals, birds, insects, and diseases, as well as plants.[278] A nuisance or pest is designated in regulations by the Minister if he or she is of the opinion it is destroying or harming—or is likely to destroy— any land, livestock, or property in Alberta.[279] The Act includes vegetation in the definition of "property"[280] thus extending its reach beyond pests and nuisances in argo-ecosystems. Several plant diseases, insects, rodents, and birds have been declared nuisances and pests but no plants have been designated as such.[281] It remains unclear when a plant would be designated a pest or nuisance under the Act or a weed under the *Weed Control Act*.[282]

The Act imposes several legal duties on owners and occupants of lands or property. An owner or occupant of land may take measures to prevent establishment of pests[283] but must take measures to destroy nuisances or anything that contributes to the establishment of nuisances on land, property, or livestock.[284] The local authority of a municipality also has a duty to prevent the establishment of pests, or to control or destroy pests in the municipality.[285]

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278 R.S.A. 2000, c.A-8 s. 1(j).

279 *Ibid.* s. 2(1).

280 *Ibid.* s .1(n).

281 *The Pest and Nuisance Control Regulation*, Alta Reg. 184/2001.

282 *Supra* note 93.

283 *Supra* note 278, s. 5(1).

284 *Ibid.* s. 5(2).

285 *Ibid.*s. 6.

The provisions in the Act establishing legal duties providing for compliance mirror those of Alberta's *Weed Control Act.*[286] Inspectors must be appointed by municipalities to carry out the Act.[287] Where an inspector is of the opinion that land or property contains a pest or should be protected against a pest, a notice can be given specifying the measures to be taken to prevent the establishment of a pest or to control or destroy the pest.[288] The notice may be appealed to the local authority, which must set up an independent committee to hear appeals.[289] Notice need not be given where the owner or occupant cannot be located and the provision of notice is not practicable, or immediate measures are necessary to control the pest.[290] If an order is not complied with, an inspector may enter property and destroy pests.[291] Like the *Weed Control Act,* the Minister can issue a "stop order".[292]

The costs incurred by an inspector in carrying out his or her duties can be recovered as municipal taxes.[293] Prohibitions set out in the Act are obstructing an inspector in his or

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286 *Supra* note 93. Both Acts are administered by the Alberta Agriculture, Food and Rural Development.

287 *Ibid.* s. 10(1).

288 *Ibid.* s. 12(1).

289 *Ibid.* s. 14 (5).

290 *Ibid.* s. 13.

291 *Ibid.* However, s. 18 requires that an inspector have a warrant to enter a private dwelling house. The *Weed Control Act, supra* note 93, has no provision for inspectors to enter private dwellings.

292 *Ibid.* s. 20.

293 *Ibid.* s. 19(1).

her duties; willfully failing to use or misusing any poison, compound device or equipment; or for propagation purposes, acquiring, selling, distributing, or using any seed, root, tuber, or other vegetable material containing a pest.[294] The fines for contravening the Act and a stop order issued under the Act are of up to $5,000 and, in default, a term in prison of not more than sixty days.[295] The Act also sets a stiff penalty for non compliance with a Ministerial stop order at up to $1,000 per day that the offence continues.[296]

British Columbia's *Integrated Pest Management Act,* administered by the provincial Ministry of Environment, is significant new legislation providing for the management of invasive plants and weeds, and vegetation in that province.[297] The Act seeks to decrease reliance on pesticides and reduce their use[298] by implementing an Integrated Pest Management (IPM) system. IPM has the following elements:

a Planning and managing ecosystems to prevent organisms from becoming pests;

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294 *Ibid.* s. 22.

295 *Ibid.* s. 23.

296 *Ibid.* s. 20(4).

297 *Supra* note 178. The *Integrated Pest Management Regulation*, B.C. Reg. 604/2004 s.1. provides that noxious weeds are those plants designated as such in the *Weed Control Act* supra note 92. Invasive plants are those plants designated as such in the *Forest and Range Practices Act*, *supra* note 121.

298 Ministry of Environment, Integrated Pest Management Program *Integrated Pest Management Act and Regulation, Noxious Weed/Invasive Plant Management Sector Review Paper* (Victoria: Ministry of Environment, Integrated Pest Management Program Publication, 2005).

b. Identifying pest problems and potential pest problems;

c. Monitoring populations of pests and beneficial organisms, damage caused by pests and environmental conditions;

d. Using injury thresholds in making treatment decisions;

e. Suppressing pest populations to acceptable levels using strategies based on considerations of,

-Biological, physical cultural, mechanical, behavioral, and chemical controls in appropriate conditions,

-Environmental and human health protection; and

f. Evaluating the effectiveness of pest management treatments.[299]

The *Integrated Pest Management Regulation* provides a classification scheme for pesticides.[300] A license is required for the sale or use of specified pesticides[301] and certificates for the dispensing or applying of specified pesticides.[302] The Act has particular requirements in regard to:

1. noxious weeds and invasive plants management on more than 50 hectares per year of

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299 *Supra* note 178, s. 1.

300 *Supra* note 297, s. 2.

301 *Supra* note 178, s. 4(1).

302 *Ibid.* s. 5(1).

public lands managed by a single entity,[303]

2. vegetation management on more than 20 hectares per year of public or private lands used as a highway, a utilities corridor, a facility or right of way for water delivery and a pipeline,[304] and

3. vegetation management on more than 20 hectares per year of public land other than that carried out on lands used as a railway right of way or an industrial site listed in 2.[305]

In these circumstances, a Pest Management Plan (PMP)[306] and receipt of a pesticide use notice confirmation are required.[307]

Considerable information must be submitted in a PMP, including details on the monitoring program to be implemented, injury thresholds to be applied, and the pest treatment options.[308] A description of the environmental protection strategies and procedures must also be provided.[309] Public consultation must also be carried out as part of the PMP.[310] A pesticide use notification must also be prepared and confirmed by the

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303 *Ibid.* s. 24 (2) (g).

304 *Ibid.* s. 24 (2)(b).

305 *Ibid.* s. 24(2)(f).

306 *Ibid.* s. 7 (1)(a).

307 *Ibid.* s. 7(1)(c).

308 *Supra* note 297, s. 58(1).

309 *Ibid.*

310 *Supra* note 297, s. 27(1).

Ministry.[311] An annual notice of intent to treat is submitted to the Ministry at least twenty-one days prior to pesticide use in the first year and each subsequent year of the confirmation.[312]

General standards are set out for the management of noxious weeds and invasive plants in that the license or confirmation holder using pesticide for the purpose of managing such plants must not apply the herbicide more than 1.5 meters from the targeted weed or plant.[313] Furthermore, reasonable efforts must be made to determine where biological weed control organisms have been released and to prevent harm to those organisms.[314]

The Act provides for appointment of inspectors who can enter lands and premises to determine compliance with the Act.[315] Penalties for contravening the Act can be up to $200,000 or six months in jail or both, with the maximum fine for a subsequent offense increasing up to $400,000.[316] Corporations that contravene the Act may be fined up to $400,000 for the first offense and up to $800,000 for subsequent offenses.[317] Additional sentencing actions can include payment to the Habitat Conservation Trust Fund the

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311 *Ibid.*

312 *Supra* note 297, s. 41 (1).

313 *Ibid.* s. 77(1).

314 *Ibid.* s. 77(3).

315 *Supra* note 178, s. 17.

316 *Ibid.* s. 26(2).

317 *Ibid.* s. 26(3).

amount of money the Court considers fit[318] or community service.[319] Administrative penalties are also available.[320]

The *Integrated Pest Management Act*[321] represents a modern, proactive and preventative approach to the use of pesticides in controlling invasive plants and weeds and managing vegetation on large parcels of private and public lands. The management focus of this Act stands in stark contrast to the weed control acts with their prescribed duties and mechanisms for forcing compliance with those duties.

CHAPTER 4: SHIFTING THE FOCUS TO INVASIVE ALIEN PLANT SPECIES IN NATURAL ECOSYSTEMS

4.1 INTRODUCTION

The first part of this paper focused on past and current laws that have evolved primarily to combat weeds in agro-ecosystems. It will now turn to invasive alien plant species and the adverse impacts they may have on natural ecosystems. This chapter introduces the scientific literature on this subject, which has only developed over the past five to six

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318 *Ibid.* s. 31 (1) (e).

319 *Ibid.* s. 31 (1)(d).

320 *Ibid.* s. 23(1).

321 *Supra* note 178.

decades.[322] It summarizes what is generally understood about the complex ecological phenomenon of plant invasions and where uncertainties lie. It also presents the diverse views held about the predictability of plant invasions and the harms that invasive alien plant species may have on natural ecosystems. This chapter is intended to support the argument, advanced in later chapters, that an understanding of the ecology of plant invasions must underpin an effective legislative framework for protecting natural ecosystems from the adverse effects of these species.

