

**British Columbia
Farm Industry Review Board**

**REVIEW OF THE USE AND REGULATION OF
PROPANE CANNONS IN THE SOUTH
COASTAL REGION**



May 15, 2009

REVIEW OF THE USE AND REGULATION OF PROPANE CANNONS IN THE SOUTH COASTAL REGION

On December 10, 2008, under s. 11(2) of the *Farm Practices Protection (Right to Farm) Act* (the *FPPA*), the BC Farm Industry Review Board (BCFIRB) undertook a review of the use and regulation of propane cannons in the South Coastal Region. BCFIRB's report is attached.

While there is general agreement that crop destruction as a result of bird (mainly starling) predation is a serious issue, propane cannon use as a means of addressing that problem remains highly contentious. At issue are the competing interests of the farmers who utilize and rely on cannons to protect crops, and neighbouring residents who are adversely affected by the noise generated by these devices. The tensions arising from this conflict are more acute in some localities than in others.

BCFIRB has carefully considered the views of those who advocate a categorical ban on propane cannon use, whether it is for all purposes, across regions or applicable only to new crops. Based on its independent review of the issue, BCFIRB is not prepared to support these recommendations. Several considerations have guided our conclusions.

First, studies have concluded that used *properly* as part of a comprehensive bird predation management strategy, cannons can still be an effective and proper farm practice.

Second, farmers who do not use cannons in accordance with normal farm practice lose any legal protection under the *FPPA* and are subject to private and municipal enforcement processes. Farmers may also be subject to a complaint process that empowers BCFIRB to require them to stop or modify their practice if they are not acting in accordance with normal farm practice. BCFIRB has in previous cases ordered farmers who have failed to act in accordance with normal farm practice to cease or modify their use of propane cannons.¹ These orders are enforceable in British Columbia Supreme Court.

Third, in seeking to balance and mediate conflicts between farmers and their neighbours, the guidelines in place in the BC Ministry of Agriculture and Lands' Farm Practices Factsheet on *South Coastal BC Wildlife Damage Control* (and which have been modified from time to time over the years) have in many cases been helpful in informally resolving local disputes. In its report, BCFIRB has made recommendations to strengthen the guidelines pertaining to the use and management of propane cannons. Operating in accordance with the guidelines is in the self-interest of farmers, as compliance with the guidelines has been held to be a relevant factor in the consideration of what is a "normal farm practice" under the *Act*.

Fourth, BCFIRB recognizes that the *Local Government Act* already creates a special mechanism whereby a local government could categorically ban propane cannon use in whole or in part within its municipality via a "farm bylaw". Such bylaws are effective where Cabinet has granted

¹ See for example *Lubchynski vs. Farm Practices Board (BCFIRB)*, 2004 BC Supreme Court 657

a particular local government the ability to pass a farm bylaw and where the Minister of Agriculture and Lands has (where required) subsequently approved the particular farm bylaw banning cannon use.

In BCFIRB's view, even if a province-wide or regional ban of the sort advocated by some stakeholders during this review could be passed under the present legislation (a point which is not legally clear), it is preferable for an issue of this significance to be addressed at the municipal level subject to Ministerial approval under the *FPPA*. This approach recognizes that given the competing interests at stake, and the geographic diversity of British Columbia, there can be no "one size fits all" solution. Fundamentally, this is the sort of issue that is properly decided through democratic processes, starting at the local level, with ultimate accountability resting with the Minister. Similarly, and as is the case with any other bylaw passed by a local jurisdiction, enforcement is the responsibility of the local government concerned.

BCFIRB has considered whether the legislation should be amended to abolish the local government role in favour of exclusive provincial decision-making. BCFIRB is not prepared to make that recommendation. The farm bylaw model recognizes that local governments have a significant role to play in working proactively with their farming and non-farming constituents to find solutions initially through public outreach, communication, and complaint resolution, and ultimately through properly drafted bylaws that reflect the democratic will of the community. Local governments are best situated to identify where the issue is most acute, and (for those that do not have the power already) to ask Cabinet to be opted in to the farm bylaw scheme. This model also recognizes that ultimate responsibility for deciding whether a farm bylaw comes into effect should rest with the legally responsible Minister of the Crown.

BCFIRB wishes to make clear that having initiated this review at the request of the BC Ministry of Agriculture and Lands, the findings and recommendations contained in the Report are solely those of BCFIRB in its capacity as an independent tribunal. The question of whether or how to implement these recommendations is for others to decide, including our elected local and provincial governments.

Respectfully,

A handwritten signature in dark ink, appearing to read 'R. Bullock', written in a cursive style.

Richard Bullock
Chair

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1.0 Executive Summary

In January and February 2009 the British Columbia Farm Industry Review Board (BCFIRB) completed a study of the use and regulation of propane cannons in the South Coastal Region of British Columbia in accordance with its mandate under section 11(2) of the *BC Farm Practices Protection (Right to Farm) Act (FPPA)*. The review originated in a request from staff at the BC Ministry of Agriculture and Lands (BCMAL), and combined a review of technical material with consultations with stakeholder groups and a written submission process for persons with an interest in the use of propane cannons. This report summarizes the findings of the review and makes recommendations as to how propane cannons can effectively be utilized and regulated in the South Coastal Region in the future.

Propane cannons are an audible bird scare device used to reduce bird predation on agricultural crops and as a bird deterrent at sites such as airport and landfills. In the South Coastal Region, the vast majority of propane cannons are used to help reduce bird predation on blueberry crops. As a noise device, propane cannons may create disturbances which some farm neighbours perceive as a significant nuisance. Local governments and BCFIRB alike have received numerous complaints around propane cannons; in some municipalities or regional districts, this has led to an elevated level of tension around the use of these devices.

During its study, BCFIRB heard that the high reliance of producers on propane cannons and other bird deterrent devices was a symptom of the larger problem of elevated starling populations in the South Coastal Region. Starlings are a non-native species that cause extensive damage to blueberry and other fruit crops, and that may also consume feed and spread disease at dairy farms and other livestock operations, leading to significant costs for farmers. Stakeholders indicated that there was a need for a comprehensive starling management program that would combine an integrated approach to bird predation management on all farms with population control measures at the regional level.

The adoption of an integrated approach to bird predation management minimizes bird habituation by relying on a variety of bird deterrence tools, and would help to reduce the need for and use of propane cannons. Farmers indicated that while they are actively using a wide variety of bird deterrence devices and methods, the low cost and ease of operation of propane cannons in conjunction with their perceived effectiveness currently makes them a cornerstone of any integrated bird predation management plan. At the regional level, stakeholders suggested that improved management of feed at livestock operations, trapping programs, and raptor nesting programs could all play an important role in starling population control. BCFIRB found that there is a need for research to assess the relative efficacy of bird deterrents (including propane cannons), to characterize and monitor regional starling populations, and to explore the population control measures to support a comprehensive approach to starling management.

The past decade has yielded an increase in the potential for cannon nuisances as more land is planted to blueberries and residential developments in and adjacent to agricultural areas grow. Neighbours attributed a range of adverse health effects to use of cannons on nearby agricultural land; while these individuals are taking significant measures to reduce their exposure to cannon noise, these are not effective in fully resolving the issue. Neighbours were worried about the potential effects of cannons on other animal species such as livestock or pets; and were also concerned about the potential for

negative impacts on businesses and property values. Neighbours recognized that different people experience and are affected by propane cannon noise differently. Geography and land use in an area have a strong influence on individuals' exposure to propane cannon noise. Certain individuals may be more sensitive to cannon noise due to their life stage or lifestyle.

While some neighbours suggested that the only acceptable solution would be to ban the use of propane cannons, BCFIRB is of the view that the nuisance component of cannon use can be minimized by reducing farmers overall reliance on and use of cannons. Many of the recommendations in this report have been made with this goal in mind. BCFIRB also heard that propane cannon complaints may be underpinned by pre-existing social tensions related to the social diversity of the South Coastal Region, and encourages local governments to work proactively and inclusively with their farming and non-farming constituents to find solutions to these complaints that work for all members of their local community.

Currently, propane cannon use is subject to guidelines contained in the BC Ministry of Agriculture and Lands Farm Practices Factsheet on *South Coastal Wildlife Damage Control* (BCMAL guidelines). BCFIRB collected feedback on these guidelines during its review. Neighbours requested that the BCMAL guidelines be adjusted to incorporate further restrictions in the hours of operation, density, and firing frequency of cannons, and an increase in the separation distance between cannons and residences. However, BCFIRB has concluded the patterns of bird predation and land use in the South Coastal Region mean that such changes would effectively prohibit the use of cannons on most properties, and/or would significantly compromise farmers' ability to protect their crops from bird predation.

BCFIRB found that there is a need for increased clarity in the BCMAL guidelines around the permitted density of propane cannons and the requirement that cannons be relocated regularly. The BCMAL guidelines could also be improved by requiring each farm operation to identify an individual who will exercise a regular presence in the fields to better assess and respond strategically to bird predation, and to ensure that cannons are only operated within the permitted hours. While the guidelines already require the use of predation management plans, it should be clarified that these must be based on principles and strategies that will minimize propane cannon use. The BCMAL guidelines should also require that cannons be positioned in a way that minimizes noise effects on neighbours.

Presently, some local governments in the South Coastal Region are regulating propane cannons through noise control bylaws in their municipality or regional district. In many cases, the provisions relating to propane cannons in the noise control bylaws reflect those in the BCMAL guidelines. Some local governments in the region have access to a provision in the *Local Government Act (LGA)* enabling them to use farm bylaws to regulate cannons, but only one of these is using this provision. Farm bylaws provide a mechanism to override the protection against nuisance lawsuits and injunctions that the *FPPA* would normally provide to farm operations that are operating in accordance with "normal farm practices" and meeting the other conditions set out in that Act; however, a municipality must be designated by Cabinet to access this mechanism. Those local governments that are using noise control bylaws without access to the *LGA* provision and/or who have access to it but are using bylaws that were not passed under the provision may be subject to a normal farm practices defence.

Normal farm practice is usually defined in response to a complaint to BCFIRB and/or through the courts. Standards set by the Lieutenant Governor in Council (Cabinet) can also be used to set the definition of normal farm practice for the province or a particular area. The creation of such standards (with or without their integration into bylaws) by local government provides an alternate mechanism for regulating propane cannons. However, BCFIRB feels that a regulatory system based on bylaws drafted by individual local governments provides significant advantages over a system based on Cabinet standards, insofar as local governments are better positioned to understand the local particulars of their communities and to ensure they are reflected in their regulations.

BCFIRB understands that while the current regulatory regime of using noise control bylaws that parallel the BCMAL guidelines is effective in helping to manage the propane cannons issue in some municipalities and regional districts, some local governments will want to pass bylaws that are legally enforceable and against which farmers cannot claim a normal farm practice defence. Those local governments that want to achieve certainty should pursue a designation that will enable them to use farm bylaw provision of the LGA to regulate cannons. Furthermore, those local governments that already have access to the farm bylaw provision and whose communities are currently experiencing significant propane cannon conflicts should use this provision to effectively regulate cannons. BCFIRB does not accept inaction by local governments that already have the ability to implement these regulatory tools.

In addition to local government regulations, various stakeholders to the propane cannons issue are using a variety of public outreach, communication, and complaint resolution tools to help manage the issue. Communication between farmers and their neighbours can go a significant distance to resolving cannon disputes. For the past seven years, the BC Blueberry Council (BCBC) has hired a Grower Liaison who works to ensure farmers are following BCMAL guidelines and to assist with complaint resolution; BCFIRB heard that the individual currently occupying this role is universally respected and a crucial piece of the current complaint resolution system. There may also be a role for the BC Agriculture Council and other commodity organizations to collaborate with and support the sector.

Local governments can also help resolve propane cannon complaints and issues in their municipalities through the effective use of planning tools such as those included in the edge planning process. The Agricultural Advisory Committees (AACs) that are maintained by most local governments are an effective resource for reviewing and providing recommendations on approaches to managing the propane cannon issue. BCMAL serves as an important support for local governments and so has a role in the broader management of the propane cannon issue. However, stakeholders are unclear about the role of BCFIRB in resolving propane cannon complaints.

A standardized approach to propane cannon complaint resolution that could be applied consistently across municipalities and regions may offer some benefit to the overall management of the issue. In BCFIRB's view, the most effective system would maintain the BCBC grower liaison as the first responder to a complaint, with complaint resolution by local governments (including through the enforcement of bylaws) following as required. While filing a complaint with BCFIRB would remain an option for complainants at any point, BCBC and local government action clearly have the advantage of providing a more rapid response to and resolution of propane cannon complaints.

Recommendations

Based on this review, BCFIRB makes the following recommendations:

1. That industry groups and local governments work together and with stakeholders (including those identified above) to address the problem of elevated starling populations in the South Coastal region by implementing a comprehensive response to starling management on a regional level. At minimum, this approach should:
 - a. Undertake local research on the relative efficacy of existing and emerging bird deterrence devices, including both propane cannons and other auditory and visual deterrents;
 - b. Undertake further research to characterize and monitor starling populations in the South Coastal Region; and
 - c. Further investigate the contribution that the areas of feed management at livestock operations, trapping programs, and raptor nesting programs could make to the management of starling populations in the region.
2. That local governments recognize and respond to the social diversity in their communities by working proactively and inclusively with their farming and non-farming constituents to find solutions to farm practices disputes that work for all members of their local community.
3. That the BCMAL guidelines be revised in order to accommodate the following:
 - i. That propane cannons must be distributed within each property so that there is no more than one cannon per two hectare parcel. Cannons should be placed as far apart as possible to minimize nuisance, taking account of the topography of the land, wind conditions, plant cover, surrounding structures and other factors.
 - ii. That since relocating propane cannons is necessary in order to increase their effectiveness and to minimize nuisance to neighbours, farmers *must* alternate or relocate devices being used on a farm operation at least every four days.
 - iii. That all farm operations must assign an individual who will be responsible for the strategic management of propane cannons at the operation, and ensure that the contact information for this individual is filed with both BCBC and the relevant local government. The specific responsibilities of this individual will include:
 - Ensuring that a site-specific bird predation management plan is completed prior to the first use of propane cannons in each growing season, and that the plan is kept up to date;
 - Making regular visits to all fields on days when cannons may be deployed to ensure that the cannons are functioning properly and that bird pressure is sufficient to justify propane cannon use; and
 - Ensuring that cannons are not firing outside of the hours permitted within the guidelines.
 - iv. That bird predation management plans must be based on the following principles:

- Propane cannons are to be managed in a manner that minimizes bird habituation, thereby maximizing their efficacy and minimizing nuisance; and
- Propane cannons are to be deployed only when birds are present.

To achieve this, a predation management plan must include:

- Strategies to minimize cannon use;
 - A range of approaches to prevent bird damage including other noise devices, visual scare techniques and human presence in the fields; and
 - Clear direction that cannons are not to be deployed when there is no or little bird pressure and are to be turned off when bird pressure is no longer present.
- v. That propane cannons only be used for the purpose of deterring birds from crops during the ripening and harvesting period of that crop.
 - vi. That propane cannons be positioned in such a way as to minimize their noise impact on neighbours. Farmers should place cannons on the ground, aiming cannons away from neighbours and nearby roads and, where necessary, use sound buffering devices.

Guideline provisions that do not relate to points i to vi, above, should remain as they are in the current guidelines.

4. That BCBC work with growers on an individual basis to develop bird predation management plans;
5. That BCMAL revise as needed and actively disseminate their June 2000 Integrated Bird Management for Blueberries template;²
6. That the term ‘Wildlife predation management plan’ be changed to ‘Bird predation management plan’ in the BCMAL guidelines and related documents.
7. That local governments in those municipalities and regional districts where propane cannon conflicts are being effectively managed through informal complaint resolution processes rather than by regulation through bylaws should:
 - a. Familiarize themselves with the BCMAL guidelines, which may provide a further tool to assist them with the resolution of complaints related to the use of propane cannons in their communities; and
 - b. Continue to monitor the propane cannon issue in their communities and establish a more formal regulatory regime, as specified in the next recommendation, should that be necessary in the future.
8. That local governments, in those municipalities and regional districts where the effective resolution of propane cannon conflicts requires a more formal and certain regulatory regime, pursue a regulation to gain access to the farm bylaw provision under the LGA, and use farm bylaws, alone or in combination with other tools, to achieve effective regulation and reduce

² <http://www.agf.gov.bc.ca/cropprot/birdipmplan.pdf>

conflict. BCMAL guidelines, the current best management practices around the use of propane cannons, can be adopted by local governments into these bylaws.

9. That all local governments that regulate propane cannons through bylaws provide the BCBC with the name and contact information of at least one enforcement officer who can take immediate, round-the-clock action to ensure compliance with the bylaws.
10. That local governments should not pursue a ban on propane cannons for their municipality or regional district until they have exhausted all other available means for managing propane cannon conflicts in their community, including through the uptake of each of the recommendations pertaining to local governments in this report.
11. That the Minister not consider approving a ban for a particular municipality or regional district until the local government of that municipality or regional district can clearly demonstrate that it has exercised its due diligence by attempting to manage complaints around the use of propane cannons issue by all other means available to it.
12. That farmers, neighbours, industry organizations, local governments, AACs, and BCMAL all continue their respective efforts to prevent, manage and resolve propane cannon nuisances.
13. That BCMAL work with stakeholders in the South Coastal Region to develop a workshop around bird predation management. Such a workshop should focus on providing opportunities for awareness raising, knowledge sharing, and resource mobilization amongst stakeholders, and should give broad consideration to the propane cannons issue by addressing topics such as the use and relative efficacy of propane cannons and other bird deterrence tools, the concept of integrated bird predation management, the BCMAL guidelines, and opportunities for collaboration between farmers and neighbours (including other farmers) for improved management of the propane cannons issue.
14. That in recognition of the importance of the BCBC Grower Liaison position, these groups work together with BCBC to find a way to continue, and possibly increase, support for the position beyond the 2009 growing season.
15. That all local governments consider the use of planning initiatives and tools such as those included in the edge planning process as a way to improve compatibility between farm and urban land uses.
16. That all local governments form an ACC that consists of a cross section of the producers within the local jurisdiction, and that councils gain the full benefit of their AAC by referring issues related to their community's agriculture industry to them for their study and recommendations.
17. That all local governments adopt the standardized approach for addressing complaints detailed above, and that information on this approach be communicated widely within their communities and made available to complainants.

