

PARKS CANADA

MANAGEMENT DIRECTIVE 2.4.1

Integrated Pest Management

DECEMBER, 1998

FILE: C-6261-0

CONTACT:

- ENVIRONMENTAL MANAGEMENT, REAL PROPERTY**
- DESIGNATED IPM OFFICER OF THE FIELD UNIT**

SCOPE

This directive applies to all pest management and related activities by Parks Canada or other authorized persons in facilities or on lands owned, administered, licensed or leased by Parks Canada, excluding those facilities or lands owned, administered, leased or licensed for residential purposes. As further clarification, this directive applies to any pesticides used in the operation and maintenance of golf courses, landscape management, ecological restoration, insect and rodent control within non-residential buildings and structures, and for most other purposes. This directive does not apply to hard surface disinfectants, laundry additives, slimicides, bactericides, swimming pool chemicals, and wood preservatives. It also does not apply to domestic products for personal use such as personal insect repellents, flea and tick collars for pets, pepper spray animal repellents, mosquito coils, pest strips and traps.

PURPOSE

This directive updates Management Directive 2.4.1, "The Management of Pesticides by Parks Canada", and will provide guidance on the management and minimization of pesticide use at facilities or on lands owned, administered, licensed or leased by Parks Canada.

RELEVANT AUTHORITIES

The following instruments provide authority for pest management activities within Parks Canada:

- a) *National Parks Act*
- b) Canadian Heritage Parks Canada Guiding Principles and Operational Policies
- c) *Pest Control Products Act*
- d) Treasury Board Pesticide Directive, Chapter 2-15
- e) Code of Good Practice for the Handling, Storage, Use and Disposal of Pesticides at Federal Facilities
- f) *Canadian Environmental Assessment Act - Inclusion List Regulations*
- g) Code of Environmental Stewardship
- h) *An Act to Amend the Auditor General Act*
- i) A Guide to Green Government
- j) Toxic Substances Management Policy

- k) Directions on Greening Government Operations

DEFINITIONS

Pest: Any insect, mite, rodent, nematode, fungus, weed or other plant or animal that is present in sufficient numbers to be noxious, injurious or damaging to human beings, plants, animals, structures or the environment.

Pesticide: Any product, substance, organism (including biological controls), or thing, organic or inorganic, which is used to destroy or inhibit the action of undesirable plants, animals or other organisms. The term includes, but is not limited to, insecticides, herbicides, fungicides, rodenticides, acaricides, piscicides, molluscicides, nematocides and viricides.

Biological Control: The control of a pest or pathogen by a biological method, such as the release of a predator, parasite, disease or product of an organism. Biological control agents include insects and micro-organisms such as bacteria, viruses, fungi and nematodes.

Integrated Pest Management (IPM): Integrated Pest Management is a broadly based method that uses all suitable control measures to reduce pest related losses to an acceptable level with the goal of respecting genetic diversity and reducing risks to human health and the environment. The elements of IPM include:

- a) planning and managing population systems to prevent organisms from becoming pests;
- b) identification of potential pests;
- c) monitoring populations of pests, beneficial organisms and all relevant environmental factors;
- d) using injury thresholds in making treatment decisions;
- e) application of cultural, physical, biological, behavioral and chemical control measures to maintain pest populations below threshold levels; and
- f) evaluation of effects and efficacy of pest control measures used.

Integrated Pest Management Plan: A document outlining proposed pest management strategies, which is prepared or updated annually for Parks Canada approval. The plan will outline a site-specific

IPM program based on the principles outlined in the IPM Protocol (Appendix 1).

Designated IPM Officer: The Parks Canada officer responsible for the review of park or site specific IPM Plans within a field unit. This officer may also provide information on local reference material or sources of expertise, or may assist in the development of IPM Plans.

BACKGROUND

The "Canadian Heritage Parks Canada Guiding Principles and Operational Policies" states that "protecting ecological integrity and ensuring commemorative integrity take precedence in acquiring, managing, and administering heritage places and programs". Section 3.1.3 of the National Parks Policy emphasizes our pollution control responsibility: "Parks Canada will prevent new sources of pollution from developing within National Parks and will take action to eliminate or minimize existing sources inside or outside parks". In addition, through amendments to the *Auditor General Act*, federal departments and agencies are expected to develop strategies and action plans to prevent pollution and to meet or exceed federal environmental regulations. Environment Canada's Directions on Greening Government Operations define pollution prevention as "the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollution and waste, and reduce overall risk to human health and the environment".

The Treasury Board Pesticides Directive states that "Departments shall develop pest management programs that incorporate Integrated Pest Management (IPM) principles and practices". IPM is a pesticide management approach which therefore fulfils the objectives of both Parks Canada and federal policies for two primary reasons. Firstly, IPM practices often prevent pest problems from occurring, and secondly, pesticides are used only when viable alternatives are not available, or when limited and specifically targeted pesticide applications are required.