4.2 PATHWAYS

Of some 5,800 vascular plant species in the Canadian flora, approximately 20 to 27% are alien plants, with numbers varying in different regions and provinces.[323] These alien species have traveled into Canada along the same pathways described for weeds in chapter 3. However, alien plant species also continue to arrive in Canada by natural pathways such as wind, water, and wildlife.[324] The horticultural industry is a major

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322 The seminal publication on invasive species came in 1958 with the publication of Charles Elton's *The Ecology of Invasion By Animals and Plants* (London: Meutheun 1958). Studies on invasive alien plant species in particular have increased greatly within the past decade. This coincides with campaigns against high-profile plant invaders such as purple loosestrife and leafy spurge.

323 Haber, *supra* note 3 at 44.

324 For example, Russian olive (*Eleagnus angustifolia*) was likely dispersed along the Milk River valley by birds, flood waters and ice rafts. See C.M. Pearce & D.G. Smith, "Plains Cottonwood's Last Stand: Can It Survive Invasion of Russian Olive?" (2001) 28 Environmental Management 623 at 635.

importer of alien plant species[325] and alien plant species are also imported for agricultural use, for educational use, or for display purposes.[326] They may also be brought into Canada for use in phytoremediation, revegetation, or erosion control.[327]

Many alien plant species introduced into new habitats fail to become invasive and, therefore, much of our understanding of the phenomenon of invasiveness comes from those species that have been successful rather than those that have failed. In general, ecologists have formulated the "rule of tens" which holds that one in ten species will escape cultivation, of those that escape cultivation, one in ten will become established, and of those that are established, one in ten will become a pest or a weed.[328]

4.3 ECOLOGICAL RISK ASSESSMENT

4.3.1 Predictability

The scientific literature on invasive alien plant species has focused on the properties of plants that make them invasive and the characteristics of the new environments that make

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325 See Yvonne Baskin "The Greening of Horticulture: New Codes of Conduct Aim to Curb Plant Invasions" (2002) 52 BioScience 464.

326 *Ibid.*

327 *Supra* note 11 at 34.

328 See Mark Williamson & Alastair Fitter, "The Varying Success of Invaders" (1996) 77 Ecology 1661.

them susceptible to invasion.[329] Plant invasions have been linked to characteristics such as rapid growth to flowering, production of large numbers of seeds, and broad ecological amplitude.[330] It has also been suggested that disturbed ecosystems[331] or ecosystems with low biodiversity[332] are more susceptible to invasion. Research has also shown that the restoration of disturbed ecosystems can reduce the magnitude of plant invasions.[333] However, while there may be general characteristics of invaders and of invaded ecosystems that improve the chances of a successful invader, it remains difficult to predict the importance of these factors in any particular case; thus, the risk assessment of an alien plant species's invasiveness is often accompanied by considerable uncertainly. This points to the importance of a precautionary approach to alien plant species and the need for programs to monitor such species once they are found in or introduced into a new habitat.

4.3.2. Evidence of Harm

The view that all invasive species pose threats to natural ecosystems has not gone without

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329 Michael A. Huston, "Management Strategies for Plant Invasions: Manipulating Productivity, Disturbance and Competition" (2004) 10 Diversity and Distributions 167 at 167.

330 Tina Heger & Trepl Ludwig, "Predicting Biological Invasions" (2003) 5 Biological Invasions 313 at 314.

331 See Joseph D. Lozon & Hugh MacIsaac, "Biological Invasions: Are They Dependent on Disturbance?" (1997) 5 Environmental Review. 131.

332 See T.A. Kennedy, et al., "Biodiversity as a Barrier to Ecological Invasion" (2002) 417 Nature 636.

333 See Jonathan D. Bakker & Scott D. Wilson, "Using Ecological Restoration to Constrain Biological Invasion" (2004) 41 Journal of Applied Ecology 1058.

challenge. Arguments have been put forth that there is no evidence on a global basis that any species has been driven to extinction by an invasive alien species.[334] Likewise, research carried out in wetlands dominated by purple loosestrife suggests that alien plant species are, by and large, a minor threat to native wetland plant diversity.[335] A recent study also indicates that invasive plant species are more likely "passengers" of environmental change; that is, invaded communities are primarily structured by factors such as environmental change, which is less constraining on invasive species.[336] It appears that invasive plant species are less likely to be "drivers" in environmental change in that invaded communities are highly interactive, with native species being limited or excluded by dominant invasive plant species.[337]

In some circumstances, ecologists have argued that invasive alien plant species are "just part of the ecosystem" and they do not present so much as a scientific issue as a management issue.[338] Other researchers claim that the focus should be less on the invasive plant species and more on the broader issues of ecosystem management such as

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334 See Mark Davies, "Biotic Globalization: Does Competition From Introduced Species Threaten Biodiversity?" (2003) 53 BioScience 481.

335 See Jeff E. Houlahan and C. Scott Findlay, " Effect of Invasive Plant Species on Temperate Wetland Diversity" (2004) 18 Conservation Biology 1132.

336 See Andrew S. MacDougall and Roy Turkington, "Are Invasive Species the Drivers or Passengers of Change in Degraded Ecosystems?" (2005) 86 Ecology 42.

337 *Ibid.*

338 See Jeffery P. Cohn, "Tiff Over Tamarisk: Can a Nuisance Be Nice Too?" (2005) 55 BioScience 648.

the regulation of water flows in riparian habitats.[339]

The debate over the impacts of invasive species is not surprising given the highly complex nature of plant invasions and the importance of empirical evidence in understanding the ecological dynamics of invasive species. However, numerous studies present indisputable evidence that alien invasive plant species profoundly alter ecosystem functions and biodiversity. For example, ecologists have predicted that the highly invasive alien tree, Russian olive, will replace the native cottonwood trees (*Populus deltoides*) in Alberta's Milk River floodplain within this century if it is not controlled.[340] Cottonwood trees are the dominant species in this ecosystem and their loss would result in widespread changes to flora and fauna alike.

Other studies have shown that invasive alien plant species can alter soil water supplies, soil chemistry and other features of the habitat, which in turn can impede establishment of endemic plant species.[341] They may also change fire regime characteristics in natural ecosystems[342] and cause browsing and grazing animals to preferentially select native

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339 *Ibid.*

340 See C.M. Pearce & D.G. Smith, *supra* note 324.

341 See Joan G. Ehrenfeld, "Effects of Exotic Plant Invasions on Soil Nutrient Cycling Processes" (2003) 6 Ecosystems 503.

342 See Matthew L. Brooks, et al., "Effects of Invasive Alien Plants on Fire Regimes" (2004) 54 BioScience 677.

species.[343] Populations of endangered plant and animal species may be susceptible to the ecosystem changes caused by invasive alien plant species.[344] Where invasive alien species share habitats with related species, they may hybridize, further threatening populations of the endemic species.[345] Climate change will likely favour invasive plant species, worsening their impacts over large areas.[346]

4.4 RISK MANAGEMENT

4.4.1 Prevention and Early Detection

The most effective and economical way to prevent the impacts of invasive alien plant species on ecosystems is by preventing such species from entering new habitats where they might establish and spread. This requires an understanding of the varied ways that plant species are transported from one location to another, and the establishment of appropriate phytosanitary measures to be taken to prevent the movement of alien invasive

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343 Beaver preferentially graze on native cottonwood trees rather than the invasive tree, Russian olive, in Western riparian habitats that favour the establishment and growth of Russian olive. Peter Lesica & Scott Miles, "Russian Olive Invasion into Cottonwood Forests Along a Regulated River in North-central Montana" (1999) 77 Canadian Journal of Botany 1077 at 1081.

344 For example, three of the four populations of the threatened species western spiderwort (*Tradescantia occidentalis*) in Canada are overrun by leafy spurge. However, it remains unclear that spiderwort would be extirpated on these sites by competitive impacts. B. Smith, *COSEWIC Assessment and Update Status Report on the Western Spiderwort, Tradescantia occidentalis in Canada* (Ottawa: COSEWIC 2002) at 18.

345 See Gary R. Huxel, "Rapid Displacement of Native Species by Invasive Species: Effects of Hybridization" (1999) 89 Biological Conservation 143.