2.0 Introduction

This report summarizes the findings of the BC Farm Industry Review Board (BCFIRB) review of the use and regulation of propane cannons in the South Coastal Region of BC.

Propane cannons are an audible bird scare device commonly used in protecting agricultural crops from bird predation. During the growing season, they scare birds away from crops by emitting frequent loud explosions. Bird predation of agricultural crops is of significant economic concern to farmers in British Columbia, and propane cannons are one of many crop protection measures that farmers rely on to protect their crops from losses due to birds.

Due to the noise they generate, there are situations where the use of propane cannons is disruptive to and is perceived as a nuisance by farm neighbours. Local governments and BCFIRB alike have received numerous complaints around propane cannons; in some municipalities or regional districts, this has led to an elevated level of tension around the use of these devices.

The report provides background to and a summary of the BCFIRB review process. The broader problem of bird predation and the potential role for propane cannons, other bird deterrents and regional initiatives for managing bird populations are then discussed. The report then explores the nuisance component of propane cannon use, the proposal for a ban on cannons, and some of the social tensions around cannon use. The guidelines and the current legislative framework governing propane cannons in BC are addressed in the following sections. Finally, the report examines the extensive public outreach, communication, and complaint resolution processes around propane cannons, before providing some concluding remarks. Throughout, a variety of recommendations relating to the use and regulation of propane cannons are provided.

3.0 Background to the Review

3.1 BCFIRB and Farm Practices Studies under the Farm Practices Protection (Right to Farm) Act

In 1996, the *Farm Practices Protection (Right to Farm) Act (FPPA)* established the BC Farm Practices Board as an administrative tribunal with particular responsibilities related to farm practices in BC.

When the BC Farm Practices Board was merged with the BC Marketing Board in 2003 to form the BCFIRB, these responsibilities were passed to BCFIRB.

BCFIRB has two main responsibilities under the *FPPA*. The first is to hear complaints from persons aggrieved by any odour, noise, dust or other disturbances resulting from a farm operation. The second is that under section 11(2) of the *FPPA*, BCFIRB may also study, report on and make recommendations concerning any matter related to farm practices.

3.2 BCFIRB and Propane Cannons

Since receiving its mandate under the *FPPA* in 1996, BCFIRB has received 15 complaints regarding the use of propane cannons. Eight of these complaints have concerned the use of cannons in the South Coastal Region.

In 1999, BCFIRB conducted a review of the guidelines for the use of audible bird scare devices in the BCMAL Farm Practices Factsheet on *Wildlife Damage Control* (BCMAL guidelines) at the suggestion from the Minister of what then was the Ministry of Agriculture, Food and Fisheries. The purpose of that review was to establish whether changes to the guidelines should be recommended to the industry and/or the Minister. BCFIRB released its report including these recommendations in May 1999.

3.3 History of the Current Review

BCMAL reviewed the BCMAL guidelines in 2002, and the guideline revisions and other changes recommended in its review and in BCFIRB's 1999 review were implemented in that year. In the spring of 2008, BCMAL coordinated a facilitated discussion amongst selected stakeholders that resulted in further guideline revisions in June 2008.

On October 14, 2008, BCFIRB received a letter from staff at BCMAL noting the ongoing tensions around the use of bird scare devices in the South Coastal Region. The letter requested that BCFIRB review the revised BCMAL guidelines and provide the Ministry with recommendations regarding the use of propane cannons for crop protection. BCMAL suggested that any recommendations would ideally be available prior to April 2009 to leave open the possibility of further guideline changes prior to the 2009 growing season.

BCFIRB considered the BCMAL request at its board meeting on December 10, 2008 and agreed at that point to pursue the review. However, BCFIRB also elected to expand the scope of its study beyond a review of the BCMAL guidelines to also consider additional regulatory measures for resolving the ongoing conflicts around propane cannon use.

4.0 Review Process

BCFIRB established a project committee to undertake the propane cannons review at the December 10, 2008 board meeting. The committee, which consisted of one board member and two staff persons, developed a Terms of Reference for the review based on the instructions it received at the meeting. Between January and March 2009 the committee reviewed technical material, undertook stakeholder consultation meetings, coordinated a process for receiving and reviewing written comments from members of the public, and prepared a draft report for board approval.

4.1 Review Terms of Reference

The Terms of Reference for the BCFIRB propane cannons review are as follows:

1. Review the use of propane cannons as a farm practice in British Columbia. The Committee may research farm practices in other jurisdictions as part of this review.
2. Examine the benefits and detriments of the use of propane cannons from the viewpoint of farmers and agri-industry (e.g. farm suppliers), farm neighbours and their local governments, and the public interest.
3. Identify, if it deems appropriate, new or alternative practices and/or initiatives that may be used to address issues related to bird predation in the longer term.
4. Review the guidelines for audible bird scare devices included in the BCMAL Farm Practices Factsheet on *South Coastal Wildlife Damage Control* and determine whether further adjustments could be made that would help to reduce conflicts between farmers and their neighbours around the use of propane cannons.
5. Make recommendations concerning the most appropriate practices for use of propane cannons in the South Coastal region of British Columbia.
6. Identify additional measures for regulating the use of propane cannons, including through the establishment of standards prescribed by the Lieutenant Governor in Council or nuisance and farm bylaws by local governments, and propose considerations for the development of such standards and bylaws.
7. Make other recommendations as its conclusions may warrant.
8. Report to the Board no later than February 19, 2009.

A document summarizing these Terms of Reference and providing general background to the review was developed and was circulated to stakeholders in advance of the BCFIRB consultation meetings and alongside the Request for Submissions soliciting written comments to the review. A copy of this document is provided in Appendix A.

4.2 Stakeholder Consultations

Between January 26 and February 12, 2009, BCFIRB held 12 consultation sessions with stakeholder groups with an interest in the propane cannons issue. These consultations included meetings with staff from the BCMAL Abbotsford office, the BC Blueberry Council (BCBC), the BC Agriculture Council, two groups of concerned residents, and seven local governments.

Between February 9 and 15, 2009, BCFIRB also spoke with a variety of individuals with specific expertise in areas related to the study. This included experts in bird predation management and livestock nutrition, affiliates with two bird trapping programs, participants in local Agricultural Advisory Councils and edge planning initiatives, and the BCBC Grower Liaison.

A complete list of the participants attending the stakeholder consultation meetings and the experts consulted by BCFIRB is included in Appendix B.

4.3 Written Submission Process

BCFIRB also provided an opportunity for interested individuals and parties to submit written comments for consideration in this review. A Request for Submissions document was posted on the BCFIRB website and was circulated to participants in the stakeholder consultation sessions and to persons involved in past complaints to BCFIRB regarding propane cannons beginning on February 3, 2009. A copy of this document is provided in Appendix C. Interested parties were given until midnight on February 17, 2009 to submit their comments to BCFIRB.

BCFIRB received 155 submissions from 114 individuals during the written submission process.

4.4 Focus of the Report

Currently, BCMAL maintains a separate set of guidelines for the use of audible bird scare devices including propane cannons for the South Coastal and Interior regions of BC.

The Terms of Reference for this study directed the project committee to focus its review on the guidelines for and the management of the propane cannons issue in the South Coastal Region. However, BCFIRB recognizes that this report may also have implications for the use of these devices in other areas of the province.

Although the BCMAL guidelines cover audible bird scare devices more generally, the request put to BCFIRB was to provide recommendations regarding the use of propane cannons for crop protection. In the South Coastal Region, the vast majority of propane cannons are used for the protection of blueberry crops.

While this report focuses on the use of propane cannons for the protection of blueberry crops in the South Coastal Region, BCFIRB recognizes that the use of these devices for the protection of other crop types will equally be affected by the recommendations made in the report. Similarly, some recommendations may pertain to the use of other types of audible bird scare and/or bird deterrence devices within the region as well.

5.0 Propane Cannons and Bird Predation on BC farms

The primary use of propane cannons by agricultural producers in the South Coastal Region is for the protection of blueberry crops from bird predation. Crop loss or damage by birds can have significant economic consequences for farmers.

BCFIRB's consultations revealed that while some farmers are actively engaged in monitoring and managing bird predation on their farms by employing a suite of bird deterrent techniques, others are relying heavily – if not solely – on the use of propane cannons to protect their crops.

This section explores the broader issue of bird predation on farms in the South Coastal Region of BC, the role of propane cannons in the on-farm management of this problem, and possible options for a coordinated regional approach to bird population control.

5.1 The Starling Problem

There was a widespread opinion amongst participants in this review that the ‘root’ of the propane cannon problem was the high level of bird predation on operations due to an elevated population of European Starlings (*Sturnus vulgaris*) in the South Coastal Region. Producers indicated that starlings were responsible for the vast majority of crop loss and damage from their fields, and crop loss and damage by other bird species was negligible in comparison. Producers, their associations, researchers and many neighbours suggested reducing starling populations would greatly reduce the incidence of bird predation and hence the need for propane cannons, and so go a significant distance towards reducing the nuisance component of cannon use.

Starlings are a non-native bird species first introduced to North America from Europe in the 1890’s, and have been observed in B.C. since at least 1945. Starlings are widely regarded as a highly invasive species that can displace native bird populations in areas where they are established.

The success of starlings as an invasive species is due in large part to their high reproductive rate. Because they are not native to the British Columbia, starlings have few natural predators in the province. Bird biologists in the South Coastal Region have suggested that loss of habitat in recent decades has also decreased the populations of the few species that do prey on or could deter starlings. As well, there has been a decrease in the population of other prey species for these predators, such as rodents.

Following breeding in the spring, starlings form large flocks in the fall and winter in areas where food sources are concentrated. These flocks may consist of between several hundred to several thousand birds, and may travel considerable distances between nesting or roosting and feeding sites.³ Current research suggests a portion of the birds raised in a particular region will remain in resident flocks over the winter, while another portion will migrate south to more temperate areas. A high proportion of the migratory starlings will return to join the resident population the following spring.

5.1.1 Starling Populations in the South Coastal Region

The dynamics of starling populations in the South Coastal Region and elsewhere in the province are not well understood. Preliminary research indicates while overall starling populations in the province appear to have declined between 1968 and 2006, the population of overwintering birds may have increased over this period.⁴

³ Johnson, Ron and James Glahn. 2005. European Starlings and their Control. <http://icwdm.org/handbook/birds/EuropeanStarlings.asp>.

⁴ Ibid.

This assessment is supported by anecdotal evidence shared with BCFIRB by producers, some of whom noted significant populations of overwintering starlings in their areas. Producers also questioned whether urban development in some parts of the South Coastal Region could be pushing starlings onto agricultural land.

Developing a better understanding of starling population dynamics in a region is generally seen as the first step in designing an effective population control program. When discussing starling predation, many stakeholders indicated that a full understanding of the problem is hampered by an absence of reliable data on starling populations. BCMAL staff indicated that they have tried to generate interest in studying the issue amongst local universities and wildlife groups, but have found limited enthusiasm for such a project.

However, BCFIRB notes important anecdotal information about starling populations does exist. For example, a blueberry producer from the Delta area indicated to BCFIRB that bird pressure in that region in 2008 was the worst it has been in the last 5 or 6 years. At the same time, a producer with fields on the Matsqui Prairie in Abbotsford suggested that bird pressure has decreased by approximately 50% over the last 2 to 3 years.

Similarly, techniques used to assess and monitor starling populations in some other regions of the province may hold promise for the South Coastal Region. For example, researchers in the Okanagan have used breeding bird surveys and Christmas bird counts to monitor overall and overwintering starling populations.⁵

5.1.2 Starling Damage to Agriculture Operations

Starlings rely on food sources associated with agricultural production to sustain their high population numbers. Starlings frequently consume and damage berries, tree fruit and grapes from fields, orchards and vineyards. They may also damage ripening corn, pull sprouting grain to eat the seeds, and damage turf on golf courses when searching for grubs. On livestock operations, starlings consume livestock feed and contaminate both feed and water with their droppings.⁶ Livestock operations and feedlots are especially attractive to overwintering starlings, especially when snow cover and frozen ground impede normal feeding.

5.1.2.1 Impacts on Blueberry Farmers

Starling populations can have significant economic impacts for blueberry producers. BCAC estimated that starlings can destroy 25% or more of blueberry producers' crops. It has been estimated by the BC Fruit Growers Association (BCFGA) that starlings cause almost \$3.5 million a year in damage to BC

⁵ Dickinson, Thomas and Nancy Flood. 2008. Determining the population Structure of European Starlings (*Sturnus vulgaris*) in Southern British Columbia: Recommendations for Research in Aid of Developing an Integrated Agricultural Avian Control Program. http://www.grapegrowers.bc.ca/pdf/Starling_Proposal-T_Dickinson-May_08.pdf

⁶ Johnson and Glahn, op. cit.

produce, including \$840,000 in direct losses to growers.⁷ Blueberry producers confirmed starlings present costs to their operations not only by reducing the amount of crop that can be harvested, but also by inflicting damage on the remaining crop, which affects the grade the crop receives from processors. These producers suggested that if even 10% of the berries in a blueberry crop are damaged, the crop will typically receive a lower grade and hence a lower price.

Producers and studies in other areas alike have observed that crop loss can vary widely between different sites within a region, and even within different locations at a particular site. For example, starling damage may be higher near roosts or perch lines (e.g. on field edges near power lines) than in the centre of fields or overall.

5.1.2.2 Impacts on Livestock Producers

The potential costs for livestock operations bothered by starling populations are similarly significant. Studies have shown winter flocks of 1,000 to 2,000 birds can consume one to two tonnes of feed in a month and contaminate or spoil an additional 500 to 1,000 kilograms of feed; the birds may also preferentially eat the high-protein portion of supplemented livestock feed, leading to additional costs.⁸

Further, starling droppings in feed can expose livestock to a range of viruses and bacteria, and starlings are recognized as a reservoir and/or potential transfer agent of a variety of diseases, including gastroenteritis, foot and mouth, salmonella, avian tuberculosis and histoplasmosis⁹ and avian influenza¹⁰. The potential effects of starlings on herd performance and health can have further economic repercussions for livestock producers.

5.2 Propane Cannons

Propane cannons generate a controlled explosion of propane gas to create a loud shot-like sound to scare away birds. Propane cannons come in single- and triple-shot models; the single shot models emit one shot per activation, while the triple-shot models emit three shots in rapid succession in each activation. The firing volume and the frequency of activations can be adjusted. In addition to being used in agricultural settings, propane cannons are also used for bird deterrence at airports, seaports, and landfill sites.

Producers reported that propane cannons are the keystone of any effective bird deterrence program on blueberry farms. Propane cannons are the preferred choice by many farmers because they cost relatively little to purchase and operate; they can be programmed to operate unattended; and they are effective in deterring birds, at least temporarily. For these reasons, many producers rely heavily on these devices.

⁷ As quoted from Glen Lucas, BCFGAs general manager, in 'Starling control takes flight', Penticton Herald, December 13, 2007, by John Moorhouse. www.pentictonherald.ca/stories.php?id=80313.

⁸ BC Grape Growers Association. 2007. A Starling Control Program for the Okanagan Similkameen. <http://www.grapegrowers.bc.ca/starling.shtml>.

⁹ Steensma, Karen. 2009. Efficacy of Bird Deterrent Devices in Agricultural Areas of the Fraser Valley of British Columbia: A Pilot Study. http://www.agf.gov.bc.ca/resmgmt/sf/farmpp/bird_devices.htm.

¹⁰ Vastag, Brian. 2007. Beware the Starlings: Common Birds Can Carry Avian Influenza. http://www.sciencenews.org/view/generic/id/9037/title/Beware_the_Starlings_Common_birds_can_carry_avian_influenza.

Multiple studies—including a recent local efficacy study completed jointly by the Fraser Valley Regional District and BCMAL¹¹—suggest that while propane cannons are effective as a bird deterrent technology, bird habituation to propane cannons can pose a challenge to the users of these devices. Neighbours reported cases where birds were observed to be so habituated to the devices that they were sitting on the cannons. The current BCMAL guidelines have attempted to address this challenge by recommending that cannons be relocated at least every four days. However, neighbours suggest many farmers are not following this recommendation but rather are leaving the cannon in the same location for far longer periods of time.

5.3 A Comprehensive Approach to Starling Management

BCAC, BCBC, one local government, farmers and neighbours all suggested it may be time for a comprehensive strategy for dealing with the elevated starling populations in the South Coastal Region. Experts working in the field of bird predation management suggest an effective starling management program typically requires three dimensions: 1) the deterrence of birds from agricultural operations; 2) the protection of the crop (or feed supply) by restricting bird access; and 3) population control. These dimensions are most effectively met through a combination of on-farm and regional initiatives.

5.3.1 On-farm Integrated Bird Predation Management

Review participants suggested the adoption of an integrated approach to bird predation management on all farms in the South Coastal Region would help to reduce—though would not fully eliminate—farmer reliance on propane cannons and hence complaints around the use of these devices.

At the on-farm level, the concept of integrated bird predation management is not new to the South Coastal Region—there is already a provision in the current BCMAL guidelines supporting this approach, as well as general acceptance of the concept among BCBC and many individual growers.