DIRECTIVES

1. The use of pesticides will only be considered where proposed in an IPM Plan to control pest activity which exceeds the treatment threshold established for a particular pest, as described in Appendix 1, and to:

- a) control pest activity for which there is no other control method available;
- b) control insect infestations, noxious weeds as designated by provincial and territorial agencies, or plant diseases occurring in facilities or on lands owned, leased, licensed or administered by Parks Canada which threaten adjacent lands;

- c) reduce or eliminate populations of introduced target organisms which are not naturally occurring and threaten ecological integrity;
- d) control insect infestations or plant diseases threatening the survival of a species recognized as threatened or endangered;
- e) limit populations of target organisms interfering with an ecological restoration program;
- f) reduce or eliminate target organisms which may cause human health concerns;
- g) control pest infestations which interfere with the function or use of areas owned, administered or leased by Parks Canada; or
- h) control target organisms or the encroachment of vegetation which threaten the integrity of cultural resources.

2. Only pesticides registered under the authority of the federal *Pest Control Products Act* and used as intended will be considered for use in facilities or on lands owned, leased, licensed or administered by Parks Canada.

3. The field unit superintendent will designate an employee as IPM Officer in order to assure coordination and for follow-ups. (See definition - Designated IPM Officer)

4. An IPM Plan must be completed in accordance with the protocol in Appendix 1 and the Form in Appendix 2 submitted to the Field Unit Superintendent by February 28 in the year of application. IPM Plans may be completed for an entire park, site or field unit, or may be completed for individual facilities. IPM Plans may also be completed by external experts under contract; however each plan must be approved by the appropriate field unit superintendent or designate. The IPM plan will also include a summary and evaluation of the previous year's pest control program.

5. Where uncertainties or technical problems exist, IPM plans will be prepared in consultation with the designated IPM officer and/or officials from the appropriate district or regional office of Environment Canada, the Pest Management Regulatory Agency or relevant provincial or territorial agencies.

6. Applications for the use of pesticides identified in the IPM Plan will be reviewed by the designated IPM officer prior to approval and assessed subject to the following criteria:

- a) the IPM Plan recommends the use of a pesticide;
- b) no effective alternative means of control exist;
- c) the pesticide is registered for use in Canada for the purpose proposed, or a special use permit has been obtained from the Pest Management Regulatory Agency;
- d) the proposed product is effective in the control of target organisms;
- e) the selection of the proposed product is based on factors such as selectivity, efficacy, persistence, mobility and toxicity;
- f) appropriate buffer zones and measures such as optimizing weather conditions and the use of low drift application equipment have been established to ensure the protection of sensitive areas including surface waters, potable water supplies, playgrounds, non-target species, etc.; and
- g) the application complies with provincial or territorial pesticide application regulations or standards.

7. Designated IPM officer will notify site managers of IPM Plan review results, including any

recommended changes or additional information required within 45 days of receipt.

8. Any changes to pesticide uses recommended in an IPM Plan will be submitted by the site manager for approval to the Field Unit Superintendent.

9. Approved IPM plans will be forwarded to the Director General, National Parks, for the purposes of ensuring national consistency and maintaining a national database.

10. During the application of pesticides, safety precautions, including posting of public notices, will be undertaken to ensure the protection of staff and visitors. Where possible, control programs will be scheduled to avoid peak periods of visitor use.

11. Any person who has charge or control of the application of a pesticide in facilities or on lands owned, administered, leased or licensed by Parks Canada, will take reasonable measures to prevent any degradation of the environment and any danger to flora, fauna or human health. Reasonable measures will include, but not be limited to, abiding by this policy and any additional measures outlined in approved IPM Plans.

12. All persons applying pesticides must be trained to meet federal, provincial or territorial standards regarding the proper storage, handling, use and disposal of pesticides. Pesticide applicators must follow the Code of Good Practice for the Handling, Storage, Use, and Disposal of Pesticides at Federal Facilities, EPS 1/CC/3, or any subsequent update or revision.

13. Employees involved in pest control operations should, depending on availability, receive specific training in pest management, IPM theory and practice, pest identification and monitoring techniques and pest biology.

14. Site managers must maintain and make available to applicators a file of current pesticide labels, Material Safety Data Sheets (MSDS) and other relevant technical information for all pesticides approved for use at their sites.

15. All pesticide storage facilities located within structures or on lands owned, administered, leased or licensed by Parks Canada must meet or exceed applicable federal, provincial or territorial standards, including the Federal Code of Good Practice referred to in Directive 12 above, and the Treasury Board Pesticides Directive.

16. Retail outlets within national parks will be encouraged to stock lower toxicity products and provide information on alternatives to pesticides. Residents will also be encouraged to use these products.