346 See the example of saltcedar (*Tamarix* sp.) in Erika Zavaleta & Jennifer L. Royval, "Climate Change and the Susceptibility of U.S. Ecosystems to Biological Invasions: Two Cases of Expected Range Extension" at 277 in Schneider, Stephen H. & Root, Terry L. (Eds) *Wildlife Responses to Climate Change North American Case Studies* (Washington: Island Press 2002) 305-314.

plant species. However, such control measures will not totally prevent the entry of alien plants into Canada or their spread into new ecosystems, making it critical to detect invasive alien species early before they establish and spread widely.[347] On-line databases providing information about invasive alien plant species can assist individuals in detecting and applying appropriate eradication, control, or management measures. Such databases have been established on a provincial basis.[348] However, in Canada there is no national system for detecting and responding to invasive alien plant species. A system is currently under development in the United States based on remote sensing systems, combined with monitoring protocols and predictive models which can be applied to assessing the loss of natural habitats to invasive alien plant species.[349]

4.4.2 Management, Control and Eradication

If an invasive alien plant species has become naturalized with only a few populations in a natural ecosystem, then eradication of the species may be possible. Researchers have recommended that there should be a pre-eradication assessment to tailor removal to avoid

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347 For a discussion of the elements of an early detection and rapid response system see Federal Interagency Committee for the Management of Noxious and Exotic Weeds, *A National Early Detection and Rapid Response System for Invasive Plants in the United States, Conceptual Design* (Washington: FICMNEW Publication, 2003).

348 For example, British Columbia's Ministry of Forests has has recently launched the Invasive Alien Plants Program, Canada's first web-based data entry system and mapping tool to combat invasive alien plant species. <http://www.for.gov.bc.ca/hfp/invasive/IAP_01.htm>.

349 The US National Institute of Invasive Species Science, a collaboration of Colorado University, the US Geological Survey, and the National Astronautics and Space Administration, is currently undertaking this work. See US National Institute of Invasive Species Science < http://129.82.104.51/cwis438/niiss/home.php?WebSiteID=1>.

unwanted ecological effects, and a post-removal assessment of eradication effects on both the target organism and the invaded ecosystem.[350] However, where an invasive alien plant species has spread widely, the only cost-effective and practical approach may be to control and manage the species in a manner to keep population levels low.

The management, control, or eradication of an invasive alien plant species may be achieved by fire, grazing, pulling by hand, or uprooting by mechanical means. Herbicides are also commonly used to control invasive alien plant species but they may be of limited value in circumstances where the plant species become tolerant to the herbicide.[351] There are also risks posed to other species that must be considered in widespread use of herbicides, especially in natural ecosystems.[352] Biological control has been used successfully in some circumstances but the species used for this purpose must be carefully evaluated so that they do not have an adverse effect on biological diversity by attacking non-target organisms and having unexpected effects.[353] The removal of an

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350 See Erika S. Zavaleta, Richard J. Hobbs & Hal Mooney, "Viewing Invasive Species Removal in a Whole-Ecosystem Context" (2001) 16 Trends in Ecology & Evolution 454.

351 See Albrecht Michel, et al., "Somatic Mutation-mediated Evolution of Herbicide Resistance in the Nonindigenous Invasive Plant Hydrilla (*Hydrilla verticillata*)" (2004) 13 Molecular Ecology 3229.

352 See Rick Relyea, "The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities" (2005) 15 Ecological Applications 618.

353 One of the most striking examples of how risky biological control can be is *Rhinocyllis conicus*, a biological control weevil, introduced to North America to control weedy thistle species (*Carduus* spp.). The weevil now "poses a major serious threat to protected populations of *Cirscium pitcheri*, an already exceptionally rare North American endemic species." S. M. Louda, *et al.*, "Evaluation of Ecological Risk to Populations of a Threatened Plant from an Invasive Biocontrol Insect" (2005) 15 Ecological Applications 234 at 245.

invasive alien plant species before it sets seed is important in management, control, and eradication efforts. Seeds can remain viable in soil for long periods of time with the result that regrowth will occur over many years.

4.5 ECOSYSTEM RESTORATION

The removal of invasive alien plant species may result in unexpected changes to other ecosystem components because the ecological context of eradication is complex. The impacts of removal of an invasive species may depend on the species being removed, the degree to which it has replaced native species and the presence of other invasive and species.[354] Ecosystem restoration may also be required after removal of an invasive alien plant species.

CHAPTER 5: THE IMPORTANCE OF CLEAR AND UNIFORM SUB-NATIONAL LAWS TO PROTECT NATURAL ECOSYSTEMS FROM INVASIVE ALIEN PLANT SPECIES

5.1 INTRODUCTION

Government and non-government organizations in Canada are beginning to forge partnerships and develop policies to combat alien invasive plant species in Canada.[355] As

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354 *Supra* note 350 at 458.

355 For example, the Manitoba Purple Loosestrife Project program provides maps and community education. It also monitors purple loosestrife and undertakes habitat restoration campaigns. See Purple Loosestrife Project <http://www.ducks.ca/purple/>. Other examples are the British Columbia and Alberta Invasive Plant Councils, which are not-for-profit organizations with diverse members from government, industry, and grassroots organizations. See <http://www.invasiveplantcouncilbc.ca/index.htm> and

a part of this process, it is important to consider the fundamental question of why legislation is important in protecting natural ecosystems from invasive alien plant species. This chapter argues that the protection of natural ecosystems and biodiversity is of the highest importance in Canada and laws are important tools in meeting that goal. Provinces and territories should have legislation in place that applies clearly and uniformly to invasive alien plant species in all natural ecosystems within their jurisdictions. However, this is not the case in some provinces and territories and this chapter makes recommendations as to how the law can be strengthened in these instances. It also considers the particular problem posed by invasive alien plant species that spread from lands in other jurisdictions.

5.2 THE IMPORTANCE OF LEGAL TOOLS TO COMBAT INVASIVE ALIEN PLANT SPECIES

Different opinions inevitably exist about the appropriateness, effectiveness, or usefulness of environmental protection laws.[356] However, controversies about law-making to protect natural ecosystems from invasive alien species can be particularly acute, reflecting the challenges presented by "the rapidly evolving body of scientific knowledge, the inherent risk or uncertainly that characterizes many actions involving alien species and the

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<http://www.invasiveplants.ab.ca/>. The councils were formed in 2004 to combat invasive plant species within British Columbia and Alberta respectively.

356 Jamie Benidickson, *supra* note 15 at 2.

economic and social importance attached to alien species in several sectors."[357]

In considering alien invasive plant species, one can add to these challenges the different perspectives held on the ecological threats they pose[358] and the complicated jurisdictional landscape they occupy. For example, alien invasive plant species can potentially establish themselves on lands owned or occupied by private citizens, First Nations, or federal, provincial, territorial, or local governments, and can also spread to and from these lands.

Yet there are compelling reasons for developing laws to protect natural ecosystems from invasive alien plant species. It is clear that Canadians value the conservation and protection of natural ecosystems and biodiversity.[359] An eloquent statement of these values is found in the preamble to the *Species at Risk Act,*[360] which identifies Canada's natural heritage as "an integral part of our national identity and history." Furthermore, "wildlife in all its forms, has value in and of itself and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical,

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357 Claire Shine, Nattley Williams and Lothar Gundling, *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species* (Gland, Switzerland: IUCN Environmental Law and Policy Paper No. 40, 2000) at 1.

358 *Supra* note 338.

359 However, the conservation of natural ecosystems and biodiversity, like other environmental issues, may be subject to varying public attention. For a broader discussion of this phenomenon, see A. Downs, "Up and Down with Ecology - The "Issue Attention Cycle" (1972) 28 Public Interest 38.

360 *Supra* note 142.

ecological and scientific reasons." Environmental and conservation laws, as enacted by all levels of governments, aim to protect such values in that they "seek to establish objective principles, rules and criteria to regulate rights, responsibilities and conduct of individuals, communities, commercial interests, governments and administrative agencies."[361] Law can also provide for fair treatment and legal certainty for all who are affected by it.[362]

The policy objectives of protecting natural ecosystems from invasive plant species need not always be embodied in law. They may be achieved through other means such as public education,[363] financial incentives,[364] and voluntary initiatives.[365] However, the importance of sound laws dealing with invasive species in general have been supported by a number of international organizations and guidance has been offered to assist

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361 *Supra* note 350.

362 *Ibid.*

363 One of the most impressive public education programs is offered by the US Bureau of Land Management, which publishes a series of "Wanted Dead" posters encouraging individuals to take action against invasive plants. Online: <http://www.blm.gov/education/weeds/weedposters/>.

364 The use of financial incentives to control invasive alien plant species has not been fully explored. Bounties may not be easily applied for invasive alien plant species where individuals may reproduce clonally and seeds remain in the soil seed bank for many years. Market-based incentives for the control of non-indigenous invasive species may be useful for the control of single species, or as a supplement to other programs, but they appear inadequate to serve as a primary tool to control such species. Eric Biber, "Exploring Regulatory Options for Controlling the Introduction of Non-indigenous species to the United States" (1999) 19 Virginia Environmental Law Journal 375 at 460.