However, the level of management expertise and skill in using the range of bird management techniques that are available is not uniform across the blueberry industry. The industry has expanded quickly in the past few years and BCMAL no longer provides significant extension services directly to growers. Producers mainly rely on each other and on suppliers of bird predation management devices for information about the range of products that are available and how they can most effectively be utilized. BCBC and BCMAL staff agreed more education is needed for farmers on the suite of bird management techniques needed to effectively deal with starlings.

5.3.1.1 Visual and Auditory Deterrents

Producers indicated to BCFIRB they are currently employing a wide range of bird deterrence devices in addition to propane cannons, including: orchard pistols, shotguns, bird distress alarms, lasers, visual streamers, falconry, and spray repellents. Some growers have hired young people to patrol the fields

¹¹ Steensma, op. cit.

on dirt bikes or ATVs, and invited groups to fly radio-controlled airplanes in their fields. Producers and neighbours each expressed a range of perspectives regarding the effectiveness of the various devices.

There have been relatively few studies comparing the efficacy of various visual and auditory deterrents—including propane cannons—for the control of starling predation. A recent study conducted by the Fraser Valley Regional District and BCMAL compared the efficacy of a bird distress alarm, a hawk kite, and a propane cannon in local blueberry fields found while both the hawk kite and the cannon deterred starlings, the birds slowly returned to higher numbers following the introduction of the devices.¹²

Predation management experts suggest starlings may habituate quickly to bird deterrence tools, such that using a combination of bird deterrence techniques is more effective than relying on a single technique alone. Reliance upon any one technique will generally be ineffective.

The two producer organizations suggested producers were aware of the challenge posed by bird habituation. The organizations indicated there is general agreement in the industry that it is necessary to employ a range of bird deterrence technologies in an integrated fashion to successfully manage bird predation. Producers in the blueberry industry suggested it was critical to combine visual and auditory deterrence measures, as one strategy is not effective without the other.

Producers noted many of the bird deterrence technologies available to growers are associated with auditory or visual nuisances, and so do not resolve the larger nuisance issue. Growers also observed some of the alternative technologies are of limited effectiveness relative to cannons.

5.3.1.2 Netting

Netting has been employed on some farms in the South Coastal Region as a bird exclusion technique. Exclusion can be a very effective method for controlling bird damage and is generally most practical in smaller fields. Initial costs of netting are substantial, but a properly constructed system will last over several seasons and the costs can therefore be pro-rated over this period.

In the 1999 BCFIRB review of the BCMAL guidelines, netting was given considerable attention as a promising way forward. However, in this review, BCFIRB heard from farmers who have tried netting and have found it too comes with its problems.

The installation and maintenance costs of netting are prohibitively high for some growers and can be impractical for the movement of machinery, such as harvesters, in the field. BCBC reported that even if support funding was provided to farmers, the larger blueberry operations would not be in favour of netting.

Producers reported instances of birds getting caught in the nets, and the nets subsequently being cut by passersby. Alternatively, birds can get trapped inside the netting and die. Fawns have also been caught in nets and, in some areas, bears and deer have caused significant damage to nets.

¹² Ibid.

Producers have also fielded complaints that netting is ‘unsightly’, and as such constitutes a visual nuisance in the agricultural landscape.

5.3.1.3 Wildlife Predation Management Plans

The 1999 BCFIRB review recommended farmers develop and use wildlife predation management plans as part of their pest management programs. A standard practice worldwide, these plans would encourage growers to develop a better understanding of bird pressure affecting their farms and enable a coordinated and flexible approach to managing this predation. The information in a bird management plan typically includes: a property map, details of bird species present, the nature of bird damage caused, management resources, management and monitoring strategies, and communications strategies.

Following BCFIRB’s 1999 review, BCMAL revised the guidelines to incorporate a suggestion that farmers should use bird scare devices only as part of a wildlife predation management plan. BCMAL staff also developed a guide, including a template, for developing these plans, which is available to farmers on the web or upon request to BCMAL.¹³

In this review, both BCMAL staff and producers recognized the intent of the guideline is not every grower will necessarily develop a written wildlife predation management plan, but rather growers would consider predation as a wider issue, analyze their particular situation and develop an integrated approach to predation management.

By-law enforcement staff noted where a requirement for a wildlife predation management plan is incorporated into municipal or regional bylaws, this requirement is difficult to enforce. There is no guarantee even those farms that prepare the plans will follow them without some kind of surveillance, and there was some suggestion that the requirement loses its value if it is not enforceable.

However, one municipality did suggest that enforcement could be achieved by requiring growers to prepare and sign off on a plan following receipt of a complaint about their operation. Further, the BCAC suggested that, given the emerging overlaps between bird predation and disease transmission, the third party food safety audits that are now required in many sectors may present future opportunities for monitoring growers’ development and implementation of bird predation plans.

5.3.2 Regional Population Control

A regional approach to starling management has not yet been tried in the South Coastal Region. Historically, starling management in the region has been undertaken primarily by individual farms, and has relied heavily on bird deterrence, mainly through the use of bird scare devices. However, bird predation management experts have suggested that this type of uncoordinated local action may not effectively address a starling population problem, but instead may simply move the problem between neighbouring farms. This could have undesirable effects related to the spread of disease.

¹³ <http://www.agf.gov.bc.ca/cropprot/birdipmplan.pdf>

With respect to managing starling populations at the regional level, review participants were aware of both local experts and programs in neighbouring regions that could serve as important resources for establishing a population control program in the South Coastal Region. Stakeholders identified three potential dimensions for a population control program: 1) the management of livestock feed; 2) starling trapping programs; and 3) raptor nesting programs. Participants commented that such a program would need to be evidence-based, and that a better understanding of starling population dynamics is needed to support such a program.

5.3.2.1 Management of Livestock Feed

Various producers, industry groups and researchers that BCFIRB spoke with suggested that overwinter feeding of starlings is a significant contributor to bird numbers. Livestock operations generally and dairy farms in particular were seen as the primary sources of feed for starlings during winters in the region.

For some producers, this perception was based on observations made at their own farm. For example, one producer in the Matsqui Prairie attributed a decrease in bird pressure in his fields by approximately 50% over the past 2 to 3 years to a decrease in dairy farming in that region over the same period. He and other producers felt that a reduction or elimination of winterfeeding would significantly reduce starling numbers in the region.

Stakeholders noted that the potential costs and risks associated with starlings at livestock operations suggest that producers at these operations should be just as concerned about overwintering starlings as are berry producers. However, none of the groups consulted were aware of any serious dialogue between livestock farmers and berry producers about the mutual benefits of starling population control and the possible role of livestock farms in a control program. This was seen as unfortunate, since a joint management effort to reduce starling populations also has the potential to reduce berry producers' reliance on propane cannons, and hence the level of nuisance experienced by and the complaints received from neighbouring livestock farmers and others.

There are many different ways that livestock producers can manage starling populations at their operations. Preventing the establishment of significant bird populations on the site is important, as once starlings are established it can be very difficult to get rid of them. Maintaining the overall tidiness of the operation is seen to be important, as are more specific measures such as containing feed sources, excluding birds from buildings and feeding areas, and restricting access to potential roosting sites. The wide variety of methods for achieving such measures are described in detail in many widely available extension resources, including the Farm Practices Factsheet on *Starlings and Livestock Farms* prepared by BCMAL's Strengthening Farming Program.¹⁴ As at berry farms, an integrated approach to bird predation management is generally understood as being more effective at livestock operations than is relying on a single deterrence tool (see Section 5.3.1).

¹⁴ www.agf.gov.bc.ca/resmgmt/publist/300series/384200-7.pdf

5.3.2.2 Trapping Programs

The agricultural producers, some local governments, and some of the researchers that BCFIRB spoke with recommended that a regional trapping program be explored as one means of reducing starling populations.

Producers were aware of regional trapping programs undertaken in the Okanagan Valley and in Whatcom County in Washington State, and suggested that these could serve as models for a program in the Lower Mainland. However, there was some disagreement between these groups and other stakeholders as to whether and when trapping is effective. For example, BCMAL staff indicated that earlier reviews had suggested that trapping the number of birds that would be required to successfully reduce the starling population in the region would require significant effort. From their perspective, it was not clear that the level of population reduction that could be achieved would yield a significant reduction in the need for propane cannons.

BCFIRB contacted individuals affiliated with both the Whatcom and Okanagan trapping programs to better understand the key dimensions of these programs. Both of the programs have focused on live trapping starlings, primarily at agricultural operations, over a multi-year period.

In both cases the programs have been funded by a combination of agricultural organizations and local governments, with the Okanagan program also receiving funding from a federal environmental program and in kind support from BCMAL, local landowners, and a local research institution. Notably, the agricultural organizations that contributed funding to the programs included those representing both berry and tree fruit producers and dairy producers. Both programs have also identified opportunities for the involvement of other groups, including environmental and naturalist groups and urban municipalities.

Given the potential for bird movement throughout the area, affiliates of the Whatcom County program had also previously noted an opportunity for collaboration with groups in neighbouring areas of British Columbia.

In each case, individuals affiliated with the Whatcom and Okanagan trapping programs indicated that their respective programs had achieved a measure of success in reducing starling populations and the bird predation experienced by farms in their region. These individuals suggested that trapping programs will be most effective if they are closely controlled and disciplined, which generally requires funding support on an ongoing basis.

The Okanagan program employs trained trappers to locate, bait and monitor the traps and to euthanize the trapped birds. The program representative suggested that this was key to the success of the program and that programs that rely on producers to locate and manage the traps have a low probability of success.

While some producers and policy-makers in the South Coastal Region suggested that if a regional trapping program was to be pursued it would do best to focus on aggressive trapping in the off-season, both the Okanagan and Whatcom programs trap year round. This suggests that there is a need for additional research to determine the most effective form of that program for the South Coastal Region.

Representatives of both programs also noted that trapping may be negatively perceived by members of the public, and that program operators need to be prepared to spend time and resources on outreach and communication around the program. The Okanagan program noted that public perception of a trapping program can be improved by involving bird naturalist organizations in the design and operation of the programs.

5.3.2.3 Raptor Nesting Programs

In addition to trapping programs and the improved management of livestock operations, stakeholders identified raptor nesting programs as having some potential to assist with starling population control in the South Coastal Region.

Because they are not native to the region, starlings do not have significant native predators in the Lower Mainland. However, some researchers have noted that certain raptor species do prey on or in any case act as visual deterrents for starlings. For example, Cooper's Hawks (*Accipiter cooperii*) are recognized as being effective at controlling the starling populations on dairy farms. Further, preliminary research undertaken by Karen Steensma, a faculty member at Trinity Western University has suggested that American Kestrels (*Falco sparverius*), a small native falcon species, could play an important role in managing starling populations over the longer term.

Steensma's current research explores the effect of establishing nesting boxes for kestrels on farms with starling nuisance problems and in neighbouring areas. This can help to re-establish native kestrel populations in regions where they have been depleted due to habitat loss and the elimination of typical prey species. Her preliminary results suggest that once kestrels are established in the nest boxes, they and the offspring they produce will patrol adjacent areas, disrupting the feeding and mating patterns of starlings, leading to the dispersal of existing populations, and discouraging new flocks from taking up residence in a given area.

Steensma suggests that while raptor nesting programs are not an overnight solution, they can be an effective part of a longer term regional bird predation management strategy. The programs provide an excellent opportunity for non-farm neighbours to participate in the management of starling populations, and to be part of the 'solution' to the problems posed by propane cannon use. Raptor nesting programs may also be able to gain support from local environmental and naturalist groups, which may have an interest in protecting and/or developing native bird habitat.

5.4 Discussion and Recommendations

5.4.1 Discussion

BCFIRB recognizes that the blueberry industry is economically important to BC because of the high value crop it delivers and the large number of producers it supports. Producers recognized that—aside from the problem posed by elevated starling populations—the South Coastal Region is ideally suited for blueberry production from a climactic and geographic point of view. These factors provide BC

with a competitive advantage in a highly competitive global industry. Nonetheless, BCFIRB is of the view that despite the significant contributions made by and the advantages that exist for the BC blueberry industry, the industry must take account of the impacts of its operations on its neighbours.

An elevated starling population was recognized by many stakeholder groups as underpinning the need for and use of propane cannons in the South Coastal Region, and so complaints around these devices. Groups in adjoining areas of BC and Washington State have similarly recognized and moved to reduce elevated starling populations in their regions. BCFIRB agrees with these groups that a comprehensive approach to managing regional starling populations and bird predation may reduce the need for cannons and thereby go some distance to resolving complaints.

Regarding the management of bird predation on the farm, BCFIRB heard clearly that there is currently no one ‘magic bullet’ technology that will ensure that full bird deterrence is achieved while simultaneously minimizing nuisances for farm neighbours. While the Fraser Valley Regional District-BCMAL study comparing the efficacy of three bird deterrence devices is a good start, BCFIRB feels that there is significant potential for additional and ongoing research on this topic, especially as new devices are always being developed. BCFIRB feels that this research is most appropriately supported by industry associations in conjunction with local governments.

BCFIRB recognizes that propane cannons can occupy an important spot in an integrated bird predation management system on the farm; however it is clearly recognized that a combination of bird deterrence techniques will be better than a single technique used alone. Reliance upon one technique will generally be ineffective as starlings will habituate to it quickly.

Experts in the field of bird predation management have suggested that a comprehensive approach to starling management should include initiatives at both the on-farm and regional levels. BCFIRB finds it reasonable that just as integrated bird predation management on the farm will provide for a multi-faceted and coordinated approach that may assist with the control of starling populations and bird predation on the farm, a similarly coordinated approach involving a variety of bird deterrence, crop protection, and population control measures may be required at the regional level.

Based on the limited scope of this study, BCFIRB is unable to determine the appropriate form of a regional population management program in the South Coastal Region. However, BCFIRB accepts that additional research to characterize and monitor starling populations in the region is needed to support such a program. BCFIRB also notes that the areas of feed management at livestock operations, trapping programs, and raptor nesting programs appear to hold some promise with respect to starling management and that these areas should be further explored. Furthermore, given that starling populations are an issue of both agricultural and environmental or ecological significance, such an approach will require input from a variety of stakeholder groups, which could include farmers, producer associations (of both blueberry and dairy or livestock producers), neighbours, environmental/naturalist groups, First Nations governments, local government councils, local government agriculture advisory committees, and bird control researchers and experts.

5.4.2 Recommendations

As BCFIRB's recommendations regarding adjustments to the BCMAL guidelines already provide for the adoption of an enhanced approach to integrated bird predation management on the farm, this issue is not covered in the recommendations given in this section.

BCFIRB recommends:

1. That industry groups and local governments work together and with stakeholders (including those identified above) to address the problem of elevated starling populations in the South Coastal Region by implementing a comprehensive response to starling management on a regional level. At minimum, this approach should:
 - a. Undertake local research on the relative efficacy of existing and emerging bird deterrence devices, including both propane cannons and other auditory and visual deterrents;
 - b. Undertake further research to characterize and monitor starling populations in the South Coastal Region; and
 - c. Further investigate the contribution that the areas of feed management at livestock operations, trapping programs, and raptor nesting programs could make to the management of starling populations in the region.

6.0 Propane Cannons as a Nuisance

BCFIRB met with two neighbours groups and received written submissions from 114 citizens, who characterized propane cannons as a nuisance problem.

While this nuisance issue has been present for over a decade, it has heated up considerably in recent years as more agricultural land has been converted to blueberries, bringing more propane cannons into use. Furthermore, the creation of new housing developments on the edge of farm land has exposed more people to cannon noise in their homes. The importance of this issue has also grown for long time residents of many areas in the South Coastal Region, who have had to endure increasing levels of propane cannon noise around their homes and farms.

Propane cannon nuisance seems to be most concentrated where residents are exposed to multiple impacts, for example, by being surrounded by several farms using cannons. In addition, propane cannon nuisance is concentrated where cannons are being used with little strategic management, for example, by being left to run all day by farmers who do not reside on, work on or even regularly visit the property.

6.1 Noise and its Effects

Noise is defined as any sound that is judged to be an unwanted, irregular or erratic disturbance. Noise can have direct, as well as cumulative, adverse effects on lifestyle, enjoyment of property, and the health of human and animal residents. Noise can also negatively impact businesses, public institutions and property values.

It is important to keep in mind that sound is complex and that noise effects are dependent on the specific characteristics of a noise event (frequency, volume, variation, time of day, duration, etc.). Propane cannons generate loud, intermittent blasts for up to 11 hours per day, which may favour some types of effects over others.

An additional important point is that different people perceive and are affected by noise differently. There are situations where one person is unaffected by propane cannon noise while another is profoundly affected.

In this review, BCFIRB did not take steps to measure sound levels from propane cannons. However, the leading cannon manufacturer states on their website that blast volume is adjustable from 100 to 125 decibels.¹⁵ One resident reported that peak noise levels of 92.5 decibels and 97 decibels were measured at their house.¹⁶ A general frame of reference can be provided by the WorkSafe BC safe noise exposure limits for the workplace, which are 140 decibels for peak sound level and 85 decibels for daily noise exposure level.¹⁷ Peak sound level measures the maximum instantaneous sound level, while daily noise exposure levels are determined by measuring a worker's total exposure to noise in decibels, averaged over the entire workday and adjusted to an equivalent eight hour exposure.

6.1.1 Impacts on Humans

Neighbours reported the following adverse health effects that they attributed to propane cannons: stress and anxiety, sleep disturbance, agitation, increased aggression, and lack of concentration. One neighbour reported the temporary loss of hearing in one ear. Neighbours also speculated about the risk propane cannons pose to people with existing heart conditions, and the potential increased risk of a car accident in areas where cannons are positioned near roads.