17. Pesticides which are surplus, have exceeded their shelf life or have been de-registered will be used or disposed of in accordance with federal, provincial and territorial procedures and requirements and the manufacturer's instructions.

18. The preparation of an IPM plan is not required in response to an emergency when the application

of a pesticide is in the interest of public health or safety.

19. This directive will be reviewed and updated every five (5) years after coming into effect.

Chief Executive Officer

T. Lee

APPENDIX 1
PARKS CANADA
INTEGRATED PEST MANAGEMENT DIRECTIVE
IPM PROTOCOL

Preamble

The following document and accompanying form were designed as a guide to develop and document the Integrated Pest Management (IPM) plan(s) required under Parks Canada's revised Management Directive 2.4.1 - Integrated Pest Management.

INTRODUCTION

A pest is any insect, mite, rodent, nematode, fungus, weed or other plant or animal that is present in sufficient numbers to be noxious, injurious or damaging to human beings, plants, animals, structures or the environment.

Integrated Pest management (IPM) is a means of keeping pest damage below unacceptable levels using a combination of preventive practices and carefully timed control treatments. In an IPM program, pest activity is monitored and control treatments are applied only when monitoring shows that they are necessary to prevent unacceptable levels of pest damage from occurring. IPM programs prevent pest damage and provide a long term, sustainable approach to pest management that minimizes the impact on non-target organisms and the surrounding environment.

An IPM approach can be applied to most pest management situations. In Canada's National Parks and Historic Sites, IPM can be used to manage pests in lawns, landscaped areas, golf courses, orchards, demonstration gardens, forested areas, aquatic areas, structures, buildings, museums, ski hills, rights of ways and easements. An IPM approach can also be used to manage invasive, non-native pests that threaten ecological integrity.

Getting Started

When establishing new sites, or in areas where damaged material is being replaced, a pest management program begins with planning. By selecting appropriate materials at this stage you will avoid pest problems in the future. This can greatly reduce the cost and labour requirements of pest management activities. Select materials that are resistant to the pests common to your area and suited to the site, climatic conditions and the level of maintenance that they will receive. Ensure that the new material is free of pest insects, disease-causing organisms and/or weed seeds.

In established sites, most successful, well-designed IPM programs are developed by gradually introducing preventive and alternative pest management practices into existing pest management

programs. When starting an IPM program, consider the history of pest incidence and damage within the park or site. List all of the pests that have caused significant problems in recent years along with the host plants, areas or structures that they affect. Initially, it is a good idea to focus the IPM program on a few key pests until more experience is gained. A review of previous pest management plans will identify those areas or pests which have received the highest volume of pesticide application or have been most difficult to control in the past. These pests are ideal candidates for beginning an IPM program.

The Components of an IPM Program

The five components of an IPM program are as follows:

- 1. Identification of the pest**
- 2. Establishment of an action or treatment threshold**
- 3. Development of a monitoring program**
- 4. Selection and use of pest management strategies**
- 5. Evaluation and follow up.**

The remainder of this document and the accompanying IPM Plan Submission Form in Appendix 2 have been organized into these five categories.

1. Pest Identification

IPM has been called knowledge-based because pest management strategies are tailored to each pest using information about its biology. Accurate identification of all pest and suspected pest species is a cornerstone of an IPM approach to pest management.

Before planning pest management strategies, ensure that the pests selected for your initial efforts have been accurately identified. Collect as much information about each pest as possible. This should include their scientific and common names; the pest's life cycle; conditions that favour the pest's development or spread; and plants, areas or materials that are most susceptible to damage. For insect pests, it is also useful to become familiar with the behaviour and feeding habits of both juvenile and adult stages. As pest activity can vary considerably from region to region, it is important to obtain as much local information as possible. In some areas, climatic conditions, such as harsh winters and other natural factors, are sufficient to keep certain pests from reaching damaging levels in most years. Local information sources can help you determine the significance of a pest in your region and when the various developmental stages occur.

Many pests can be identified by comparing their characteristics or the damage they cause with descriptions and illustrations found in guide books and other reference materials. A 10X hand lens is a useful tool for viewing small details of the pest's appearance which are needed to differentiate between similar looking species. When unsure of a pest's identification, specialists trained in pest identification and management such as entomologists (insect specialists), plant pathologists (plant disease specialists) or weed scientists can provide assistance. Provincial departments of agriculture and forestry or independent IPM companies can help you locate a specialist in your area. Always contact the specialist or diagnostic service before sending any

samples of pests or pest damage for identification. Most samples must be packaged and shipped in a specific way to ensure that they are received in good condition and can be accurately identified. It is a good idea to include a brief note with the sample describing the site where the problem is occurring (*e.g.* shady, exposed, poorly drained) and any recent cultural manipulations at the site such as pruning, fertilization, irrigation and cultivation.