365 For example, a fifteen- year long eradication program carried out by volunteers and weed control officials has resulted in an eighty-eight percent reduction of purple loosestrife plants along an area of the Bow River in Alberta. Barbara Duckworth "Purple Loosestrife Pluckers Make Headway" *Western Producer*, (21 April, 2005) 27.

countries develop appropriate laws.[366] Model laws of varying detail have been drafted by U.S. organizations[367] Canada's Sierra Legal Defence Fund, while not providing model legislation, has made several recommendations for strengthening legislation to address all invasive species promoting stronger federal legislation in this country.[368]

Although there is general recognition in Canada's federal, provincial and territorial governments that legislation applying to invasive alien plant species may need reform, little has been done beyond recommending that applicable laws be subject to analysis.[369] This hardly meets the needs of those who own or manage lands invaded by invasive alien plant species and who feel they lack the legal tools to combat such species in an effective manner. The Invasive Species Council of British Columbia,[370] in particular, has been vocal about its members' concern for lack of appropriate laws for invasive plants. The council has convened a regulatory affairs committee to summarize existing British

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366 See *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species supra* note 357, Tomme RosanneYoung *National and Regional Legislation for the Promotion and Support to the Prevention, Control, and Eradication of Invasive Species* (Washington: Biodiversity Series, The World Bank Environment Department, 2006).

367 Environmental Law Institute, *Invasive Species Control, A Comprehensive Model State Law* (Washington: ELI Publication, 2004) online:www<elistore.org>. NAWMA "Invasive Plant Management Act: A Model for States" online: <www.nawama.org>.

368 See Justin Duncan & Anastasia Lintner, *A Legal Strategy to Protect Canada's Ecosystems and Economy from Alien Invasive Species* (Toronto: Sierra Legal Defense Fund, 2004), Justin Duncan, "Alien Invasions"(2005) 13 Alternatives 32.

369 *Supra* note 3.

370 The Council membership includes technical specialists working for government and industry, First Nations representatives, foresters, forest technologists, biologists, ranchers, horticulturalists, recreationists, gardeners, and other concerned individuals.

Columbia legislation for invasive plant species in order to identify gaps and barriers. It has called on the British Columbia government to "maintain and upgrade relevant legislation and regulations" regarding invasive plant species and to "monitor and ensure the enforcement of provincial legislation."[371]

As chapter 3 has shown, the importance of weed control legislation has long been recognized by provincial and local governments in Canada. The rationale for this approach to weed control may be that:

> Governments are involved in weed management through legislation due to market failure. As individuals tend to act in their own self-interest, not everyone will act for the common good to limit the consequences of their actions on the rest of society. In the case of weeds, this involves the increased risk of a weed spreading across a landholder's and/or manager's boundaries resulting in external costs (externality) and /or the private level of weed control being less than the socially desired level (ignorance or uncertainly).[372]

This same rationale applies to invasive alien plant species, although their biology and their potential serious impacts on natural ecosystems speaks to an even greater importance for appropriate legislation. It makes no sense to have weak laws that permit land owners, occupiers or, for that matter, other jurisdictions to provide a sanctuary for such plants from where they might spread and cause irreversible damage to natural ecosystems on neighbouring lands. There may be variation in regard to the invasive alien

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371 The Invasive Plant Council of British Columbia "Invasive Plant Strategy for British Columbia" < www.invasiveplantcouncilbc.ca> at 23.

372 Principles of Weeds Legislation Discussion Paper online: Weeds Australia <http://www.weeds.org.au/docs/weeds_leg_dd.pdf>.

plant species that must be controlled in different areas with a province or territory, reflecting differing geographical ranges and degrees of invasiveness in different habitats. However, it is appropriate that all ecosystems receive equal measure of protection through laws that are applied in a clear and uniform manner.

5.3 THE APPROPRIATE LAW FOR REFORM

The diverse array of local government, provincial and territorial legislation that can apply to protect natural ecosystems from invasive alien plant species has been surveyed in Chapter 3. This paper now advances the position that provincial weed control acts and plant health protection acts are the appropriate basis for developing effective laws to address invasive alien plant species at the sub-national level. They form an existing framework in all provinces and offer considerable strengths in regard to provisions for inspection, compliance, and enforcement.

Yet as chapter 3 has illustrated, these acts suffer from numerous shortcomings and many recommendations for strengthening the acts are made in chapter 6. This chapter focuses on the need to remedy two particular problems. Firstly, gaps in the legislation need to be filled for those provinces and territories where there is no legislation or the laws are too narrow in scope to apply to invasive alien plant species in natural ecosystems. Secondly, there are particular instances where weed control laws do not apply in a clear and uniform manner to all ecosystems. This arises particularly where provincial weed control acts apply concurrently with other provincial acts and where provincial weed control

laws apply concurrently with a patchwork of weed control by-laws weed passed under the local government act. The issue of how invasive alien plant species are controlled in other jurisdictions so as to prevent their spread onto provincial and territorial lands also must be considered.

5.4 SUB-NATIONAL JURISDICTIONAL ISSUES

5.4.1 Filling Gaps

An overview of the sub-national laws that can be applied to combat invasive alien plant species shows some gaps that will need to be filled. Most notably, the Yukon and the Northwest Territories should enact legislation that provides for invasive alien plant species control. This is of considerable importance given potential changes in the range of invasive alien plant species in response to climate change. In other instances, gaps may occur from a narrow scope of the applicable legislation. Newfoundland and Labrador's *Plant Protection Act*[373] has only a narrow application to pests that impact plant health. If this Act is to be applied to address the impacts of invasive alien plant species in natural ecosystems, its scope should be expanded to broader impacts on ecosystems. It should also include a definition of "pest" that includes invasive alien plant species. Likewise, the definition of "species" in Nunavut's *Wildlife Act*[374] should be revised so that alien invasive plants recently and deliberately introduced into that territory would be subject to the invasive species provisions of the Act.

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373 *Supra* note 228.

374 *Supra* note 124.

5.4.2 Dealing with Diverse Provincial Laws

British Columbia and Alberta have a number of acts that apply to invasive alien plant species and it is in these two provinces that the issue of how these acts apply together arises. In Alberta, this is a question of clarity in application, given that the *Agricultural Pests Act*[375] and the *Weed Control Act*[376] would both apply to invasive alien plant species.

In British Columbia, different acts take fundamentally different approaches to combating invasive alien plant species or weeds on public and private lands. The *Weed Control Act,*[377] with its strong prescriptive approach, differs significantly from the "results-based" approach of the *Forest and Range Practices Act.*[378] Furthermore, the plant species to which these acts apply differ. For example, the alien invasive plant species baby's breath (*Gypsophila paniculata*) is listed in the *Invasive Plants Regulation*[379] and is subject to control on public lands. It is not designated a weed under the *Weed Control Regulation,*[380] and its control would not be required on private lands. British Columbia's *Integrated Pest Management Act*[381] also warrants mention here in that it provides for pest management plans where invasive plant control is to take place on large tracts of public

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375 *Supra* note 278.

376 *Supra* note 93.

377 *Supra* note 98.

378 *Supra* note 121.

379 *Supra* note 123.

380 *Supra* note 99.

381 *Supra* note 297.

lands but not on private lands. There is a need to evaluate these acts to determine if a suitable level of protection for natural ecosystems from invasive alien plant species is, or can be, provided on public and private lands alike.

Other provinces have taken a "single window" approach to weed control legislation that can be applied to invasive alien plant species in natural ecosystems.[382] There is value having a single act that applies province-wide so that legal duties are clearly understood and enforced in a uniform manner. Alberta and British Columbia should review their applicable legislation to see if a single act would suffice or, if different acts are deemed necessary, they should be harmonized to provide equivalent protection for all natural ecosystems in the province.

5.4.3 The Appropriate Role for Local Governments

A serious impediment to strong, effective sub-national laws for combating invasive alien plants in natural ecosystems lies with the concurrent operation of local government by-laws and provincial acts providing for weed control. As chapter 3 has described, this can result in considerable confusion where landowners and occupiers may have obligations to control and destroy different invasive alien plant species under different legal instruments, administered and enforced by different levels of government. At the heart of

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382 One rationale for British Columbia having different legislation for private and public lands may be the vast amount of public lands in that province. The cost to the public for cleaning up weeds on these lands, as provided in the *Weed Control Act*, could be considered prohibitive.

this issue is a question as to what level of government is best positioned to enact and enforce laws that are effective in protecting natural ecosystems from invasive alien plant species.