While BCFIRB has no scientific data supporting these concerns as specific to propane cannon noise, there is a wealth of information available on the adverse health effects of noise in general. The World Health Organization (WHO) has made efforts over the past few decades to consolidate actual scientific knowledge on the health impacts of noise and to provide guidance to environmental health authorities and professionals trying to protect people from the harmful effects of noise in non-industrial environments.¹⁸

¹⁵ <http://scarecannon.com>

¹⁶ These levels were measured by Levelton noise consultants in July 2008.

¹⁷ www2.worksafebc.com/publications/OHSRegulation/Part7.asp?ReportID=18235

¹⁸ World Health Organization. 1999. Guidelines for Community Noise.
http://www.grapegrowers.bc.ca/pdf/Starling_Proposal-T_Dickinson-May_08.pdf

The WHO recommends that the following specific effects be considered when setting community noise guidelines: interference with communication; noise-induced hearing loss; sleep disturbance effects; cardiovascular and psycho-physiological effects; performance reduction effects; annoyance responses; and effects on social behaviour. According to Health Canada, some research suggests that these adverse effects may also cause sufficient stress on the body to increase the risk of developing stress-related illnesses.¹⁹

6.1.2 Coping Mechanisms

Neighbours reported that people are taking the following measures to cope with propane cannon noise: sleeping in their basements; keeping windows shut; installing triple pane windows in older houses; listening to loud music; taking tranquilizers; and leaving their houses. These coping mechanisms were not perceived as fully resolving the neighbours' experience of the cannon noise. Some families have either moved from areas where propane cannons are used already or are considering it, while others feel that moving is not an option.

6.1.3 Impacts on Other Animal Species

Just as noise may impact humans, it may also have important implications for other species. For example, it is unclear how the hormonal (stress) response that may be associated with noise exposure impacts the health and normal functioning (reproduction, growth rates, etc.) of livestock and poultry, or native bird species.

Farmers reported that propane cannons cause great distress for their horses, cows and bison. A propane cannon blast caused one young rider's horse to bolt.

Neighbours reported visible signs of stress in household pets that they attributed to propane cannons. For example, outdoor cats now stay indoors and are on edge. One neighbour attributed his dog's ill health to stress caused by cannon noise, adding that the accompanying monthly medication costs were an additional burden; and another family gave away their dog, which was severely affected by the noise.

Neighbours were also concerned about a perceived link between propane cannons and the absence of native birds in their areas, and one resident was particularly concerned that cannons were being fired in an area that is home to rare native bird species.

6.1.4 Impacts on Businesses and Property Values

Some individuals stated that they believe that propane cannon noise is having a negative impact on their business. For example, one resident reported negative impacts on her day spa businesses, while

¹⁹ Health Canada. 2006. Environmental and Workplace Health: Noise. <http://www.hc-sc.gc.ca/ewh-semt/noise-bruit/index-eng.php>.

another resident with a home-based business reported that the noise was disrupting communication with his clients. Another resident reported loss of wages from having to discontinue providing child care in her home.

Neighbours were concerned that the values of their properties have decreased as a result of the noise from propane cannons in surrounding areas. These residents were upset that their residential taxes are increasing even while their enjoyment of their property is declining due to the cannons.

6.1.5 Community Impacts

Some neighbours commented on the cumulative effect of propane cannon noise on communities. It was felt that neighbourhoods are 'being ruined' as the quality of outdoor spaces is being diminished by cannon-related noise pollution. Residents suggested that neighbourhood relations were also compromised under the pressure of the cannon noise issue.

6.2 Variations on the Nuisance Issue

Individuals experience propane cannon noise subjectively and there is a broad range of perspectives on the degree of nuisance that propane cannons pose. There appears to be a broad range of nuisance level in various municipalities as well. Some of the key factors contributing to this variation include: geography and land use; lifestyle, life stage and health status; and seasonality.

6.2.1 Lifestyle, Life Stage and Health Status

Neighbours reported that some people are more bothered by propane cannon noise due to their lifestyle or life stage. Night shift workers and mothers with young babies were particularly affected by cannons due to their need for sleep during day time hours. Several residents reported that their children are unable to sleep in the evenings. Teachers and students reported being unable to focus on their academic work.

Elderly people reported being particularly sensitive to the stress caused by propane cannon noise. The director of an elderly care home reported that its residents are agitated by the cannons. One neighbour, who is retired from the Canadian Forces, is particularly traumatized by the cannon noise; he likened his experience to 'living in a war zone'.

Some of these concerns are echoed by WHO, which recommend that the following vulnerable subgroups of the general population be considered when developing noise regulations: people with particular diseases or medical problems (e.g. high blood pressure); people in hospitals or rehabilitating at home; people dealing with complex cognitive tasks; the blind; people with hearing impairment; foetuses, babies and young children; and the elderly in general.

6.2.2 Seasonality

The blueberry season spans the summer months, with the majority of berries ripening between the end of June and the beginning of September. This is also the period when people most want to be outside enjoying their property, whether it be to garden, have a barbeque, or simply to relax in the sunshine. Naturally, this is also the most active period for other farmers to be working outdoors.

Currently, residents' ability to be outside without being exposed to cannon noise is limited by the BCMAL guideline to the early morning, a period in the mid-day, or later evening. For the majority of the day, neighbours are subject to cannon noise, which can be severe outdoors, given that the BCMAL guidelines do not specify a setback distance from property lines.

An additional concern of neighbours' is that the blueberry season is lengthening as new, later maturing varieties of blueberries come under production, which may increase the period of cannon use.

6.2.3 Geography and Land Use

The level of tension and concern related to propane cannon noise appears to vary significantly between municipalities and regional districts. While political and social factors play a role here, much of the variation can be attributed to the geography and land use in the region.

Propane cannon nuisance seems to be particularly concentrated in areas where: 1) residential suburbs are being developed on the edge of farm land; and 2) several farms have transitioned to blueberries.

In Pitt Meadows, where concern is relatively low compared to other municipalities, the residential area is separated from most of the farm land by the Lougheed Highway. This established break protects many residents from the experience of propane cannon noise. In contrast, residents in some municipalities are surrounded by farm land, with their houses located in close proximity to multiple blueberry fields where cannons are fired.

Topography was also mentioned as a factor influencing propane cannon nuisance. For example, in Abbotsford, a major residential area is located on a hill above farm land, such that houses can be troubled by propane cannon use on the fields below. Neighbours also reported that cannon blasts tend to echo off the side of the valley 'like a sonic boom'.

Acoustics are complicated, making it difficult to predict how sound travels. Even two houses side by side can be affected differently. How sound is received inside a house can be influenced by surrounding vegetation, natural and man-made features, as well as housing design and materials. One obvious differentiation is the impact of cannon noise on older houses with single pane windows, as opposed to the newly built houses, which commonly have double- or triple-pane windows installed.

6.2.4 Unequal Exposure

Of particular concern to many residents was that many farmers do not reside on their farms and thus are not exposed to the same level of propane cannon nuisance as their neighbours.

6.3 *Banning Cannons*

Many neighbours insisted that, given the nature and severity of the impacts that they and others in their community experience from propane cannons, the only appropriate solution is to ban the use of cannons. Some neighbours suggested a phase out period of one to three years, while others called for an immediate ban on all propane cannons.

The argument was made that the right of farmers to use cannons infringes on others' rights to health and well-being, to enjoy their property, and to make a living. Neighbours noted that it can be difficult to balance the right to use a technology or product that may cause a nuisance against the rights of people affected by the nuisance, especially in circumstances where the most profound effects may be limited to a subset of the population. A common view was that the efficacy of propane cannons as a crop protection tool was of negligible importance given the significant health impacts of these devices.

Neighbours suggested that farmers have adapted to the loss of other tools in the past, and would similarly adapt to the removal of propane cannons through regulation.

6.4 *Social Diversity: An Added Layer of Complexity*

Social tensions as well as interpersonal conflicts between neighbours are often evident in farm practices complaints received by BCFIRB. Similarly, participants in this review identified significant social dimensions to the propane cannons issue.

Respondents highlighted the diverse needs and circumstances of people living in the South Coastal Region. Population growth and an increase in blueberry plantings are increasing the opportunity for cannon complaints to arise. However, conflicts over propane cannons may also be underpinned by pre-existing social tensions.

6.4.1 Social Diversity in the South Coastal Region

Participants in the review highlighted the changing face and structure of populations in the South Coastal Region. Many municipalities and districts in the region have been experiencing high rates of population growth over the past decade. At the same time, high blueberry prices over the past number of years have led to a dramatic increase in plantings, including on relatively small parcels of land. This has thrown farmers and non-farmers, as well as urban and rural residents, into increasingly close contact. Participants in BCFIRB's consultations noted that this can lead to a 'confrontation of lifestyles', as urban or non-farming residents may have certain perceptions regarding living in a rural

area that are inconsistent with modern agricultural practices. At the same time, respondents suggested that conflicts between farmers may arise as agricultural areas transition from other commodities into blueberry production, meaning that even rural residents are exposed to a wider range of crops, farming practices, and potential nuisances.

A number of stakeholder groups also noted another social dimension which can be present in disputes involving propane cannons. Individuals of different ethnic or racial backgrounds sometimes experience difficulty in communicating, understanding and resolving differences between themselves due to language, cultural and other barriers. In some cases this can polarize the people involved and add a layer of extra difficulty to resolving farm practices disputes between neighbours and to managing these issues more broadly.

6.5 Discussion and Recommendations

6.5.1 Discussion

The impacts of noise on human health and on the natural environment are not well understood. It is difficult to generalize about the effects of propane cannon noise, as the noise impacts of these devices are individual and situation-specific. Currently, the Fraser Valley Regional District is partnering with BCMAL to assess the noise impacts of auditory bird deterrents in the region. Stakeholders will want to monitor the results of this study, which may shed important light on the effects of propane cannons and on appropriate policy solutions.

Nonetheless, it is clear that the adverse social impacts of propane cannon noise, while varied in their distribution and intensity, are significant and widespread in many areas of the South Coastal Region. People are being creative in finding ways to cope with the noise; however, there are limits to how effective – and appropriate – this is as a way to deal with the nuisance problem. BCFIRB recognizes that the cannon nuisance problem is severe in some municipalities and regional districts and that measures to reduce this noise may be warranted.

At a regional level, BCFIRB is of the view that the best way to reduce propane cannon noise is to reduce the need for and the use of cannons amongst farmers in the South Coastal Region. This goal requires a suite of actions and the involvement of a range of different stakeholders. These are detailed in the recommendations provided elsewhere in this report, which have been made with the broader goal of reducing propane cannon noise in mind.

With respect to the rich social diversity of the South Coastal Region, this is one of the region's great strengths; however, it can also present a great challenge for local governments in balancing the needs of all their citizens. Local governments, together with individuals, agencies and community organizations, work hard to bring communities together to develop and maintain social cohesion and cultural acceptance. We note, for example, the City of Abbotsford's Social Planning Advisory Committee, which is in the process of developing a diversity policy for use by its officials and citizens in addressing issues of concern to the community. Such initiatives are highly commendable and

BCFIRB encourages local governments to include their agriculture issues and communities in such important undertakings.

BCFIRB recognizes in hindsight that it too could have taken a more inclusive approach to this review. In light of the social diversity represented by the BC blueberry industry, BCFIRB could have translated some key notices so that more growers would have had a better understanding of the review and might have been encouraged to respond with their own perspectives on the use of propane cannons in their industry.

6.5.2 Recommendations

With respect to the social tensions relating to the propane cannons issue, BCFIRB recommends:

1. That local governments recognize and respond to the social diversity in their communities by working proactively and inclusively with their farming and non-farming constituents to find solutions to farm practices disputes that work for all members of their local community.

As BCFIRB is of the view that the recommendations made in other sections of this report have the potential to significantly reduce farmers' use of propane cannons and so propane cannon noise, there are no additional recommendations provided in this section.

7.0 BCMAL Guidelines for the Use of Audible Bird Scare Devices

The use of propane cannons in BC is regulated by a set of guidelines for the use of audible bird scare devices, which are included in BCMAL's Farm Practices Factsheet on *South Coastal BC Wildlife Damage Control*. The guidelines, designed to encourage the effective use of propane cannons and to prevent and mitigate nuisance to neighbours, are available on the Ministry website²⁰ and are circulated to growers in the Fraser Valley by the BCBC. They have also been adopted by some local governments in the region under noise control bylaws.

The BCMAL guidelines are generally accepted to constitute 'best management practices' for the use of cannons, however, they are only effective as far as they are adopted by farmers. It is clear from this review process that a significant portion of nuisance complaints arise from the use of cannons outside of the guidelines. The implementation and enforcement of the guidelines is addressed in detail in Section 8.0 of this report.

In its review of the BCMAL guidelines, BCFIRB consulted cannon use guidelines from other jurisdictions. Appendix D summarizes the provisions from these other guidelines, as they correspond to individual MAL guideline provisions.

²⁰ www.agf.gov.bc.ca/resmgmt/fppa/Refguide/activity/870218-59_Wildlife_Damage_South_BC.pdf

7.1 Review of the BCMAL Guideline Provisions

The guidelines, first adapted by MAL in 1996 from a noise control bylaw in the municipality of Pitt Meadows, were the subject of revisions in 2002 and 2004. Following a facilitated consultation in the spring of 2008, BCMAL completed further revisions and released its current version of the guidelines in June 2008.

As part of this 2009 review, stakeholders were invited to comment on the current 2008 BCMAL guidelines. Generally, neighbours were pleased with the most recent changes: an increase in the separation distance from a residence from 150 metres to 200 metres, and the introduction of a mid-day break between 12:00pm and 3:00pm. However, these changes are viewed by residents as being insufficient in terms of providing adequate relief from propane cannon noise. Farmers were generally satisfied with the current guidelines, and cautioned that any further changes would compromise their capacity to maintain a viable farm operation.

This section summarizes feedback from stakeholders on each of the individual guideline provisions, followed by BCFIRB discussion and recommendations.

7.1.1 Hours of Operation

[Farmers should operate devices only between 6:30am and 8:00pm local time or dawn to dusk, whichever is of lesser duration.]

Neighbours emphasized the benefit of moving the start time later, even if only by a small margin. A later start time would allow people to get more sleep, which would help to reduce the negative impact of propane cannon noise on people's health. One neighbour group also requested an earlier end time to allow for outdoor evening activity.

Farmers emphasized that a later start time would significantly increase the risk of crop damage, as birds start feeding as early as 4:30am during the blueberry growing season and the current start time already does not offer full protection from predation.

It was reported that in many parts of the South Coastal Region, the majority of nuisance complaints regard the operation of propane cannons outside of the hours codified in the guideline. Enforcement of this guideline is challenging for some municipalities, where bylaw officers may not be on duty outside of the hours in which cannon use is permitted. At present, the only 24 hour contact available to respond to off-hours complaints in these areas is the BCBC Grower Liaison Officer. Enforcement of this guideline is further complicated in cases where farmers do not reside on the properties where cannons are used.

7.1.2 Density of Cannons

[Farmers should operate as few as possible on a given farm site up to a maximum of one device per two hectares of cropland at any one time.]

Neighbours requested that the density allowance be reduced to one propane cannon per 20 acres (about one cannon per eight hectares, or one quarter of the current density). Farmers expressed concern that the proposed reduction would translate to a ban on smaller properties (under 20 acres), creating unequal conditions for farmers.

Neighbours reported that the nuisance problem is amplified when farmers cluster propane cannons on their property, for example placing five cannons along one edge of a 10 hectare property. Some farmers apparently do this to deter birds from common roosting spots (e.g. power lines).

It was reported that there have been disagreements between farmers and neighbours over the size of farm properties, and therefore the number of propane cannons permitted. Strict enforcement of this guideline could be assisted by property maps clearly indicating the size of farm properties.

7.1.3 Relocation of Devices

[Farmers should try to alternate or relocate devices being used on a farm operation at least every 4 days.]

According to neighbours and local governments, a common nuisance complaint is that propane cannons are not moved in accordance with the current guideline, which neighbours note is very difficult to enforce. This encourages birds to habituate to the device, decreasing their overall efficacy, while also adding to the cumulative effect of noise received at a given area. This relates to a broader issue of the lack of on-farm management of cannons on some farms.

7.1.4 Cannon Maintenance

[Farmers should maintain devices, including timing mechanisms, to ensure they operate properly and not outside the recommended hours of operation.]

Without regular maintenance, propane valves can leak, causing cannons to fire even when they are shut off. To prevent this from occurring, it is important for farmers to regularly check and maintain their propane cannons.

It was suggested that all propane cannons should be required to have a functioning timing device to prevent firing outside of the hours permitted in the guidelines. The BCBC Grower Liaison suggested that this requirement could be met if only the newer cannon model with a built-in timer (Purivox) was permitted, while the older model (Zon) was banned.

7.1.5 Wildlife Predation Management Plan

[Farmers should use devices only as part of a wildlife predation management plan.]

Neighbours and by-law officers commented that farmers are relying on propane cannons and not using other tools to protect crops from bird predation, while industry groups agreed that more education is needed for farmers on the suite of techniques that can be used for bird control. BCMAL staff indicated that the Ministry has made technical information available to farmers for strategic planning and management; however, they have observed that the uptake of these resources is limited, particularly amongst new growers. The reduction of BCMAL extension services in recent years also provides relevant context to this situation.

There was particular concern regarding the practice of running propane cannons on timers and not taking further steps to effectively manage bird predation (e.g. monitoring for the presence of birds, experimenting with other bird scare techniques, etc.). Many neighbours perceived this to be linked to situations where farmers do not reside on, work at, or regularly visit their properties. Similarly, it was reported that propane cannons are routinely activated when there is limited or no bird pressure on a farm.

By-law officers commented that a requirement for a predation management plan would be very difficult to enforce. One producer association suggested that local governments could require preparation of and sign-off on a predation management plan once a complaint had been filed against a particular farm.

7.1.6 Local Contact Person

[Farmers should establish a local contact person for each farm where the owner/operator does not live within a reasonable distance of the farm where devices are used.]

Local governments, farmers and neighbours reported that identifying and contacting propane cannon operators is not a problem in some municipalities, while it is in others. The problem is greatest when a cannon is firing off-hours and the farmer is not on the property.

In the past, some stakeholders have suggested that farmers be required to register their propane cannons with local governments. One municipality commented that registration of all cannon operators would be cumbersome and would present a cost issue.

7.1.7 Protection of Crops

[Farmers may use devices for the protection of crops.]

Neighbours reported that cannons are being used when there are no birds present. Similarly, neighbours were critical of farmers firing cannons before berries had appeared, in order to 'train' birds to stay away from crops, a practice which they observed on some operations

7.1.8 Firing Frequency

[Farmers should operate devices with a firing frequency of no more than one firing per 5 minutes for single shot devices and no more than 11 activations or maximum of 33 shots in any hour for a multiple-shot device. Multiple shots from a device are considered as one activation if they occur in less than a 30-second period.]

Neighbours requested that firing frequency be reduced to four blasts per hour, noting that the use of triple-shot propane cannons has been accompanied by a significant increase in blasts per hour. Neighbours pointed out that their experience of cannon firing frequency is quickly compounded with proximity to more than one cannon, likening the sound from multiple cannons to a ‘rifle range’.

Enforcement of this guideline can be difficult on a practical level because, when there is more than one cannon firing in one area, it can be impossible to tell accurately how many shots are being fired by each one.

7.1.9 Separation Distance

[Farmers should maintain a 200 metre separation distance between a device and a neighbouring residence. Where written permission from the owner of a neighbouring residence is obtained, the separation distance can be waived.]

Neighbours groups, as well as one municipality, requested that the setback distance from residences be increased; an increase to 300 metres was suggested by some. One group of neighbours noted that the previous increase from 150 metres to 200 metres was, for the most part, insignificant to neighbours. Neighbours would also like the guidelines to include a separation distance of 150 metres from neighbouring property lines.

Industry groups noted that the previous increase in setback distance was a major concession by growers, as this effectively resulted in a cannon prohibition on smaller farms.

While the 2008 facilitated review of the BCMAL guidelines did examine moving to a greater setback distance, that review concluded that a significant increase would exclude propane cannons from the majority of farms in the region.

Similar to cannon density (see Section 7.1.2), separation distance can be difficult to enforce when there is disagreement over property measurements. One by-law enforcement officer reported that using a property map has been a useful communication tool when responding to complaints related to setback distance.

7.1.10 Mid-Day Break

[Farmers should not operate devices between noon and 3pm.]

A mid-day break in cannon use was discussed as part of the 2008 facilitated review of the BCMAL guidelines, and was later implemented by the Minister of Agriculture and Lands. The mid-day break was meant to provide some relief to neighbours while also acknowledging that bird pressure and predation tends to be lower during the hottest part of the day.

Neighbours were generally very pleased with the addition to the guidelines of a mid-day break, as it has allowed a daily window of time to do outdoor work and activities. One neighbours group requested a longer mid-day break. It was also noted that the mid-day break does not benefit those residents who are not home during the day.

Farmers commented that the mid-day break was a major concession on their part, as it has generated more work with regard to monitoring their fields. It was noted that the break disproportionately affects farms nearer the ocean, where the mid-day heat is less and bird pressure can remain high across the day.

MAL staff reported that, while they expected the number of complaints to increase in 2008 due to issues surrounding the mid-day break, the numbers were in fact comparable. One by-law officer reported a slight increase in complaints, which were dealt with by visiting the farms.

7.2 Discussion and Recommendations

7.2.1 Discussion

BCFIRB recognizes that, while further changes to the BCMAL guidelines could improve the situation for some neighbours, such changes would not be sufficient in resolving the nuisance issue or the broader problem of bird predation in the South Coastal Region.

In light of this, BCFIRB expects that a more principles-based approach will improve the guidelines – both in terms of making their intended purpose clearer to farmers and in terms of strengthening the potential for guideline enforcement.²¹ To achieve this, the guidelines must clearly state that, should a farmer choose to use a cannon, s/he must take due measures to minimize the noise impact on neighbours.

That much of the nuisance problem stems from the operation of cannons outside of the guidelines suggests that improved enforcement of the guidelines could go a long way toward achieving a more acceptable balance between the needs of farmers and their neighbours.

Finally, it should be emphasized that while the BCMAL guidelines present the current best management practices for cannon use and noise management, they do not preclude a reduced reliance

²¹ It is noted that principles based guidelines are already provided in the Farm Practices Factsheet on *South Coastal BC Wildlife Damage Control*; however, they are not included in the specific Guidelines for the use of Audible Bird Scare Devices.

on cannons on a particular farm, in accordance with that farm's bird predation management plan. Similarly, the BCMAL guidelines do not preclude the establishment of a more formal regulatory regime by a municipality or regional district, which may include more stringent regulation of propane cannons, as discussed in Section 8.0.

7.2.2 Recommendations

BCFIRB recommends:

1. That the BCMAL guidelines be revised in order to accommodate the following:
 - i. That propane cannons must be distributed within each property so that there is no more than one cannon per two hectare parcel. Cannons should be placed as far apart as possible to minimize nuisance, taking account of the topography of the land, wind conditions, plant cover, surrounding structures and other factors.
 - ii. That since relocating propane cannons is necessary in order to increase their effectiveness and to minimize nuisance to neighbours, farmers *must* alternate or relocate devices being used on a farm operation at least every four days.
 - iii. That all farm operations must assign an individual who will be responsible for the strategic management of propane cannons at the operation, and ensure that the contact information for this individual is filed with both BCBC and the relevant local government. The specific responsibilities of this individual will include:
 - Ensuring that a site-specific bird predation management plan is completed prior to the first use of propane cannons in each growing season, and that the plan is kept up to date;
 - Making regular visits to all fields on days when cannons may be deployed to ensure that the cannons are functioning properly and that bird pressure is sufficient to justify propane cannon use;
 - Ensuring that cannons are not firing outside of the hours permitted within the guidelines.
 - iv. That bird predation management plans must be based on the following principles:
 - Propane cannons are to be managed in a manner that minimizes bird habituation, thereby maximizing their efficacy and minimizing nuisance; and
 - Propane cannons are to be deployed only when birds are present.To achieve this, a bird predation management plan must include:
 - Strategies to minimize cannon use;
 - A range of approaches to prevent bird damage including other noise devices, visual scare techniques and human presence in the fields; and
 - Clear direction that cannons are not to be deployed when there is no or little bird pressure and are to be turned off when bird pressure is no longer present.

- v. That propane cannons only be used for the purpose of deterring birds from crops during the ripening and harvesting period of that crop.
- vi. That propane cannons be positioned in such a way as to minimize their noise impact on neighbours. Farmers should place cannons on the ground, aiming cannons away from neighbours and nearby roads and, where necessary, use sound buffering devices.

Guideline provisions that do not relate to points i to vi, above, should remain as they are in the current guidelines.

BCFIRB also recommends:

- 2. That BCBC work with growers on an individual basis to develop bird predation management plans;
- 3. That BCMAL revise as needed and actively disseminate their June 2000 Integrated Bird Management for Blueberries template;²²
- 4. That the term ‘Wildlife predation management plan’ be changed to ‘Bird predation management plan’ in the BCMAL guidelines and related documents.

8.0 Further Regulatory Options

As discussed in Section 7.0 of this report, BCMAL currently maintains guidelines for the use of audible bird scare devices including propane cannons in its Farm Practices Factsheet on *South Coastal BC Wildlife Damage Control* (BCMAL guidelines). For the past seven years, the BCBC has helped to ensure that farmers are aware of and are following the BCMAL guidelines by employing a Grower Liaison who works with farmers in the South Coastal Region on a proactive basis and in response to neighbours’ complaints. The importance of the Grower Liaison position, which has historically been funded with support from BCMAL, is discussed further in Section 9.2.1 of this report.

When the BCMAL guidelines were first established in 1996 they were intended to provide local governments with a tool that would assist them in managing complaints relating to the use of propane cannons in their municipality or regional district. The BCMAL guidelines are not legally binding. They are intended to define the current best management practices around propane cannon use. As such, they can also provide assistance to local governments seeking to create bylaws covering the use of propane cannons in their municipality or regional district.

This section summarizes the approaches that local governments in the South Coastal Region have taken to developing bylaws pertaining to propane cannons. It then reviews the legislative framework for the use of propane cannons in BC, before summarizing the implications of that framework for local governments in the region.

²¹ <http://www.agf.gov.bc.ca/cropprot/birdipmplan.pdf>

8.1 Current Regulation of Propane Cannons

Presently only some local governments in the South Coastal Region have bylaws covering the operation of propane cannons (see Appendix E for a detailed table of bylaws pertaining to cannon use). In each case, these bylaws are noise control bylaws. These noise control bylaws either mirror the current BCMAL guidelines (in some cases an earlier version of the guidelines), or they set somewhat more stringent requirements for the use of cannons.

Of those local governments that do not maintain bylaws covering the operation of propane cannons, some indicated that it was not yet necessary to do so in their community due to the low profile of the issue, the broad support for cannon use or agriculture more generally, and/or the effectiveness of their informal complaint resolution processes in dealing with the issue. However, in other cases, local governments indicated that they were avoiding the development of bylaws around cannons because of concerns related to the cost of enforcement, a feeling that bylaws will legitimize cannon use, a concern that they have not had input into the guidelines and are being asked to do the province's job, and/or a concern as to whether the province and/or courts would back them up in enforcing the guidelines. BCFIRB heard clearly from these and other local governments that they are confused about the regulatory options available to them regarding propane cannons.

In addition to the BCMAL guidelines, some local governments also use what is referred to as an "edge planning process", a process intended to improve land use compatibility across the interface between urban and agricultural areas, and particularly across edges between urban areas and areas within the Agricultural Land Reserve (ALR). Edge planning includes a variety of tools, some of which may be applied on the urban side of the boundary, and others that may be applied on the agricultural side. While both sets of tools can play some role in managing complaints around propane cannons, those that apply most specifically to propane cannon use are agricultural-side tools such as setbacks. While edge planning setbacks may mirror those contained in the BCMAL guidelines, they may also be more restrictive. As with the BCMAL guidelines, setbacks can be supported at the local government level through the creation of bylaws. Currently, there are two municipalities in the South Coastal Region that are actively pursuing edge planning initiatives. However, BCMAL staff have indicated to BCFIRB that they feel the process has much to offer for other municipalities in the South Coastal Region.

8.2 The Legislative Framework for the Use of Propane Cannons in BC

Two main pieces of legislation govern the power of local governments to regulate the use of propane cannons in BC: the *Farm Practices Protection (Right to Farm) Act* and the *Local Government Act*.

The wording of these statutes is complicated, as is the relationship between them. What follows is an effort to explain how, from a local government's perspective, these two pieces of legislation work together as it relates to the regulation of propane cannons. Because propane cannons are primarily used on land in the ALR, what follows will focus primarily on the power of local governments as it relates to land in the ALR.

8.2.1 Farm Practices Protection (Right to Farm) Act

The first piece of legislation governing the power of local governments to regulate the use of propane cannons is the *Farm Practices Protection (Right to Farm) Act (FPPA)*.

As its name implies, the *FPPA* gives farmers special protection from private lawsuits and local government bylaws in certain circumstances when those farmers are conducting farm operations – including operations to protect crops from bird predation – in accordance with “normal farm practice”. “Normal farm practice” is defined in the *FPPA* as follows:

"normal farm practice" means a practice that is conducted by a farm business in a manner consistent with

- (a) proper and accepted customs and standards as established and followed by similar farm businesses under similar circumstances, and
- (b) any standards prescribed by the Lieutenant Governor in Council,
and includes a practice that makes use of innovative technology in a manner consistent with proper advanced farm management practices and with any standards prescribed under paragraph (b).

Where a neighbour affected by a farm practice alleges that a farmer is not acting in accordance with normal farm practice, that neighbour may lodge a complaint with BCFIRB. If BCFIRB upholds the complaint, BCFIRB may require the farmer to cease or modify the practice in order to make it consistent with the normal farm practice. If BCFIRB finds the complaint to be unsubstantiated, the complaint is dismissed.

The BCFIRB process is available for complaints by neighbours. In some cases, however, a particular farm practice such as cannon use may also be of concern to local governments, who may wish to consider amending or enforcing municipal bylaws to address the issue.

The *FPPA* states that where a farmer is acting in accordance with “normal farm practice”, no one, including a local government, has a right to sue or seek an injunction against that farmer if the farmer:

- (a) is operating on protected land (i.e., land in the agricultural land reserve, land on which farm use is allowed under the *Local Government Act*, or Crown land designated as a farming area);²³
- (b) is not breaching the *Health Act*, *Integrated Pest Management Act* or *Environmental Management Act* or their regulations, and
- (c) is not contravening any land use regulation.

²³ “Protected land” is not a term used in the *FPPA*. It is used here for descriptive purposes to help simplify the legal provisions in the Act.

While noise and nuisance bylaws issued under the usual sections of the *Local Government Act* or *Community Charter* would normally be considered “land use regulations”, the *FPPA* specifically excludes those kinds of bylaws from the definition of “land use regulation”.

The *FPPA* makes clear to local governments that where a farmer is acting in accordance with normal farm practice and is operating in the ALR or on designated Crown land and meets conditions (b) and (c) above, local governments cannot enforce bylaws passed under the standard *Local Government Act* or *Community Charter Act* provisions dealing with animal control, noise control, nuisance control or fireworks against the farmer.²⁴

Thus, for a farmer growing a crop on protected land, that farmer is given protection and immunity – an unimpeded “right to farm” – so long as the practice in question is conducted in accordance with normal farm practice and does not breach the listed statutes. Where these conditions are all met, any discrepancy between a local government bylaw and normal farm practice is resolved in favour of the farmer in any enforcement or nuisance action.

8.2.2 Local Government Act: Regulation of Farming Businesses

While the *FPPA* grants a “right to farm” where all the relevant conditions are met, this right is not absolute. Special provisions in sections 872 to 918 in the *Local Government Act (LGA)* offer the possibility of local governments overriding the protections of the *FPPA* against noise and nuisance bylaws by passing specially authorized farm bylaws. Local governments require special regulations enacted by Cabinet to access these override provisions. The override bylaws these local governments draft ordinarily also require the approval of the Minister of Agriculture prior to being passed. The technical way the “override” works is that an approved farm bylaw would then become a “land use regulation” which would exclude the normal farm practice defence.²⁵

²⁴ While unlikely to arise in practical terms, it is noted for completeness that where land is **outside** the ALR and is not Crown land designated for farming, it has the same protection from noise or nuisance bylaws as ALR or designated Crown land if a local government has zoned the land for farm use. In this case, the only way a local government could address the cannon issue would be to change the zoning in a manner that no longer allows farm use in a particular area. The local government’s right to zone on ALR lands are addressed in footnote 3, below. For land **inside** the ALR, a local government wishing to change the zoning of land, for example, to prohibit a particular farm use, would need to be designated by Cabinet under s. 918 of the *LGA* and have the bylaw approved by the Minister, as discussed in s. 8.2.3.

²⁵ The term “override” is not used in the legislation. It is used in this report to help simplify an understanding of the provisions. Further, the term “override” properly applies only to the right to pass a farm bylaw under s. 917 of the *LGA*, which would enable a noise or nuisance bylaw (provided that that bylaw was enacted under s. 917) or a separate, stand alone farm bylaw on ALR or Crown designated land. The application of s. 903(5) of the *LGA* to a municipality – dealing with zoning powers - is more complicated. For the purpose of this Report, it will simply be noted that separate from their power to regulate noise or nuisance, local governments also have a general power to pass zoning bylaws, regulating land use. When a zoning bylaw operates in the ALR or on Crown land, s. 903(5) and 918 of the *LGA* give the Cabinet the right to tell a municipality that it cannot make zoning laws prohibiting or restricting the use of those lands for farming unless they are approved by the Minister. Section 903(5) of the *LGA* has been specifically applied to the four communities: Township of Langley, City of Abbotsford, Corporation of Delta and City of Kelowna. In these four municipalities, any changes to a zoning bylaw that restricts or prohibits the use of land for a farm business in the ALR or on Crown designated land must be approved by the Minister. Other local governments—while unable to pass noise or nuisance bylaws adversely affecting normal farm practices in the ALR or on Crown land due to the provisions of the *FPPA*—retain their general zoning powers. Whether or under what conditions a local government that has not been designated for the purpose 903(5) could use its general zoning power to prohibit the use of ALR land to grow crops that give rise to cannon use in the ALR is legally

A valid “farm bylaw” passed under these *LGA* provisions would enable a local government to pass bylaws regulating cannon use that it would not be able to pass using the standard sections of that Act or the *Community Charter* referenced in the *FPPA*. Local governments cannot access the regulatory opportunities provided by a farm bylaw unless the provincial government has first given them express permission to do so, through a regulation to the *LGA*.

Although the wording of these *LGA* provisions is, like the *FPPA* provisions, legally complicated, their effect is straightforward. Where a local government wishes to have the power to override the protections of the *FPPA*, that local government must first be designated in a regulation by Cabinet as being able to exercise those powers by way of a “farm bylaw”.²⁶ Once designated, the local government must also submit any particular farm bylaw to the Minister of Agriculture. A farm bylaw is not valid unless it has received the Minister’s approval or the Minister has exempted the municipality from the requirement to obtain approval. So far, only four municipalities have been designated to exercise power under these special *LGA* provisions. They are: the Township of Langley, City of Abbotsford, Corporation of Delta and City of Kelowna.