A strong argument can be made that the local government level is the appropriate level for legislation dealing with invasive alien plant species in accordance with the principle of subsidiarity. In *Hudson,* the Supreme Court of Canada dealt with the powers of a municipality to ban the use of pesticides and articulated the principle of subsidiarity as follows:

> The case arises in an era in which matters of governance are often examined through the lens of the principle of subsidiarity. This is the proposition that law-making and implementation are often best achieved at a level of government that is not only effective, but also closest to the citizens affected and thus most responsive to their needs, to local distinctiveness and to population diversity.[383]

Local governments have the best proximity from which to detect alien plants that have become naturalized and invasive in natural ecosystems. They are also able to respond quicky to control or contain an invasion on a local ecosystem basis. The particular sensitivities of the local population in regard to how control and ecosystem restoration programs are carried out are also best dealt with at this level. This view of the role of local governments is most obviously embraced in the *Spheres of Concurrent Jurisdiction–Environment and Wildlife Regulation,*[384] enacted pursuant to British

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383 *Supra* note 82 para. 3.

384 *Supra* note 83.

Columbia's *Community Charter,* [385] which gives authority to municipalities to exercise authority to control and eradicate designated alien invasive plant species.

However, there are arguments which speak against a "local government by local government" approach. A uniform approach to designating plant species subject to the legislation, as well as common procedures for dealing with invasive alien plant control and enforcement of the legislation, is important. It is at the provincial government level that appropriate expertise exists in botany, plant taxonomy and ecology to address the complex biological issues associated with invasive alien plant species. Likewise a "large scale" picture of trends in naturalizations and invasions is needed in order to develop appropriate management and control plans. This view is best illustrated by the Alberta *Weed Control Act,*[386] which requires local governments to enforce and administer the Act. Local governments may pass by-laws designating local weeds but such by-laws must be approved by the Minister.

The importance of both levels of government in weed control is recognized in many current weed control acts. However, the most successful approach to achieving uniformity in the role of local governments occurs in those acts where local governments have no choice but to administer and enforce the provincial act. The ability for local governments to pass by-laws, subject to approval of the Minister, designating local plant

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385 *Supra* note 82

386 *Supra* note 93.

species subject to the act, provides a more fine-scale approach to weed and invasive alien plant species control within the context of the large scale of oversight best achieved at the provincial government level.

The argument presented above is based on policies that make for clearer and more uniform laws. However, there is no conflict between local government by-laws for invasive species control and provincial weed control legislation that would render the local government by-laws void. Many local government weed control by-laws overlap with provincial weed control acts but this is not fatal to the by-law. In *Bell*[387] the appellant argued that a City of Toronto by-law requiring property to be kept clear of "excessive growths of weeds and grass" was void because the province had already occupied the field of weed regulation by enacting the *Weed Control Act*.[388] The Court of Appeal disagreed, stating that:

> ...while there was overlap between the statute and the by-law, both in terms of the health and environmental concerns they address and the potential duplication when the allegedly excessive growths are of noxious weeds under the Act. The different provisions have substantially different purposes and effects. The by-law is directed at standards of maintenance for dwellings and applies to grass and weeds regardless whether they have been designated as "noxious".[389]

The by-law was not inconsistent with the *Weed Control Act* and both could operate

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387 *Supra* note 86.

388 *Supra* note 130.

389 *Ibid.* para 36.

concurrently.

However, as chapter 3 has shown, some local governments have passed by-laws that have substantially the same purpose and effects as the provincial weed control act in that they seek to combat invasive plant species for environmental protection purposes. These by-laws mirror the provincial weed control act in terms of the species of plants designated, the duties created for landowners and occupiers to destroy or control them, and the mechanisms for inspection and enforcement. A question thus arises as to whether such by-laws are in conflict with the provincial weed control act.

In *Hudson*, the Supreme Court set out a "impossibility of dual compliance test" to determine if a conflict existed between a pesticide by-law and federal and provincial legislation.[390] This test provides that "a true and outright conflict can only be said to arise when one enactment compels what the other forbids."[391] The more recent Supreme Court ruling in *Rothmans, Benson & Hedges Inc. V. Saskatchewan* also speaks to how different levels of government can regulate in overlapping fields.[392] Firstly, it must be established that a person could simultaneously comply with both the by-law and the act, and, secondly, the by-law must not frustrate the purpose of the legislation enacted at the

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390 *Supra* note 782

391 *Ibid.* para 38.

392 2005 S.C.C. 13, 2005 Carswell Sask 162, 250 D.L.R. (4th.) 411, 2005 S.C.R. 186. 9 W.W.R. 40.

higher level of government.[393]

There is no issue of conflict where a by-law and the act apply to different designated plant species and the duty to destroy or control the plant species is compelled by one but not the other. Where both a by-law and act apply to the same designated plant species, there is also no issue of conflict. A person can comply with both the by-law and the act establishing the same duty to destroy or control the plant species. Such a by-law also meets the second part of the test, in that it does not frustrate the purpose of the legislation enacted at the provincial level of government. The by-law and weed control act have the same purpose in so far as they apply to invasive alien plants established and spreading in natural ecosystems, and that purpose is protecting the environment.

While there may be no legal conflict between local government by-laws and provincial acts that can provide for control of invasive alien plant species, that does not detract from the argument that it is bad policy to have duplicate laws at the different levels of government. This can lead to confusion and inefficiencies in administering resources for combating invasive alien plant species. But perhaps more persuasively, it fails to provide the uniform application of laws that is necessary to protect natural ecosystems from threats of such species.

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393 *Ibid.* para 62.

5.5 THE PROBLEM OF OTHER JURISDICTIONS

A significant issue facing provincial and territorial governments lies in combating invasive alien plant species within their jurisdictions if these plants are not also controlled on lands outside their jurisdiction. There is no legislation that requires invasive alien plant species control on federal lands, although some federal entities such as national parks have implemented management policies for invasive plant species.[394] There are authorities in the *Indian Act* [395] which provide for noxious weed control on First Nations lands through regulations[396] and by-laws passed by band councils for the control and destruction of noxious weeds.[397] The Minister may also authorize the expenditure of band monies for weed destruction.[398] However, weed control regulations have yet to be put in place and resources are rarely available for such purposes. The problem of invasive plant management on First Nations lands, military bases, national parks, and other federal lands has been identified by the Invasive Plant Council of British Columbia as one of the top ten challenges for invasive plant control in British Columbia.[399]

While the federal government continues to review its options for regulating invasive

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394 Federal/Provincial /Territorial Working Group on Invasive Alien Plant Species and Plant Pests, *The Proposed Action Plan for Invasive Alien Terrestrial Plant and Plant Pests, Phase 1 supra* note 12 at 7.

395 R.S. 1985, c. I-5.

396 *Ibid.* s. 73(1)(b).

397 *Ibid.* s. 81(1)(j).

398 *Ibid.* s. 66(3)(a).

399 *Supra* note 365 at 13.

plant species, it is important that the Federal, Provincial and Territorial Working Group on Invasive Alien Plants and Plant Pests continues its work to develop a cooperative approach to combat invasive alien plant species in all jurisdictions, including that of the federal government. However, as the following case law illustrates, invasive alien plant species growing on lands subject to the control of federally regulated local works and undertakings[400] may be within reach of provincial weed control laws.

The definitive case addressing the application of provincial laws to federally regulated companies dates back to 1899. In *Canadian Pacific v. Notre Dame de Bonsecours (Parsish)*[401] the Quebec Privy Council upheld a notice issued to Canadian Pacific under the Quebec *Municipal Code* to remove the obstruction from a ditch on its lands which had caused flooding on neighboring lands. The Company argued that it need not comply with the Code as it was subject exclusively to federal jurisdiction. However, the Privy Council held that the *British North America Act*[402] gave legislative control of railways to the Parliament of Canada, including powers to construct, repair, alter, and manage such a

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400 Federally regulated local works and undertakings are excluded from those assigned to the provinces under Section 92 of the *Constitution Act*, supra note s.76. These are:
(a) Lines of steam or other ships, railways, canals, telegraphs, and other works and undertakings connecting the province with any other or others of the provinces, or extending beyond the limits of the province:
(b) Lines of steamships between the province and any British or foreign country:
(c) Such works as, although wholly situate in the province are before or after their execution declared by the Parliament of Canada to be for the general advantage of Canada, or for the advantage of two or more of the provinces.