In theory, a designated municipality could pass a farm bylaw incorporating the BCMAL guidelines, impose stricter guidelines, or prohibit cannon use altogether, provided they could make a sound argument that would result in the Minister approving that bylaw. Similarly, a designated municipality could pass a farm bylaw instituting the guidelines in specific circumstances or areas, and modified guidelines or even a prohibition in others, provided that an acceptable argument could be made.

Legally, this means that Cabinet and the Minister are given the last word regarding whether a municipality will be given the opportunity to create a farm bylaw to begin with, and whether any particular farm bylaw is approved. Where a local government has been given the authority to create a farm bylaw, the Minister has the ultimate responsibility for balancing competing interests, including considering whether a sufficiently strong case has been made in the circumstances for removing or limiting protections even from those farmers who are acting in accordance with normal farm practice.

8.2.3 Normal Farm Practice

As already noted, the definition of normal farm practice in the *FPPA* is a practice conducted in a manner consistent with: (a) proper and accepted customs and standards as established and followed by similar farm businesses under similar circumstances, and (b) any standards prescribed by the Lieutenant Governor in Council (LGIC).

The *FPPA* allows the LGIC (the Cabinet) to make legally enforceable standards governing bird predation practices, including propane cannon use. These standards could apply across the province or could be regionally specific. Thus, while the BCMAL guidelines are not legally binding on their own,

unclear. Since the exercise of such a power could trigger a municipal designation under s. 903(5) (as has happened in the past), local governments will want to consider carefully the legal and policy implications of any such bylaw.

²⁶ Styles of drafting the farm bylaw will not affect the law. In other words, so long as the local government is designated as having access to the farm bylaw provision under the *LGA*, it may incorporate provisions regulating propane cannons into a noise control or nuisance bylaw, or may make a stand alone farm bylaw regulating propane cannons.

an LGIC standard incorporating the Ministry guidelines would be legally binding. As with the BCMAL guidelines, LGIC standards could be adopted into bylaws by local governments.

Legally, it is not entirely clear whether Cabinet standards could go further than regulating the manner and use of cannons, and actually prohibit cannon use. This issue could arise in the event that a Cabinet regulation sought to deal with “bird predation practices” by stating that cannon use was prohibited either generally, in particular areas, or even in respect of new plantings. At the moment, the LGIC has not passed any standards that would define normal farm practice for bird predation or propane cannon use.

Barring a Cabinet regulation, the only other means by which normal farm practice can be determined is through a decision by BCFIRB or a court. Courts may be asked to decide whether a farmer is following ‘normal farm practice’ when a farmer raises a normal farm practice defence against a local government that is trying to enforce its bylaws.

Some local governments indicated to BCFIRB that they use the BCMAL guidelines to assist them in drafting noise bylaws, on the basis that doing so would be a reliable way to incorporate and enforce “normal farm practice”. While this approach has much to commend it, it must be remembered that the guidelines are not legally binding, and that any bylaw incorporating those standards is still subject to a normal farm practice defence raised by a farmer in an enforcement action or in a hearing before BCFIRB.

The case law is unclear about whether the Court, in a nuisance or bylaw enforcement case, should make the “normal farm practice” decision itself, or whether it should defer to the BCFIRB for this specialized determination. At least one case states that the Court should defer to BCFIRB, though that case remains controversial. Whatever the answer to the procedural question, if the normal farm practice defence succeeds, the bylaw cannot be enforced if the other conditions regarding operation on protected land in accordance with the listed statutes and land use regulations are met. If the defence fails, the bylaw can be enforced.

Importantly, where a local government has the power to write farm bylaws under the *LGA* and has passed a valid bylaw, a farmer violating that bylaw would contravene a land use regulation and so lose his protection against a nuisance lawsuit or court injunction under the *FPPA* even if he is acting in accordance with normal farm practice. This ensures that the local government can enforce its bylaws without the potential for being troubled by a normal farm practice defence. It also shows the considerable legal significance of the farm bylaw provisions discussed above.

It is also important to note that municipal enforcement and the right of neighbours to complain are quite separate processes. BCFIRB must still entertain a complaint related to propane cannons even in a municipality or regional district where the local government has access to the farm bylaw provision of the *LGA*, and is regulating propane cannons through a farm bylaw. The BCFIRB decision on such a complaint could impose further restrictions on propane cannon use relative to those specified in the farm bylaw. Alternatively, BCFIRB could conclude that the use is “normal farm practice” even if it breaches the bylaw. While this would dismiss the complaint by a neighbour, it would not protect the farmer from enforcement of a properly enacted farm bylaw.

8.2.4 Summary

While any local government may pass noise or nuisance bylaws regulating propane cannon use, those bylaws will not be legally effective against farmers on protected land who are acting in accordance with normal farm practice and complying with the *Health Act*, *Integrated Pest Management Act* and *Environmental Management Act*.

Bylaws that incorporate the BCMAL guidelines would, in practice, likely stand a reasonable chance of reflecting normal farm practice. However, since the guidelines are not binding, no certainty would be provided unless and until the issue of normal farm practice was ruled on by BCFIRB or a court in a particular enforcement proceeding or complaint, having regard to all the facts of the particular case.

The only way in which a local government can regulate cannon use on protected land with certainty is for Cabinet to pass a regulation granting that municipality the authority to pass farm bylaws, and then to create a bylaw that receives the Minister's approval. Beyond this, the only other alternative is for the Lieutenant Governor in Council to prescribe standards for "normal farm practice".

At the moment, a number of local governments in the South Coastal Region have created noise control bylaws that incorporate specific provisions regarding the use of propane cannons. Only two of the local governments maintaining such bylaws have access to the overriding farm bylaw provision of the *LGA*. Of these, the Corporation of Delta has used the farm bylaw provision in creating those sections of its noise control bylaw pertaining to propane cannons. In contrast, the sections of the Township of Langley's noise control bylaws pertaining to propane cannons were not made under the farm bylaw provision. As such, they have not received the approval of the Minister, and may be vulnerable to a normal farm practice defence.

Most other municipalities that are using noise control bylaws with provisions relating to propane cannons do not have access to the farm bylaw provision. These municipalities would have to pursue a regulation under the *LGA* to gain access to the farm bylaw provision if, at some point in the future, they decide that they want to regulate cannons and they want to achieve certainty that farmers must comply with the conditions in their bylaws.

8.3 *Bylaw Enforcement Actions*

Many citizens residing in areas where propane cannons are not currently regulated with bylaws were supportive of local governments pursuing such a regulatory regime. These residents suggested that while the BCMAL guidelines played some role in reducing or managing propane cannon conflicts in their areas, the effectiveness of the guidelines are reduced without an enforcement mechanism.

BCFIRB learned that there have been very few instances where farmers' propane cannon bylaw infractions have resulted in fines or prosecution in the courts. Many citizens felt that the full enforcement of bylaws—including through fines or prosecution—against those who violate them would improve the rate of compliance with bylaws and the BCMAL guidelines more generally amongst other growers.

The BCBC Grower Liaison was similarly supportive of local governments adopting and enforcing regulations around propane cannons. He noted that while he is usually able to persuade growers to abide by the guidelines, there have been a very limited number of times when his efforts were unsuccessful. He felt that in these situations, prompt enforcement of bylaws is the most appropriate way to resolve guideline violations. To this end, he suggested that it would be helpful if he was provided with the name and contact information of at least one enforcement officer who can take immediate, round-the-clock action to ensure compliance with the bylaws in each area where propane cannons are regulated.

8.4 Recommendations and Discussion

8.4.1 Discussion

In its consultations with local governments, BCFIRB heard clearly that propane cannons are more of an issue for some municipalities or regional districts in the South Coastal Region than for others. The number of complaints a local government received around the use of cannons and the local governments' estimates of the 'temperature' of the issue in their municipality or regional district varied considerably between areas.

BCFIRB recognizes that in some municipalities and regional districts within the South Coastal region, propane cannon conflicts are being effectively managed through informal complaint resolution processes rather than by relying on regulation through bylaws. Some of these municipalities and regional districts were not aware of the BCMAL guidelines. BCFIRB sees no issue with these governments' current approach to managing propane cannon conflicts, but nevertheless encourages them to familiarize themselves with the guidelines, which can be an effective additional tool in their complaint resolution processes. These local governments will also want to continue to monitor the propane cannon issue in their communities; given the increased plantings of blueberries in recent years, and may wish to take up a more formal regulatory regime at some point in the future.

At the same time, BCFIRB heard that there are other municipalities or regional districts where there are already significant conflicts over cannon use between farmers and their neighbours. While stakeholders in these areas felt that the BCMAL guidelines played some role in reducing or managing these conflicts, they suggested that the effectiveness of the guidelines is reduced without an enforcement mechanism and regular enforcement actions.

In BCFIRB's view, the most effective and appropriate enforcement mechanism for these municipalities and regional districts is the regulation of propane cannons at the local government level through the use of bylaws drafted by those local governments. Bylaw mechanisms provide local governments with significant scope to respond to the particularities of their municipality or regional district, with which they will be the most familiar. This regulatory route also preserves the autonomy of local governments.

BCFIRB recognizes that, in selecting which bylaw mechanism to pursue, these local governments may want to regulate the use of propane cannons with the certainty that their bylaws will be enforceable

and will not be challenged by a normal farm practice defence. In such cases, those local governments that are not already subject to a regulation under the *LGA* that enables them to utilize the farm bylaw provision should pursue such a regulation. They can then proceed to submit their bylaws to the Minister for approval, and, provided that the approval is received, proceed to pass and enforce their bylaws.

BCFIRB heard reluctance on the part of some local governments to develop and enforce bylaws around propane cannon use. Some local governments were concerned about what they perceived as a lack of input into the BCMAL guidelines. However, BCFIRB notes that local governments have had opportunities to contribute to and to help shape these guidelines—including through the 1999 review conducted by BCFIRB and the current review. Furthermore, local governments are not bound to adopting the BCMAL guidelines in their bylaws uncritically. While the BCMAL guidelines are intended to encapsulate the best management practices around the use of propane cannons, there certainly appears to be scope within the farm bylaw mechanism for a local government to adjust which practices become codified, provided that they can make a sound and reasoned argument as to the basis for these practices when the bylaw is put forward for Ministerial approval.

Local governments' concerns in these areas seemed to be linked to a broader concern regarding a perceived loss of autonomy in regulating practices within their municipality or regional district. BCFIRB notes, however, that the main alternative to regulating cannons through bylaws at the local government level (that is, making them subject to LGIC standards) would actually seem to make for a greater intrusion of the province into local government affairs. While some local governments suggested that they do not want to do what they perceive as the province's job, BCFIRB is of the view that part of the basic responsibility of any local government is to manage any nuisances that arise in an appropriate manner that is consistent with the current legislative framework. A local government cannot abdicate this responsibility simply because this framework permits the province a role in supporting the development of effective regulations to help manage this nuisance.

With respect to the question of costs associated with bylaw enforcement, BCFIRB suggests that it is evident that some local governments are managing to enforce noise control bylaws pertaining to the use of propane cannons effectively on existing budgets and resources. Furthermore, BCFIRB notes that in the current complaint resolution system, many local governments are spared some of the costs of enforcement through the work of the BCBC Grower Liaison. BCFIRB agrees with the Grower Liaison that it would be appropriate for local governments that already maintain bylaws covering the operation of propane cannons to help support this position by providing name and contact information for an enforcement officer who can take immediate, round-the-clock action on these bylaws.

In considering the effective regulation of propane cannons in the South Coastal Region, BCFIRB also considered the main alternative to local government regulation through farm bylaws, this being the LGIC setting standards for normal farm practice to define propane cannon use for the province or for particular areas. However, BCFIRB recognized significant potential disadvantages with this route. Firstly, the LGIC (Cabinet) will not be as well positioned as local governments to understand the geographic realities and the particularities of the propane cannons issue in various regions. Secondly, regulation through LGIC standards could potentially be seen as troublesome for those local governments who feel that the province already intrudes into their autonomy in the current regulatory regime. Finally, establishing LGIC standards for the regulation of propane cannons, could be seen as a

precedent for the regulation of other farm practices in BC, and it is questionable whether it is necessary for Cabinet to be involved in this process at this time.

Finally, BCFIRB feels that the possibility of a local government pursuing a ban on propane cannons in their municipality or regional district should be addressed directly in this report. As discussed earlier, this possibility exists within the current legislative framework, insofar as local governments with access to the farm bylaw provision of the *LGA* could put forward such a request for the consideration of the Minister.

BCFIRB's position, which is given in the context that the other recommendations in this report have significant potential to decrease the nuisance component of propane cannon use in all municipalities and regional districts in the South Coastal Region, is that local governments should only consider a ban for their municipality or regional district when they have exhausted all other available means for managing propane cannon conflicts in their community.

Similarly, BCFIRB would encourage the Minister not to consider approving a ban that would prohibit propane cannon use in a municipality or regional district until the local government of that area can demonstrate that it has exercised due diligence by attempting to manage complaints around propane cannons by all other available means.

8.4.2 Recommendations

BCFIRB's recommendations are as follows:

1. That local governments in those municipalities and regional districts where propane cannon conflicts are being effectively managed through informal complaint resolution processes rather than by regulation through bylaws should:
 - a. Familiarize themselves with the BCMAL guidelines, which may provide a further tool to assist them with the resolution of complaints related to the use of propane cannons in their communities; and
 - b. Continue to monitor the propane cannon issue in their communities and establish a more formal regulatory regime, as specified in the next recommendation, should that be necessary in the future.
2. That local governments, in those municipalities and regional districts where the effective resolution of propane cannon conflicts requires a more formal and certain regulatory regime, pursue a regulation to gain access to the farm bylaw provision under the *LGA*, and use farm bylaws, alone or in combination with other tools, to achieve effective regulation and reduce conflict. BCMAL guidelines, the current best management practices around the use of propane cannons, can be adopted by local governments into these bylaws.

3. That all local governments that regulate propane cannons through bylaws provide the BCBC with the name and contact information of at least one enforcement officer who can take immediate, round-the-clock action to ensure compliance with the bylaws.
4. That local governments should not pursue a ban on propane cannons for their municipality or regional district until they have exhausted all other available means for managing propane cannon conflicts in their community, including through the uptake of each of the recommendations pertaining to local governments in this report.
5. That the Minister not consider approving a ban for a particular municipality or regional district until the local government of that municipality or regional district can clearly demonstrate that it has exercised its due diligence by attempting to manage complaints around the use of propane cannons issue by all other means available to it.

9.0 Public Outreach, Communication, and Complaints Resolution

BCFIRB heard in its consultations that there is a significant amount of outreach and communication work being undertaken around propane cannon use. This includes both formal and informal approaches and both one-on-one initiatives and wider outreach programs.

It was evident that there are opportunities for further activities in the areas of outreach and communication that could increase understanding and reduce confusion around the use of propane cannons, and increase trust between stakeholder groups.

BCFIRB heard that there is no standard approach for resolving cannon complaints between stakeholders in the region. It is not clear that potential complainants know how or where to register complaints, or that active complainants are aware of all the possibilities for complaint resolution that are available to them. This leads to confusion and frustration on the part of potential and active complainants.

9.1 Communication between Individual Farmers and Their Neighbours

Local governments suggested that the idea that the majority of propane cannons complaints originate from ‘urban’ neighbours whose conceptions regarding living in a rural community do not accord with the realities of modern agricultural practices is inaccurate. While some complainants are residents who have recently moved to and/or who are living in more ‘urbanized’ pockets within what have traditionally been agricultural communities, local governments stressed that the neighbour in a cannons complaint is often another commercial farmer. They suggested that these farmers may be reacting to the changing structure of the agriculture industry in a region.

Neighbours do not always appreciate the impact of birds on crop yield and quality and the purpose and importance of noise-making bird scare devices. Farmers do not always appreciate the severity of the noise nuisance on some neighbours and the need to minimize impacts wherever possible. Bylaw

enforcement staff and the BCBC Grower Liaison alike indicated that too often, communication between farmers and neighbours has broken down to the point where farmers and neighbours are now adversaries.

Producers and their associations suggested that informal efforts made by individual farmers can go some distance towards resolving tensions around propane cannons. Producers mentioned that clear communication with neighbours about when and why a farmer will operate cannons can help. Some producers suggested that offering the neighbour some benefit to living alongside a farm (bringing them baskets of blueberries, ploughing their drive in the winter, etc.) can also help to manage propane cannon issues.

In one region, a regional farm group was identified as playing an important role in improving understanding amongst and reducing tensions between blueberry producers and producers of other commodities that live alongside blueberry fields. This group provided a forum for discussions regarding the purpose of propane cannons, the guidelines that existed for their use, and other relevant topics.

9.2 Industry Associations

9.2.1 BC Blueberry Council

BCBC undertakes significant outreach and communications work proactively and in response to complaints. For the past seven years, BCBC has used funding from BCMAL to employ a Grower Liaison, who works proactively and in response to complaints with both farmers and neighbours. The Grower Liaison's work begins prior to the harvest season, with visits to blueberry producers throughout the region to ensure that the farmers are aware of the BCMAL guidelines and that their propane cannons and other noise-making bird scare devices are functioning properly and according to the guidelines.

Most of the local governments in the Fraser Valley direct complaints about cannons to the Grower Liaison. Contact information for the Grower Liaison is clearly posted on the website of Ban the Cannons, a local group of citizens concerned about cannon noise, and in some cases, complainants who are familiar with the system from past complaints contact The Grower Liaison directly. Local governments indicated that this generally enables a rapid response to complaints, as the Grower Liaison is generally 'on call' 24 hours a day throughout the growing season. This is a contrast to bylaw enforcement staff who in some of the municipalities and regional districts are not available outside of normal business hours.