401 [1899] A.C. 367. [hereinafter *Notre Dame de Bonsecours*]

402 *Supra* note 78.

work. The Act did not declare that the railway ceased to be part of province in which it is located. If the Code had directed that the Company alter the construction of the ditch it would be *ultra vires* but the Company was not exempt from a provincial law of general application to all landowners, without distinction. *Notre Dame de Bonsecours* remains good law, having more recently been applied by the Supreme Court in *R v. Canadian Pacific.*[403]

The application of provincial weed control and plant health protection acts to each kind of federally regulated work and undertaking would merit consideration in its own right. However, interprovincial railways regulated under the *Canada Transportation Act*[404] may be a significant source of invasive alien plants spreading throughout a province and thus provide a case study on this issue. Such railways control weeds on rights of way to provide clear sightlines and a stable sub-structure for the track which are important components of railway management and safety.[405]

Provincial weed control acts and plant health protection acts, on the other hand, serve a

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403 R.v. Canadian Pacific Ltd. [1995]2 S.C.R. 1028, 125 D.L.R. (4th) 385 at 391, 17 C.E.L.R. (N.S.) 129 at 141, 41 C.R. (4th) 147 at 153, 99 C.C.C. (3d) 97 at 103, 30 C.R.R. (2d) 252 at 258, 82 O.A.C. 241,183 N.R. 323. Canadian Pacific was charged under Ontario's Ontario's *Environmental Protection Act* for discharging a contaminant into the environment when it burned weeds and brush on its right of way. Even though Canadian Pacific was a federally regulated undertaking pursuant to the *Railway Act,* R.S.C. 1985, c.R-3, it had no interjurisdictional immunity from prosecution under the province's environmental laws.

404 S.C. 1996 c.10.

405 The Railway Association of Canada, *supra* note 107.

very different purpose in preventing the spread of invasive alien plant species to neighboring lands where they might damage natural ecosystems, as well as threaten human health and the economy. They are provincial laws of general application to all landowners, without distinction, and they are not aimed at the management of the railway as a federally regulated undertaking. Therefore, an argument can be made, in accordance with *Notre Dame de Bonsecours,* that designated invasive alien plant species or weeds must be controlled on federally regulated railway lands as required by the provincial acts.

CHAPTER 6: STRENGTHENING SUB-NATIONAL LAWS TO PROTECT NATURAL ECOSYSTEMS FROM INVASIVE ALIEN PLANT SPECIES

6.1 INTRODUCTION

The previous chapter highlighted the importance of clear and uniform laws in addressing invasive alien plant species that have become naturalized and invasive in natural ecosystems. This chapter identifies further changes that are needed to make the weed control acts and the plant health protection acts more effective in protecting natural ecosystems from such species. Any new territorial acts should also include the provisions described in this chapter. Many of the recommendations for provincial and territorial invasive alien plant species law provided here address shortcomings in existing legislation identified in chapter 3. This chapter concludes that model invasive alien plant species legislation can be a valuable tool for law reform.

6.2 SPECIFIC RECOMMENDATIONS

6.2.1 Responsible Ministry

The weed control acts and the plant health protection acts are all administered by provincial Ministries responsible for agriculture. The reform of these laws and new territorial laws should take into account that the government departments responsible for administering the legislation may require core knowledge on ecological risk assessment, and ecosystem management and restoration. This expertise most likely resides in provincial and territorial Ministries responsible for the environment and natural resources. This paper recommends that such Ministries have defined responsibilities within the legislation for invasive alien plant species, possibly in a concurrent manner with Ministries of agriculture and other relevant portfolios.

6.2.2 A Clear Statement of Objectives

The weed control acts and the plant health protection acts lack a clear statement of their objectives. Such a statement in legislation can provide a conceptual framework for its development, and guide implementation, set priorities and build awareness.[406] Revised provincial acts and new territorial acts for invasive alien plant species should set out specific goals such as reducing the negative impact of invasive alien plant species on natural ecosystems by preventing their establishment and restricting their spread in the province or territory. It is recommended that revised provincial acts and new territorial

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406 *Supra* note 357 at 43.

acts for invasive alien plant species include a clear statement of objectives that specifically links to environmental harm.

6.2.3. Appropriate Terminology and Definitions

6.2.3.i Invasive Alien Plant Species

Chapter 2 of this paper has set out the reasons for using the term "invasive alien plant species" rather than "weed." However, the point must be made here that the use of the word "weed" is undesirable from a biological rather than a legal standpoint. This is well illustrated in *Bell* [407] where a City of Toronto by-law requiring that property be kept clear of "excessive growths of weeds and grass" was found void for vagueness but not because the word "weed" was used in the by-law. The court held that, while the word "weed" may have had botanical ambiguity, courts could sensibly catagorize the finite number of plant species according to recognized criteria.[408] The by-law would have been void if the courts could not have a legal debate about the meaning applying a "reasoned analysis".[409] In this case, the word "weed" did not meet that test.

Nonetheless, it is recommended here that revised provincial acts and new territorial acts use the phrase "invasive alien plant species" and provide a definition based on those the

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407 *Supra* note 86.

408 *Ibid.* para. 40.

409 *Ibid.*

considerations provided in chapter 2. In defining "invasive alien plant species' it is also important to include taxa below the species level.[410] This is particularly applicable for horticultural species where one variety of a species may be invasive but another may not. The acts should also cover all plant reproductive parts such as seeds, stem or root segments, spores, buds, clones, corms, tubers, and bulbs.

6.2.3.ii Environment

In providing a statement of legislative objectives with a link to environmental harm in revised provincial acts and new territorial acts, it will be necessary to provide a definition of "environment." This paper recommends that such a definition be the same as that provided in provincial and territorial environmental protection legislation.

6.2.3.iii. Control and Destroy

As pointed out in chapter 3, little guidance is given in the applicable law as to how land owners and occupiers should meet their duties under the acts. Revised provincial acts and new territorial acts should provide landowners, occupiers, inspectors and other parties with a definition to provide guidance on what it means to "control or destroy" an invasive alien plant species. While it may not be possible to provide quantifiable end points for such a definition, this paper recommends that it be linked to actions required in a management plan for the species. A proposal for a legally-based management plan is

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410 *Supra* note 357 at 43.

described later in this section.

6.2.4 Duties on Land Owners and Occupiers to Destroy Invasive Species

Unlike the provincial weed control acts, Newfoundland and Labrador's *Plant Protection Act*[411] and New Brunswick's *Plant Health Act*[412] do not place a duty on land owners and occupiers to destroy invasive alien species. This should be remedied in order to make these acts fully effective in controlling invasive alien plant species in those provinces and to ensure uniformity with revised legislation in other provinces and new territorial acts.

6.2.5 Designation of Invasive Alien Plant Species

6.2.5.i Naturalized Plant List

Chapter 4 has illustrated that alien plants may become naturalized in the environment and, at that time, they may or may not become invasive. Since it is easier to eradicate plant populations at an early stage, it makes sense to provide a mechanism in law that allows for listing of plants that are potential invaders. These species would then be subject to monitoring provisions of the legislation. A regulation listing potential invaders would also serve to raise awareness of plants that may yet become invasive. For these reasons, it is recommended that naturalized alien plant species be designated in regulations under revised provincial acts and new territorial acts.

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411 *Supra* note 228.

412 *Supra* note 229.

6.2.5.ii Native Plants

Chapter 3 has shown that native plants are designated as weeds in many provincial weed control acts. However, the designation of such species in these acts may lead to serious environmental consequences. Revised provincial acts and new territorial acts for invasive alien plant species in natural ecosystems should not apply to native plants unless there are exceptional reasons for doing so. An example might be where a native species is expanding rapidly and poses a severe fire hazard.

However, if provincial and territorial Ministers of environment and natural resources have joint authority with Ministries of agriculture for administering the legislation for invasive alien plant species, then these Ministries could provide advice on the ecological consequences of designating native plant species. It would also be prudent to require advice from an expert advisory committee established under the acts in regard to any designation of native plants under invasive alien plant species laws.

6.2.5.iii Appropriate Categories

It is recommended here that revised provincial acts and new territorial acts for invasive alien plant species law take a common approach to categorizing invasive alien plant species. Categories could be linked to the range of a species and the degree of risk they pose. For example, a category could be created for invasive alien plants restricted to a local area but which pose a severe threat to the environment and are likely to spread to

other areas. Such categories can be associated with more detailed management plans required in the acts.

6.2.5.iv Criteria for Adding and Removing Plant Species

This paper recommends that criteria be set out in revised provincial acts and new territorial acts to clearly describe how plant species are designated or removed from designation.[413] For example, a criteria for removing a plant species could be that it has been eradicated from the province or territory. It should be cautioned, however, that the criteria should not be overly rigid and prohibit flexibility that may be needed to deal with particular circumstances posed by an alien plant species that has become naturalized or invasive.

6.2.5.v Public Comment

Revised provincial acts and new territorial acts for invasive alien plant species should provide opportunities for public comment on all designations.[414] This is important given that designations can have considerable impacts on those who must comply with the duties in the acts. There may be considerable costs involved in controlling an invasive alien plant species that has become naturalized or invasive in natural ecosystems. If the

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413 NAWMA, *supra* note 368, component 5, has also set out some broad conditions for declaring a plant as a noxious weed.

414 NAWMA, *ibid.* has also recommended that designation be a consultative and objective process.

invasive plant is a horticultural species that gardeners favor, there may be strong feelings about destroying it. Furthermore, there may be community concerns about the methods that must be used to control or destroy the species.

One mechanism for seeking public comment may be by publishing a notice of designation or removal of designation in a newspaper and asking for a response within a set period of time. While there is great value in asking for public comment in this manner, a caution must be added that such a provision must not prevent immediate action from being taken in an emergency outbreak.

6.2.6 Management Plans

As noted in chapter 3, British Columbia's *Integrated Pest Management Act* embodies integrated pest management but pest management plans are only required for large tracts of public lands, and transportation and utilities corridors.[415] However, it is recommended that management plans for invasive alien plant species be required in revised provincial acts and new territorial acts.[416] Such a plan should provide directions to landowners and occupiers, as well as inspectors in carrying out their duties in accordance with the acts, including methodologies for eradicating and controlling invasive alien plant species, and for ecosystem restoration. A management plan should also embrace the principles of

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415 *Supra* note 178, s. 24.

416 NAWMA, *supra* note 368, component 5, has also recommended that species-specific weed management plans should be required in invasive plant management legislation.

integrated pest management in providing guidance on how to deal with invasive alien plant species while paying the utmost attention to protecting human health and the environment.

6.2.7 Emergency Response and Quarantine

Emergency responses to invasive alien plant species may be required in circumstances where a plant that is not designated has suddenly become invasive and is spreading rapidly.[417] Revised provincial acts and new territorial acts should allow authorities to quickly order such a plant species to be subject to the act without having to add it to the designation regulation. An emergency declaration could be limited for a set time, after which the Minister would have to decide to designate the plant or not.[418]

In other circumstances, an emergency response may be required to stop a person from doing something that increases the risk that a designated plant could expand its range. An example of an effective way to address such circumstances is the "stop order" provided for in Alberta's *Weed Control Act.*[419]

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417 *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species, supra* note 357, has also recommended that national legislation provide for rapid response.

418 NAWMA, *supra* note 368, has also recommended an emergency declaration mechanism be incorporated into invasive plant management legislation.

419 *Supra* note 93, s.20.

The plant health protection acts in New Brunswick and Newfoundland and Labrador have strong provisions for declaring an area subject to quarantine. This can be an important means of preventing the dispersal of an invasive alien plant species into new habitats, so any revised provincial acts and new acts should include similar provisions.[420]

6.2.8 Expert Advisory Committees

As chapter 4 has shown, the ecology of invasive plants is complex and the scientific understanding of the phenomenon of plant invasions continues to grow. An expert advisory committee can provide critical advice on such subjects as the ecology and taxonomy of invasive alien plant species. Such a committee could be charged with advising on designations and removal of designations, and management plans for invasive alien plant species. This paper recommends that revised provincial acts and new territorial acts should provide for the establishment of such expert committees to advise Ministers and authorities that administer the acts.

6.2.9 Screenings and Movement of Vehicles

Revised provincial acts and new territorial acts should have strong provisions regulating the movement and sale of screening. In particular, licenses for plants that produce screenings, as required in Alberta's *Weed Control Act*[421] is a good approach. Likewise,

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420 NAWMA, *supra* note 368, component 7, has also recommended that rapid response provisions be included in invasive plant management legislation..

421 *Supra* note 93, s. 31.

requiring permits for moving screenings[422] and licenses for feeding screenings[423] can provide a means to prevent the spread of alien plant species that invade agro-ecosystems and natural ecosystems alike.

The requirement for cleaning vehicles is also an important provision of the legislation to prevent the spread of invasive alien plants. However, a broader approach is needed because these species may be spread by horses, pack animals, recreational vehicles and other pathways. Provisions in revised provincial acts and new territorial acts should reflect and address such circumstances.

6.2.10 Permits for Experimentation

As chapter 4 has pointed out, the ecology of invasive plants is complex and, clearly, there is a need to study this phenomenon more thoroughly in order to develop appropriate management strategies. Experimentation may need to occur in greenhouses and in field conditions but, in both circumstances, there is a serious threat that seeds or pollen of the invasive plant may escape. Revised provincial acts and new territorial acts should require permits for experimentation with designated invasive alien plant species. There should also be a requirement for those carrying out experiments with invasive alien plants to report when such a species has escaped confinement.

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422 British Columbia: *supra* note 99, s. 4 (1) (b), Saskatchewan: *supra* note 130, s. 21(1).

423 British Columbia: *ibid.*

6.2.11 Provisions for Monitoring

When alien plant species become naturalized, it is important to monitor populations to determine if there is a trend for that species to become invasive. This may be involve a lengthy period of observations. Monitoring may also be required to determine the extent to which an invasive alien plant species has spread. Revised provincial acts and new territorial acts should give inspectors and departmental officials authority to enter onto lands to carry out monitoring of alien plant species that have become naturalized or invasive.[424]

6.2.12 Review of Act and Regulations

A mandated review of legislation is an important way to ascertain whether it is accomplishing the goals it was drafted to achieve. It has been noted that only Alberta's regulations and, to a more limited extent, Manitoba's regulations set a date for expiry.[425] Revised provincial acts and new territorial acts should provide for a regular review of the act. The list of designated plants subject to the act should also be reviewed on a regular basis, given that there may be rapid and significant changes in the knowledge base that will need to be accounted for.

6.2.13 Exemptions

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424 The importance of monitoring has been emphasized in *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species,supra* note 357 at 67.

425 Alberta: *supra* note 142, s. 5, Manitoba: *supra* note 94, s.2.

The weed control acts in Alberta, British Columbia, and Ontario have provisions that allow the Minister to exempt certain lands from application of the act.[426] Such a provision may have value in relation to weeds in agro-ecosystems. However, invasive alien plant species spread through natural ecosystems regardless of where they are located. If such a provision is deemed necessary in revised provincial acts and new territorial acts for weeds in agro-ecosystems, it should include a statement that it does not apply to invasive alien plant species that may harm the environment.

6.2.14 Compliance, Enforcement, and Appropriate Penalties

A high level of compliance with invasive alien species laws must be achieved if such laws are to be effective in protecting natural ecosystems. As a starting point the administering authorities should have a compliance plan and provide sufficient resources for compliance programs, including the hiring and training of inspectors to encourage compliance and enforce the acts.

In those cases where compliance cannot be achieved, appropriate penalties should be applied. As illustrated in chapter 3, some of the provincial weed control acts have very weak penalties for contravening weed control legislation. The point must be made here that the penalties for allowing invasive alien plants to spread to natural ecosystems should be equivalent to those provided in laws that combat pollution or regulate other

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426 Alberta: *supra* note 93, s.3, British Columbia: *supra* note 98, s.14, Ontario: supra note 130, s.22.

activities that harm natural ecosystems. It is also important to stress that applicable laws in provinces and territories must also be enforced if the law is to provide any measure of protection for natural ecosystems from invasive alien plant species.

6.3 THE VALUE OF A MODEL LAW

This paper has made numerous recommendations for more effective sub-national laws to combat invasive alien plant species that are naturalized and invasive in natural ecosystems. An appropriate means to carry these recommendations forward is to develop model legislation to inform law reform in all provinces and territories. As pointed out earlier, model laws have been developed in the United States for proposed state legislation dealing with invasive alien species and invasive alien plant species. Drafting a model law aimed at Canadian provinces and territories would require input from those with biological and legal expertise, as well as land managers who must deal with the with practical day-to-day challenges of combating invasive alien plant species. Such model legislation would be an important first step to having appropriate sub-national legal tools to combat the invasive alien plant species that threaten Canada's natural ecosystems.

CHAPTER 7: SUMMARY AND CONCLUSIONS

It is a grim reality that Canada's natural ecosystems have been, and continue to be, severely degraded by invasive alien plant species. This paper has documented the impacts that such species may have on natural ecosystems, while acknowledging that the

severity of such impacts can be a subject for scientific debate. However, all levels of government need to address the problem of invasive alien plant species in a cooperative manner to ensure that natural ecosystems are protected and work is undertaken to restore those ecosystems that have been invaded.

Strong sub-national laws are important tools to address invasive alien plant species that are naturalized and spreading to threaten natural ecosystems. The environmental and legislative history of much of the current sub-national legislation reveals how it evolved to address weeds in simpler, more easily managed ecosystems. There are also other provincial acts that apply to invasive alien plant species often raising issues of how these laws apply in a clear and uniform manner within each province.