BCFIRB heard clearly that the BCBC Grower Liaison is a crucial piece of the current system for propane cannon-related complaint resolution. While some stakeholders noted that there was some potential for bias in the position given its ties to the blueberry industry, the current Grower Liaison was lauded as taking a balanced approach and was universally respected by farmers, local governments, and citizens alike. The Grower Liaison's work has resulted in very few situations where farmers do not conform to the guidelines. BCBC estimates that less than 2% of complaints were not resolved.

Local governments noted that ‘most of time’ they did not hear back after referral of a complaint to BCBC.

The current round of funding for the BCBC Grower Liaison will expire following the 2009 growing season.

9.2.2 BC Agriculture Council

BCAC is not directly involved in the propane cannon issue at present, but does act to support and/or advocate for its member associations and agricultural producers generally in BC.

BCAC could play an important coordinating or unifying role between producers and producer associations in the South Coastal Region and those in other areas of the province where propane cannons are widely used. Similarly, BCAC could help to coordinate between blueberry producers and the other commodity groups affected by bird predation in the region, including dairy producers.

9.2.3 Other Commodity Organizations

Of course, it is also important that other producer associations—both within the South Coastal Region and across BC more generally—share their experience with and, where appropriate, collaborate in resolving the propane cannons issue.

9.3 Local Government

9.3.1 Planning Initiatives

BCMAL staff suggested that the edge planning process discussed in Section 8.1 includes a number of outreach and communication tools that could be used independently or as part of a larger process. For example, measures such as the placement of covenants on land title and/or signage identifying the proximity of an area to agricultural land can help inform existing and potential residents as to the potential for disturbance from farming activities.

In addition, there may be other planning tools that could be extended or applied to the management of propane cannons, for example, additional guidelines for siting the devices or geographic information systems tools.

9.3.2 Agriculture Advisory Committees (AACs)

An AAC is a committee with specific expertise in matters related to agriculture and the local agricultural industry that is appointed by a local government council. While many local governments in BC have only recently formed an AAC, most of those participating in this study have had established AACs for some time.

BCFIRB heard that AACs can serve as an important forum for dealing with agricultural issues and providing recommendations to council. AACs can consider the noise issue within the local community context and bring an industry-wide perspective for consideration by the council.

Formally, the terms set for most AACs mean that they cannot consider an issue unless it is brought to them by council. However, some AACs have found that council will support their exploration of issues that they identify as having significance for their communities.

Many local governments were unsure whether the propane cannon issue had ever been considered by their AAC. In some cases, AACs appeared not to have been consulted prior to a local government adopting a position on propane cannons.

9.3.3 Complaint Resolution and Bylaw Enforcement Approach

As noted above, most local governments refer complaints around propane cannons to the BCBC Grower Liaison, who works with the farmer and the neighbour to resolve complaints. Sometimes council members provided the information to complainants directly, in other cases the information was provided through bylaw enforcement staff. It was unclear whether local governments consistently provide information on BCFIRB complaint resolution processes, or have a full understanding of the BCFIRB process themselves.

In some municipalities and regional districts, council members and bylaw enforcement staff rely on their ties within the community to resolve propane cannon complaints informally. Bylaw enforcement staff suggested that the tolerance and tension level associated with the propane cannons issue, and the ease of complaint resolution was related to the degree of broader support for agriculture in a given municipality or regional district.

In some cases, bylaw enforcement staff have developed ‘tools’ to assist them in complaint resolution. For example, one bylaw enforcement officer noted that when responding to a complaint, she took a copy of a map detailing where cannons could be located on the farm in question with respect to the current guidelines. She finds that she is able to resolve a great number of complaints in this manner.

As indicated in section 8.3, BCFIRB learned through the consultations that there have been very few prosecutions of propane cannons offences or fines levied in relation to these offences by local governments to date. Many citizens felt that increasing the level of prosecution would improve compliance with the BCMAL guidelines.

9.4 BCMAL Supports and Extension

The mandate of BCMAL is to support the development and growth of the agriculture industry in this province, and some neighbours felt that this lent a bias to the BCMAL guidelines and to the general approach of BCMAL to the issue.

BCMAL maintains staff associated with the Strengthening Farming program that work directly on farm practices, and also maintain a berry specialist. In each case, the staff have a high level of expertise. BCMAL staff have played a critical role in supporting research around cannons, edge planning and other planning initiatives, AAC formation and operation, the BCBC grower liaison program, and complaint resolution. However, as noted earlier in this report, BCMAL's extension work with individual farmers is minimal.

9.5 BCFIRB Complaints and Studies Role

BCFIRB heard from the stakeholders that there is a general lack of familiarity with BCFIRB, the board's mandate, its relationship to BCMAL, the BCFIRB farm practices complaints process, and the board's prior involvement in the propane cannons issue. Usually BCFIRB is not the first point of contact about a cannon complaint. It is not clear that local governments, BCBC etc. are passing on information about BCFIRB, and it seems likely that the information that is passed on is often unclear or incomplete.

With respect to the BCFIRB complaints process, BCFIRB heard that some potential complainants are deterred by the \$100 filing fee.

9.6 Recommendations and Discussion

9.6.1 Discussion

It is clear that outreach and communication (both proactive and in response to complaints) is critical to managing the propane cannons issue. BCFIRB received information on a range of informal and formal approaches in this regard. BCFIRB recognizes that the effective management of propane cannons and complaints around these devices relies on this diversity of responses and requires everyone's involvement. Individuals and organizations are to be commended for their commitment to resolving the issue in a fair and balanced manner so far.

BCFIRB is of the view that the work of the BCBC Grower Liaison offers clear value to the industry. However, individual farmers also have an important role to play in working with their farming and non-farming neighbours to manage the issue. Communication prior to cannon season seems to be especially important.

In addition, BCMAL could support the effective management of the propane cannons issue in the South Coastal Region by developing a workshop around bird predation management and the use of propane cannons. Such a workshop could provide valuable opportunities for awareness raising, knowledge sharing, and resource mobilization amongst stakeholders. Specific topics that the workshop could address include the use and relative efficacy of propane cannons and other bird deterrence tools, the concept of integrated bird predation management, the BCMAL guidelines, and

opportunities for collaboration between farmers and neighbours (including other farmers) for improved management of the propane cannons issue.

Local governments can also assist with communication around farm practices including propane cannons through initiatives such as those supported in edge planning processes. BCMAL is an important support for local governments in this regard. However, BCFIRB also observed that local government AACs are an underutilized resource. There is significant unmet potential for councils to refer agricultural issues such as propane cannons to their AACs; ideally, AACs would also be free to bring important issues to attention of councillors. Councils may also need to adjust the composition of AAC to ensure that all sectors and producers are represented and that issues are fairly discussed. It is clear that the role of BCFIRB and the details of its complaint process need to be more clearly and consistently communicated to stakeholders. While it is a considerably slower resolution process than BCBC action and local government enforcement, the BCFIRB process is an important part of the larger complaint resolution picture, and it needs to be communicated to potential complainants at the outset to ensure that they are aware of all their options.

In this regard, a standardized approach to propane cannon complaint resolution that could be applied consistently across the South Coastal Region may also be helpful. In BCFIRB's view, the most effective approach would be:

- (1) Referral of the complaint by the complaint recipient (local government councillor, bylaw enforcement staff, BCMAL, BCFIRB, neighbours groups) to the BCBC Grower Liaison. The complaint recipient should provide contact information for the Grower Liaison
- (2) Complaint resolution by local governments, including through enforcement of bylaws as required;
- (3) Filing of a complaint with BCFIRB. (While complainants would of course be free to file a complaint with BCFIRB at the outset, the steps outlined at (1) and (2) clearly provide a means for more rapid response and complaint resolution.)

BCFIRB notes that ensuring that information on this approach is readily available to the public could reduce the frustration of potential and existing complainants. To this end, information on what a neighbour needs to do if they would like to pursue a complaint should be widely communicated within regions through BCBC publications, local governments' websites and newsletters, the websites of neighbours groups, etc.

9.7.2 Recommendations

BCFIRB recommends:

1. That farmers, neighbours, industry organizations, local governments, AACs, and BCMAL all continue their respective efforts to prevent, manage and resolve propane cannon nuisances.
2. That BCMAL work with stakeholders in the South Coastal Region to develop a workshop around bird predation management. Such a workshop should focus on providing opportunities for awareness raising, knowledge sharing, and resource mobilization amongst stakeholders, and should give broad consideration to the propane cannons issue by addressing topics such as the

use and relative efficacy of propane cannons and other bird deterrence tools, the concept of integrated bird predation management, the BCMAL guidelines, and opportunities for collaboration between farmers and neighbours (including other farmers) for improved management of the propane cannons issue.

3. That in recognition of the importance of the BCBC Grower Liaison position, these groups work together with BCBC to find a way to continue, and possibly increase, support for the position beyond the 2009 growing season.
4. That all local governments consider the use of planning initiatives and tools such as those included in the edge planning process as a way to improve compatibility between farm and urban land uses.
5. That all local governments form an AAC that consist of a cross section of the producers within the local jurisdiction, and that councils gain the full benefit of their AAC by referring issues related to their community's agriculture industry to them for their study and recommendations.
6. That all local governments adopt the standardized approach for addressing complaints detailed above, and that information on this approach be communicated widely within their communities and made available to complainants.

10.0 Concluding Remarks

BCFIRB wishes to thank the stakeholder groups who met with the board, the individuals who shared their technical expertise, and all those who provided written submissions in support of this review.

BCFIRB heard clearly the concerns of neighbours who see cannons as a significant nuisance in their communities. Many of these individuals suggest an outright ban or restrictions that would effectively ban cannon use on most blueberry farms are the only acceptable solutions. BCFIRB considered these concerns against farmers' assertions that propane cannons remain an effective and necessary crop protecting tool. Farmers maintain that in the absence of another 'magic bullet' that would solve the problem of bird predation, propane cannons must be permitted if the viability of blueberry farms is to be protected. Finding a balance point between these two competing framings of propane cannons is not an easy task.

BCFIRB is not prepared to recommend a ban on propane cannons that would remove a valuable crop protection tool from BC farmers. The degree of nuisance around these issues varies widely between municipalities and regional districts.

However, BCFIRB does see opportunities for reducing the level of nuisance associated with propane cannons, first by reducing farmers' reliance on and use of cannons, and second by encouraging farmers to operate cannons in accordance with the guidelines provided by BCMAL.

BCFIRB heard clearly that farmers' high degree of reliance on propane cannons was in large part a symptom of a bigger problem, this being elevated starling populations in the South Coastal Region.

The board's recommendation regarding the need to explore a comprehensive approach to starling management calls for farmers and their associations, local governments, and other stakeholders to work together to find a way to reduce bird pressures and predation levels on local farms. This will reduce—though may not fully remove—the need for propane cannons as well as other bird predation management devices, and thus the potential nuisances associated with these devices.

BCFIRB is of the position that there is also a clear need for farmers to ensure that propane cannons are used only when they are strictly necessary, and that in these situations cannons are always used strategically and effectively as part of a broader integrated predation management plan. This is especially so given the challenge of bird habituation to predation management devices, which effectively requires that farmers maximize the efficacy of cannons by minimizing their use.

However, BCFIRB feels strongly that the blueberry industry must take account of the impacts of its operations on its neighbours, and as such that farmers must also ensure that cannons are used in a socially responsible manner. Farmers must clearly consider the nuisance potential associated with propane cannons, and—whenever these devices are used—take due measures to minimize the noise impact on neighbours. As one of the experts consulted by BCFIRB noted, agriculture needs the goodwill of local citizens to be successful. A socially responsible, sensitive approach to the use of propane cannons and other bird deterrence devices is the only way to ensure that this goodwill is maintained.

At the outset of this review, BCFIRB was asked to review the BCMAL guidelines for propane cannon use in the South Coastal Region. It is BCFIRB's position that the recommended changes to the guidelines will support the strategic, effective and responsible use of propane cannons and so a reduction in the nuisance component of cannon use.

While it is clear that the BCMAL guidelines will not be effective unless they are adopted by farmers, BCFIRB believes that local governments—and particularly those local governments in communities that are currently experiencing significant conflicts around propane cannons—also have a role to play in managing propane cannon conflicts and issues. BCFIRB's recommendations recognize that in these communities, the effective regulation of cannons through bylaw drafted by local government is part of that local government's responsibility to its citizens.

Finally, BCFIRB's recommendations recognize that local governments together with farmers, neighbours, BCBC and other industry associations, BCMAL, and BCFIRB all participate in a wide range of outreach, communication, and complaint resolution activities related to propane cannons. BCFIRB commends the hard work of these stakeholder groups to date, which has played a significant role in resolving tensions around and managing the propane cannon issue throughout the South Coastal Region. BCFIRB urges these groups to continue to exercise a willingness to work together and towards understanding and compromise on all sides for the successful management of propane cannon concerns going forward.

Appendices

Appendices

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Appendix A Terms of Reference Document



TERMS OF REFERENCE

BRITISH COLUMBIA FARM INDUSTRY REVIEW BOARD STUDY OF PROPANE CANNON USE AND OPTIONS FOR REGULATION IN SOUTH COASTAL BRITISH COLUMBIA

The Use of Propane Cannons in Agriculture

Propane cannons, a noise scare device, are commonly used in protecting fruit and other crops from bird predation. During the growing season, they scare birds away from crops by emitting frequent (many times per hour) loud explosions. Bird predation of agricultural crops is of significant economic concern to farmers in British Columbia, and propane cannons are one of a variety of crop protection measures relied upon by farmers to protect their crops from losses due to birds.

As a noise device, there are situations where the use of propane cannons is disruptive to neighbours.

Background to the Study

The British Columbia Farm Industry Review Board (BCFIRB) hears complaints from persons aggrieved by any odour, noise, dust or other disturbance resulting from a farm operation. Under section 11(2) of the *Farm Practices Protection (Right to Farm) Act (FPPA)*, BCFIRB may also study, report on and make recommendations concerning any matter related to farm practices.

Propane cannon use is the major noise-related nuisance complaint received by the Ministry of Agriculture and Lands (MAL) and by certain local governments in British Columbia. MAL guidelines for the use of noise scare devices including propane cannons, contained in the South Coastal British Columbia Wildlife Damage Control Farm Practices Factsheet, were first issued in 1996 and have since undergone reviews by both MAL and BCFIRB.

In October 2008, MAL requested that BCFIRB review the current guidelines for the use of propane cannons, which MAL revised in June 2008 following facilitation with industry stakeholders, the Fraser Valley Regional District and concerned citizens. Based on a preliminary analysis, BCFIRB has opted to expand the scope of its study beyond a review of the existing guidelines to also consider additional regulatory measures for resolving the conflicts around propane cannon use.

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Farm Industry Review Board**

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Review Objective

To identify how the interests of farmers and neighbours related to the use of propane cannons can best be balanced through the MAL guidelines on propane cannon use and other possible regulatory measures.

Terms of Reference

The Board has assigned a Committee to this review with Terms of Reference, as follows:

1. Review the use of propane cannons as a farm practice in British Columbia. The Committee may research farm practices in other jurisdictions as part of this review.
2. Examine the benefits and detriments of the use of propane cannons from the viewpoint of farmers and agri-industry (e.g. farm suppliers), farm neighbours and their local governments, and the public interest.
3. Identify, if it deems appropriate, new or alternative practices and/or initiatives that may be used to address issues related to bird predation in the longer term.
4. Review the MAL June 2008 South Coastal Wildlife Damage Control Guidelines and determine whether further adjustments could be made that would help to reduce conflicts between farmers and their neighbours around the use of propane cannons.
5. Make recommendations concerning the most appropriate practices for use of propane cannons in the South Coastal region of British Columbia.
6. Identify additional measures for regulating the use of propane cannons, including through the establishment of standards prescribed by the Lieutenant Governor in Council or of nuisance and farm bylaws by local governments, and propose considerations for the development of such standards and bylaws.
7. Make other recommendations as its conclusions may warrant.
8. Report to the Board no later than February 19, 2009.

Review Process and Timeline

BCFIRB will be undertaking consultation with industry stakeholders as part of its review in January and February 2009. BCFIRB intends to issue a report containing its recommendations from the study by February 28, 2009.

Appendix B Participants in Consultations for the BCFIRB Review

Participants in Stakeholder Consultations Meetings

BC Agriculture Council (BCAC)

Garnet Etsell, Chair
Christine Koch, A/Executive Director

BC Blueberry Council

Will van Baalen, Director
Paul Gill
Ray Biln
Mike Makara
Jack Bates
Jim Gaskin
Sid Kwantes

Ministry of Agriculture and Lands (MAL)

Bert van Daltsen, Manager Strengthening Farming Program
Mark Sweeney, Industry Specialist, Berries

Ban the Cannons

Don Gibbs
Cherry Groves

Cloverdale Neighbours Group

Jim McMurtry
Marilyn Oggs
Doug Oggs

City of Abbotsford

Mayor George Peary
Bill MacGregor, Councillor
John Smith, Councillor
Gordon Ferguson, Manager Bylaw and Animal Control Services

City of Chilliwack

Garrett Shipper, Manager of Regulatory Enforcement
Karla Graham, Deputy Clerk

Fraser Valley Regional District

Richard Bogstie, Electoral Area Director

Township of Langley

Bill Storie, Manager Bylaw Enforcement Department
Brian Doyle, Senior Planner

District of Maple Ridge

Diane Merenick, Bylaw Services Supervisor

City of Pitt Meadows

Leslie Elchuck, Bylaw Enforcement and Leasing

City of Surrey

Ed Warzel, Senior Bylaw Enforcement Officer
Rick Bramford, Senior Bylaw Enforcement Officer, Operations

Experts Consulted by BCFIRB

Township of Langley, Brian Doyle, Senior Planner
Whatcom County Farm Friends, Henry Bierlink
Unifeed, Chilliwack, Shelagh Niblock, Dairy Nutritionist
BC Blueberry Council, Nazam Dulat, Liaison Officer
City of Surrey, Marvin Hunt, Councillor
Trinity Western University, Karen Steensma
Okanagan Trapping Program, Connie Bielert

Appendix C Request for Submissions Document



February 3, 2009

To whom it may concern:

REQUEST FOR SUBMISSIONS

BRITISH COLUMBIA FARM INDUSTRY REVIEW BOARD STUDY OF PROPANE CANNON USE AND OPTIONS FOR REGULATION IN SOUTH COASTAL BRITISH COLUMBIA

The British Columbia Farm Industry Review Board (BCFIRB) is the successor to the Farm Practices Board, established in 1996 under the *Farm Practices Protection (Right to Farm) Act* (FPPA). Under section 3(1) of the *FPPA*, BCFIRB hears complaints from persons aggrieved by any odour, noise, dust or other disturbance resulting from a farm operation. Under section 11(2) of the *FPPA*, BCFIRB may also study, report on and make recommendations concerning any matter related to farm practices.