This paper concludes that, out of this array of laws, it is the weed control acts in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, and Prince Edward Island and the plant health protection acts in New Brunswick and Newfoundland and Labrador which offer a strong basis to combat invasive alien plant species; particularly in their strong powers for enforcement and compliance. However, substantial revisions are required to bring them up to the task of protecting natural ecosystems from invasive plant species.

There are gaps in the law which need to be remedied. Laws need to be put in place in the

Yukon and the Northwest Territories to address invasive alien plant species and the scope of applicable laws in Nunavut and Newfoundland and Labrador need to be clarified and extended to cover such species and their impacts on natural ecosystems. In some provinces, the legal requirements for weed control do not apply in a clear and uniform manner to protect all natural ecosystems from invasive alien plant species. This results where different provincial acts apply to different lands and from the complex interface between local weed control by-laws and provincial weed control acts. Where different acts apply to different lands, clarity of application and uniformity in legal protection for all natural ecosystems can be achieved by harmonizing the legislation or adopting one act that applies to all lands. Provincial laws should be revised to provide a clear mandatary role for local governments to administer and enforce acts that apply to invasive alien plant species. While the challenge of invasive alien plant species spreading from other jurisdictions should be addressed by collaboration between all levels of government, invasive alien plant species growing on the lands of federally regulated works and undertakings may not be beyond the reach of applicable provincial and territorial laws.

A number of specific revisions are also required to make all sub-national laws more effective in combating invasive alien plant species in natural ecosystems. Key among these are a clear statement of objectives for the legislation, improving the process of plant species designation by including expert advice and public consultation, and establishing management plans for invasive alien plant species. Development of a model sub-national law may assist in updating laws for invasive alien plant species.

Finally, during the course of this research, a number of important legal issues beyond the scope of the paper arose and these are well deserving of greater attention. Clarification of the federal law for regulating the importation of alien plant species is an urgent matter. There are complicated jurisdictional issues raised by the interprovincial movement of invasive alien plant species and those that occur in fresh water and marine ecosystems. The role of tort law in addressing damages incurred from invasive alien plant species is also of considerable interest. These are all rich subjects for scholarly legal research and I sincerely hope that others will be persuaded to further explore how strong, appropriate laws can protect Canada's natural ecosystems from invasive alien plant species.

ANNEX 1: THE FIRST PROVINCIAL WEED CONTROL ACTS IN CANADA[1]

Province	**Act**
Alberta	*Noxious Weeds Act*, S.A. 1907, c. 15.
British Columbia	*Thistle Prevention Act,* C.S.B.C. 1877, c. 164. (addressed thistle control on lands). *An Act to Prevent the Spreading of Noxious Weeds*, S.B.C. 1888, c. 39. (addressed sale of seed containing noxious weed seeds).
Manitoba	The *Agriculture, Statistics and Health Act,* S.M.1883, c. 19.
New Brunswick	*Weed Control Act*, S.N.B. 1969, c. 19.
Newfoundland and Labrador	*Plant Protection Act*, S.N. 1978, c. 49.
Nova Scotia	*Weed Control Act*, S.N.S. 1967, c. 19.
Ontario	*Act to Control the Spreading of Canada Thistles,* R.S.O., 1877, c. 188.
Prince Edward Island	*Weed Control Act*, S.P.E.I. 1988, c. W-2.1.
Quebec	*Agricultural Abuses Act* S.Q. 1867.
Saskatchewan	*An Act to Amend Chapter 24 of the Ordinances of 1903, First Session intituled "An Ordinance Respecting Noxious Weeds"* S.S. 1906, c. *43.*

[1] The Acts listed are those first passed by provincial legislatures. *An Ordinance to Prevent the Spread of Noxious Weeds*, O.N.W.T. 1903, c.24 remained as law for Saskatchewan and Alberta until provincial legislation was enacted.

ANNEX 2: CURRENT PROVINCIAL AND TERRITORIAL WEED CONTROL LEGISLATION IN CANADA

Province/ Territory	**Weed Control Acts**	**Other Acts**	**Plant/Agriculture Pest Acts**
Alberta	*Weed Control Act*, R.S.A. 2000, c.W-5.	*Municipal Government Act,* R.S.A. 2000, c.-26. *Agricultural Services Board Act*, R.S.A. 2000, c. A-10. The *Forest and Prairie Protection* Act, R.S.A. 2000, c. F-19. *Disposition Regulations (Provincial Parks Act)* Alta. Regs. 24/77. *Public Lands Act*, R.S.A. 2000, c- P.40. *Forest Reserves Regulations*, Alta. Regs. 42/2005.	*Agricultural Pests Act*, R.S.A. 2000, c. A-8.
British Columbia	*Weed Control Act*, R.S.B.C. 1996, c 487.	*Forest and Range Practices Act*, S.B.C. 2002 c 69. *Local Government Act*, R.S.B.C. 1996, c. 323. *Community Charter*, S.B.C. 2003, c.26.	*Integrated Pest Management Act,* S.B.C. 2003 c. 58.
Manitoba	*Noxious Weeds Act*, C.C.S.M. 1987 c. N110.	*Municipal Act*, C.C.S.M. c. M225.	
New Brunswick		*Residential Properties Maintenance and Occupancy Code Approval Regulation,* N.B. Reg. 84-86.	*Plant Health Act*, S.N.B. 2003, c. P-9.01.
Newfound-land and Labrador			*Plant Protection Act*, R.S.N. 1990, C-P-15.
Northwest Territories		*Camp Sanitation Regulation*, R.R.N.W.T. 1990, c. P-12.	
Nova Scotia	*Weed Control Act*, R.S.N.S. 1989,c. N110.	*Municipal Government Act*, S.N.S. 1998, c. 18.	
Nunavut		*Wildlife Act,* S.Nu. 2003 c. 26.	
Ontario	*Weed Control Act*, R.S.O. 1990, c. W.5.	*Fire Code*, O. Reg. 388/97.	
Prince Edward Island	*Weed Control Act*, R.S.P.E.I. 1988, c-W-2.1.	*Municipalities Act,* R.S.P.E.I. 1988, c-13.	

Quebec	*Agricultural Abuses Act*, R.S.Q. 1996,c.A-2.	*Municipal Code of Quebec*, R.S.Q. c. C-27.	
Saskatchewan	*Noxious Weeds Act*, 1984, S.S. c. –9.1.	*Railway Act*, S.S. 1989-90, c. R-12. *Urban Municipality Act,* S.S. 1984, c-11.	
Yukon			*Agricultural Development Act*, R.S.Y. 2002, c.4.

ANNEX 3: LOCAL GOVERNMENTS' AUTHORITIES TO APPOINT INSPECTORS TO ADMINISTER AND ENFORCE WEED CONTROL ACTS

Province	**Local Government Appointment of Inspector**
Alberta: *Weed Control Act*, R.S.A. 2000, c.W-5. *Agricultural Services Board Act*, R.S.A. 2000, c. A-10.	- Mandatory for local authority (s.5). - Local authority includes town, city, and municipal councils as well as Ministers responsible for improvement districts and special areas. (s. 1(1)(h)). - Where municipal council establishes an agricultural services board, an agricultural fieldman must be appointed as municipal inspector under the *Weed Control Act*. (s.8).
British Columbia: *Weed Control Act*, R.S.B.C. 1996, c 487.	- Discretionary for municipalities and regional districts (s. 10(1)).
Manitoba: *Noxious Weeds Act*, C.C.S.M. c. N110.	- Mandatory for municipalities (s. 14(1)). - Municipality, municipalities or local government district may establish a Weed Control District and appoint Weed Control Board (s. 31(1)). - Board must appoint weed supervisor to carry out Act. (s. 13(6).
Nova Scotia: *Weed Control Act*, R.S.N.S. 1989.c.N110	- No requirement.
Ontario: *Weed Control Act*, R.S.O. 1990, c. W.5.	- Mandatory for single tier and upper tier municipalities (s.6(1)). - Discretionary for other municipalities (s.8(1)).
Prince Edward Island: *Weed Control Act*, R.S.P.E.I. 1988, c-W-2.1.	- No requirement.
Quebec: *Agricultural Abuses Act*, R.S.Q. 1996,c.A-2.	- Discretionary for local municipalities (s. 7(3)) - Mandatory on petition of 3 rate payers who are farmers, (s.7(3)).
Saskatchewan: *Noxious Weeds Act*, S.S. 1984, c.N-9.1.	- Discretionary for urban or rural municipalities (s. 7(1)). - Mandatory on petition of 10 persons qualified to vote on money by-laws (s.7(2)).

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