BCFIRB is currently undertaking a study examining the use of propane cannons and options for regulating these devices in South Coastal British Columbia. The background, objective, and terms of reference for this study are described in the attached Terms of Reference document.

In support of the study, BCFIRB is now inviting agencies, organizations and persons who may have an interest in this issue to participate by providing BCFIRB with written comments addressing any of the points raised in the Terms of Reference.

Written submissions should be sent to BCFIRB by way of the contact information listed below. To be considered by the Committee assigned to this review, submissions must be received at the BCFIRB offices by midnight on Tuesday, February 17, 2009. If you have any questions about the study or the written submissions process, please contact BCFIRB at (250) 356-8945.

If you are aware of other agencies, organizations or persons who may have an interest in the BCFIRB review and who may not have received this Request for Submissions, please bring this notice to their attention.

Thank you for assisting BCFIRB in its review.

Yours truly,

Richard Bullock
Chair

**British Columbia
Farm Industry Review Board**

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Appendix D Propane Cannon Use Guidelines From Other Jurisdictions

In its review of the MAL Guidelines, BCFIRB consulted propane cannon use guidelines from other jurisdictions. The following documents from other jurisdictions were reviewed:

- *Interim Guidelines for the use of Propane Air Cannons and other Bird Scare Auditory Devices (effective June 1 - December 31, 2008), Whatcom County, USA*
- *Factsheet: Bird Control on Grape and Tender Fruit Farms, Ministry of Agriculture, Food and Rural Affairs, Ontario*
- *Code of Practice on the use of bird scarers, UK National Farmers Union*
- *Best Practice Guidelines for Bird Scaring in Orchards, Government of Western Australia*
- *Fact Sheet on Audible Bird Scaring Devices, The Barossa Council, South Australia*
- *Noise Condition Table – Audible Bird Scaring Devices, City of Napier District Plan, New Zealand*
- *Use of Scareguns, Local Law No. 8, Macedon Ranges Shire Council, Victoria, Australia*
- *Scaregun Local Law 2002, Yarra Ranges Shire Council, Victoria, Australia*
- *Using scareguns, Local Law No. 1 of 2008, Rural City of Wangaratta, Victoria, Australia*
- *Policy for Control of Noise from Scare Gun, Alpine Shire Council, Victoria, Australia*
- *Audible bird scaring devices, Environmental noise guidelines, Environmental Protection Authority, South Australia*

The table below summarizes provisions from these other guidelines, as they correspond to individual MAL guideline provisions.

Guidelines for the use of propane cannons	
Hours of operation	<p><i>Farmers should operate devices only between 6:30am and 8:00pm local time or dawn to dusk, whichever is of lesser duration.</i></p> <ul style="list-style-type: none"> ▪ Most jurisdictions reviewed have set hours of operation from ‘sunrise to sunset’, while two run from ‘7:00am to sunset’. An additional provision included in two of the sets of guidelines states that a cannon should not be used in excess of twelve hours in one day. The Ontario guidelines call for the use of built-in timers for automatic shut-off.
Cannon density	<i>Farmers should operate as few as possible on a given farm site up to a maximum of one device per</i>

Guidelines for the use of propane cannons	
	<p><i>two hectares of cropland at any one time.</i></p> <ul style="list-style-type: none"> ▪ The Ontario guidelines are the same with regard to density, while other jurisdictions vary as follows: <ul style="list-style-type: none"> ○ <i>1 cannon for up to 4 ha (Alpine Shire Council);</i> ○ <i>1 cannon for up to 10 ha (Barossa Council);</i> ○ <i>2 cannons for up to 4 ha; 1 cannon per 4 ha on properties over 4 ha (Wangaratta);</i> ○ <i>1 cannon on up to 4 ha; 2 cannons on an area more than 4 ha and less than 10 ha; 3 cannons on an area of 10 ha or more; a permit may be granted for the use of more than 3 cannons on an area of 20 ha or more but so as not to allow more than 2 cannons for each 10 ha of crop (Macedon Ranges, Yarra Ranges);</i> ○ <i>The distance in a straight line between the cannon and another cannon in use (whether located on the same property or on another property) is 150m or greater (Macedon Ranges, Yarra Ranges, Alpine Shire Council);</i> ○ <i>Place cannons as far apart as possible so that their combined effect does not cause a nuisance, taking account of the lie of the land, atmospheric conditions and plant cover (UK).</i>
Relocation of devices	<p><i>Farmers should try to alternate or relocate devices being used on a farm operation at least every 4 days.</i></p> <ul style="list-style-type: none"> ▪ Many of the other jurisdictions require devices to be moved regularly – mostly in order to improve effectiveness – however, none of the jurisdictions include a specific time frame.
Maintenance of devices	<p><i>Farmers should maintain devices, including timing mechanisms, to ensure they operate properly and not outside the recommended hours of operation.</i></p> <ul style="list-style-type: none"> ▪ Other jurisdictions had similar provisions regarding maintenance of devices. The Ontario guidelines specify that tank valves must be kept from leaking, as this can cause units to blast even when shut off.
Wildlife predation	<p><i>Farmers should use devices only as part of a wildlife predation management plan.</i></p>

Guidelines for the use of propane cannons	
management plan	<ul style="list-style-type: none"> ▪ Three jurisdictions reviewed (Barossa Council, Western Australia, South Australia) require in their guidelines (not law) a written bird management plan that outlines the various methods of bird control being implemented on the property. The South Australia guidelines suggest that a multi-property bird management plan could address both rationalising the number of guns to an even distribution over the total area and their discharge rates and timing. <p>The NSW Department of Primary Industries (Australia) has posted on their website a guide to managing bird damage to crops, which includes 1) a check list to develop a bird management plan and 2) a sample bird management plan.</p> <p>Most of the other guidelines comment on the need to use a range of scaring strategies – including visual, auditory, movement and repellents – and some of the guidelines emphasize that cannons are to be used only as a last resort after trying alternatives. A New Zealand study (Spurr and Coleman 2005) produced a pre-treatment cost-benefit analysis table for bird control repellents.</p>
Local contact person	<p><i>Farmers should establish a local contact person for each farm where the owner/operator does not live within a reasonable distance of the farm where devices are used.</i></p> <ul style="list-style-type: none"> ▪ Three of the jurisdictions reviewed (UK, City of Napier, South Australia) require a contact person for each cannon, with contact information (name and telephone), either provided to neighbours, displayed at the edge of the property, or displayed on the device itself.
Protection of crops	<p><i>Farmers may use devices for the protection of crops.</i></p> <ul style="list-style-type: none"> ▪ Examples from other jurisdictions include: <ul style="list-style-type: none"> ○ <i>The cannon is only used for the bona fide purpose of scaring birds from crops during a recognized crop growing period (Yarra Ranges, Macedon Ranges).</i> ○ <i>Loud Auditory Devices (LADs) should not be used when birds are not present and threatening predation of fruit (Whatcom County).</i> ○ <i>Turn the device off when birds are not actively feeding during the day (Western</i>

Guidelines for the use of propane cannons	
	<p><i>Australia).</i></p> <ul style="list-style-type: none"> ○ <i>Use auditory scarers only when their use can be justified (UK).</i>
Firing frequency	<p><i>Farmers should operate devices with a firing frequency of no more than one firing per 5 minutes for single shot devices and no more than 11 activations or maximum of 33 shots in any hour for a multiple-shot device. Multiple shots from a device are considered as one activation if they occur in less than a 30-second period.</i></p> <ul style="list-style-type: none"> ▪ Examples from other jurisdictions include: <ul style="list-style-type: none"> ○ <i>No more than 70 blasts per day, with a maximum of 1 activation per: 8-16 minutes (Alpine Shire Council); 15 minutes (UK, City of Napier); 10 minutes (Barossa Council); 6 minutes (Macedon Ranges, Yarra Ranges); 5 minutes (Wangaratta); 3 minutes (Ontario).</i> ○ <i>LADs should be fired no more than once every 15 minutes if a single blast cannon; once every 20 minutes if a multi-shot (Whatcom County).</i> ○ <i>Ensure the firing rate is as low as possible to maintain the ‘startle’ effect. Several blasts in quick succession with 10 to 15 minutes between volleys are effective with no more than 6 volleys per hour. For the greatest effect, all devices around the crop and on adjacent properties should be synchronised to fire at the same time (Western Australia, Barossa Council).</i>
Separation distance	<p><i>Farmers should maintain a 200 metre separation distance between a device and a neighbouring residence. Where written permission from the owner of a neighbouring residence is obtained, the separation distance can be waived.</i></p> <ul style="list-style-type: none"> ▪ While some jurisdictions require simply that cannons be operated as far from neighbouring residences or ‘sensitive locations’ (e.g. hospitals, schools) as possible, other jurisdictions apply setback distances of ‘300m or greater’ and ‘500m or greater’. One of the guidelines that uses a 300m setback stipulates: <ul style="list-style-type: none"> ○ <i>A cannon may be less than 300m from a residential premises where: a) the level of blasts from the device can be adjusted; b) the adjusting mechanisms are permanently fixed so that the average maximum blast does not exceed 100dB LIN peak; and c) the</i>

Guidelines for the use of propane cannons	
	<i>device is adjusted to compensate for weather conditions which increase noise propagation.</i>
Mid-day break	<p><i>Farmers should not operate devices between noon and 3pm.</i></p> <ul style="list-style-type: none"> ▪ Only one other jurisdiction (Alpine Shire Council) included a mid-day break in their guidelines – from 10:00am to 4:00pm (or to 5:00pm during Daylight savings).
Additional provisions	
Person onsite	<ul style="list-style-type: none"> ▪ One of the other jurisdictions reviewed (Western Australia) included a provision for having someone onsite, as follows: <ul style="list-style-type: none"> ○ <i>For effective scaring and minimal noise, a grower should be present and use a manual method such as motorbikes (or similar vehicles) or shotguns (shooting to scare). This ensures that noise is only emitted when necessary. If a grower is unable to be present, consideration should be given to hiring people trained in manual scaring; Acceptance by neighbours of early morning [cannon] use could be more forthcoming if the grower is in attendance while the gas guns are in operation.</i>
Decibel levels	<ul style="list-style-type: none"> ▪ A few of the jurisdictions reviewed (Macedon Ranges, Yarra Ranges, Whatcom County, City of Napier, Western Australia) include provisions related to decibel levels, as follows: <ul style="list-style-type: none"> ○ <i>The maximum noise level of the cannon when measured immediately in front of a residential premises on another property is 100dB LIN peak or less.</i> ○ <i>LADs are to be used on the lowest practical decibel setting.</i> ○ <i>Where multiple properties using ABSDs generate cumulative noise levels in excess of the limit at a single receiver, each property that contributes to this cumulative impact must meet an adjusted limit that is 5 dB less unless a coordinated approach amongst the growers is implemented.</i>
Positioning	<ul style="list-style-type: none"> ▪ Several of the guidelines have provisions related to positioning of devices, in order to minimise nuisance. They include: pointing cannons away from the nearest neighbouring residence;

Guidelines for the use of propane cannons	
	positioning cannons so that they are pointing down-wind; using hay bales or other sound buffering devices, including natural features or buildings; maximising the distance between the cannon and the road (or bridleway); and pointing the cannon away from nearby roads (or bridleways).
Increasing effectiveness	<ul style="list-style-type: none"> ▪ Other guidelines include additional provisions related to increasing effectiveness of cannons. Examples include: using cannons as infrequently as possible; shooting to scare, so that noise is associated with real danger; hiding or camouflaging cannons so that birds do not learn to associate the sound with the device; and placing a cannon inside one of several brightly-coloured containers in the field, occasionally moving the cannon from one container to another.
Communication	<ul style="list-style-type: none"> ▪ A few of the guidelines recommend taking steps to communicate with neighbours (including neighbouring farmers). For example, the South Australia guidelines suggest that neighbouring farmers work collectively as a unit, both in terms of the effectiveness of the devices and their impact on the surrounding community. The Western Australia Best Practice Guidelines encourage growers to develop a ‘communication program’, including the following: <ul style="list-style-type: none"> ○ <i>Discuss the bird scaring alternatives and potential noise with neighbours who may be affected;</i> ○ <i>At the beginning of the damage season, provide neighbours and local residents, together with an information pamphlet, a letter that includes the following: name and contact details of the grower, location of orchard, dates of the damage season, and times when bird scaring devices will be operated;</i> ○ <i>Consider signage along the property boundary, with local government approval, that would alert nearby residents to the possibility that they may experience noise during the fruit growing season.</i>
Noise Management Plan	<ul style="list-style-type: none"> ▪ The Western Australia Best Practice Guidelines include a Noise Management Plan: <ul style="list-style-type: none"> ○ <i>A Noise Management Plan is a document outlining negotiated conditions designed to minimise the impact of bird scaring devices on neighbours. A plan should be specific to one orchard (or a collection of adjacent orchards) and the surrounding neighbours. The Noise Management Plan is not a legal document and is intended only to record the conditions considered acceptable to all parties involved. The conditions in the plan will</i>

Guidelines for the use of propane cannons

	<p><i>follow the guideline and should include:</i></p> <ul style="list-style-type: none">▪ <i>Limits on the days and times of operation of the bird scaring devices;</i>▪ <i>Limits on the operating rate of the bird scaring devices;</i>▪ <i>Orientation and rotation of the devices;</i>▪ <i>Timing, amount and method of notification of operating times provided to neighbours;</i>▪ <i>Complaint response procedure; and</i>▪ <i>Commitment to a strategy to reduce the impact of the bird scaring devices over time.</i>
Long term strategy	<ul style="list-style-type: none">▪ Examples from other jurisdictions include the following:<ul style="list-style-type: none">○ <i>Commit to reducing the impact of acoustic bird scaring devices on the nearby residents over subsequent years.</i>

Appendix E Bylaws Regulating Propane Cannons for Selected Municipalities and Regional Districts in the South Coastal Region

Municipality or Regional District	Mechanism	Bylaw Provision
City of Abbotsford	n/a	No Bylaws regulating propane cannons
City of Chilliwack		<p>Noise Control Bylaw (1997, No. 2420)</p> <p>http://www.gov.chilliwack.bc.ca/main/attachments/files/363/BL_2420_Noise_Control.pdf</p> <p>(go to City of Chilliwack website, click on Government, scroll down and click on Bylaws, click on Regulatory Bylaws, click on Noise Control Bylaw)</p>
Corporation of Delta		<p>Noise Control Bylaw (1972, No. 1906) Sections 13-14</p> <p>http://www.deltaviews.com/c/launch.asp?ID=5706</p> <p>(go to Corporation of Delta website, click on Bylaws, click on Community Standards, click on 1906 Noise Control)</p>
Fraser Valley Regional District		<p>Chilliwack River Valley Noise and Disturbance Bylaw Amendment Bylaw (2007, No. 0841)</p> <p>http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/RegulatoryBylaws/Noise%20Service%20Est%20and%20Amendments/FVRD%20Bylaw%200841,%202007%20-%20Amendment%20to%20Chilliwack%20River%20Valley%20Establishment%20BL%200799.PDF</p> <p>(go to Fraser Valley Regional District, click on Inside the FVRD, scroll down to Bylaws, scroll down to Regulatory Bylaws, click on Noise and Disturbance, click on FVRD Bylaw 0841)</p>
Township of Langley		<p>Noise Control Bylaw (1988, No. 2573) Sections 3.3-3.6</p> <p>http://www.tol.bc.ca/files/web_files/planning/inspections/bylaws/Noise_Control_Byway_no_2573.pdf</p>

Municipality or Regional District	Mechanism	Bylaw Provision
		(go to Township of Langley website, click on Bylaws, on the Bylaw Enforcement page, click on the word “Noise”)
District of Maple Ridge		<p>Noise Control Bylaw (1994, No. 5122)</p> <p>http://www.mapleridge.ca/assets/Default/Mayor~and~Council/pdfs/Bylaws~and~Regulations/bylaw_5122-1994.pdf</p> <p>(go to District of Maple Ridge website, click on Residents, scroll down to Bylaw Enforcement, click on Bylaws and Regulations, click on Noise Bylaw)</p>
City of Pitt Meadows		<p>Noise Control Bylaw (2003, No. 2138)</p> <p>http://www.pittmeadows.bc.ca/assets/Bylaws/2138%20-%20Noise%20Control%20Bylaw.pdf</p> <p>(go to District of Maple Ridge website, click on Residents, scroll down to Bylaws, click on List of Bylaws, click on Noise Control Bylaw)</p>
City of Surrey		<p>Noise Control Bylaw (1982, No. 7044) Sections 13-14</p> <p>http://surrey.ihostez.com/contentengine/launch.asp?ID=0</p> <p>(go to City of Surrey website, click on Bylaws, click on Regulatory (numerically), click on 1-9999, click on 7044 Surrey Noise Control Bylaw)</p>