2. Establishing Thresholds

The presence of an organism does not always constitute a pest problem. For example, landscape trees often harbour many species of insects, especially in the early season, but only a few species may cause significant damage to the tree. The level of a particular pest or amount of damage that can be tolerated in an area before a control is required is called the threshold level. In an IPM program, a treatment (or action) threshold level is therefore established for each pest. This is the level of pest population or damage that indicates a treatment is required.

The amount of damage that can be tolerated depends on the type of damage, the value of what is being damaged and the cost and efficacy of control treatments. When dealing with pests of landscaped areas, turfed areas, structures, or nuisance pests in buildings, aesthetic criteria are often used to determine the threshold.

Before establishing thresholds, conduct an initial assessment of the sites where pests are a problem. Map or sketch the areas affected by each pest. Identify any site conditions that may be promoting pest problems and correct them if possible.

Assign each type of site, facility or area where the pest is being managed to one of three categories: Class A, B, or C, based on the level of management the site receives. Sites that are highly visible and/or highly maintained should be assigned to Class A. Sites that are less visible or require less maintenance should be assigned to Class B. Sites that receive only minimal maintenance should be assigned to Class C.

Establish a working threshold for each type of pest in each site category. Class A sites will have a lower threshold and a higher priority for pest control than Class B and C sites. Plan a pest control action that will be used at each site when the threshold is exceeded. Sample thresholds for many pests can be found in published or electronic literature and can provide a starting point. These initial working thresholds can be modified as needed in the future.

Example: In a weed management plan, turfed areas could be divided into the following classifications. Sample treatment thresholds are given.

Class A Sites: High profile, high maintenance sites such as golf course putting or lawn bowling greens and fine ornamental lawns in highly visible public areas. Threshold: Maintain "weed free". Turf with up to 15% weed cover may be accepted by the public as weed free.

Class B Sites: Most lawns surrounding residential and administrative buildings, golf course fairways and general park areas. Threshold: 20-50% weed cover may be acceptable in these areas providing public health, public safety or use of the facility is not adversely affected.

Class C Sites: Picnic areas, turfed roadsides, meadows, campgrounds and undeveloped areas. Weed control in these sites is usually limited to control of noxious weeds and vegetation that may interfere with the ecological integrity of the park, visibility or public safety.

Similar classifications can be developed for landscape planting based on whether they are viewed from a distance (*e.g.* a roadside display at an entrance way) or are designed to be viewed up close (*e.g.* ornamental, educational or historically significant plantings). High value specimen trees that occupy a prominent position in the landscape may be placed in a higher class than a group of trees that provide shade or screening. Structures and buildings can also be classified in a similar manner. Park or site visitors may be more tolerant of indoor nuisance pests such as ants in a rustic or open structure such as a picnic shelter than in a fully enclosed building such as a sales concession.

3. Developing a Monitoring Program

Monitoring is the routine, systematic inspection of the areas, plants, buildings, or historic collections where pest damage may be a concern. In a monitoring program, pest populations, symptoms of damage and weather factors related to pest development are observed and recorded. Regular inspection ensures that developing pest problems are caught early and can be treated before they spread to a wider area. A monitoring schedule for each pest or group of pests is based on when damaging stages of the pest occurs and when the pest is most susceptible to control treatments. Control treatments are applied when monitoring shows that pests have exceeded a predetermined threshold level. This also allows the pest manager to plan and apply a control treatment when the pest is most susceptible to it.

Before developing a monitoring program it is important to understand the pest's life cycle and to be able to recognize the various developmental forms of the pest. The appearance of many pests changes throughout their development. Immature insects and the seedling stages of weeds often do not look like the mature forms. Many disease-causing fungi on plants form resting structures to survive unfavourable conditions and spore-bearing structures when active, causing disease in the plant. These structures may be useful in a monitoring program.

It is also necessary to be able to differentiate the pests from similar looking, non-pest organisms that may be present at the same time.

Example: Chinch bugs (a lawn pest) and big eyed bugs, its main predator, have a very similar appearance. It is also important to be able to distinguish the symptoms of damage from the pests that are being monitored from the symptoms of damage caused by poor growing conditions such as improper fertilization, water, climate extremes or stresses resulting from visitor or maintenance activities. In shade trees the symptoms of damage from causes such as nutrient deficiencies, drought, and desiccation may resemble the symptoms of various diseases.

When establishing the monitoring program, decide who will monitor, set the schedule and determine what information will be collected and how it will be recorded.

Often the most effective way to monitor pest activity and population levels is by direct observation of the signs of pest activity or the symptoms of damage. Pests can be monitored by counting, capturing, or sampling to determine the actual number of pests present in a given area.

Example: The number of spots per leaf on a sample of ten leaves or number of egg masses present on a sample of ten randomly selected twigs could be determined. A common method used to count tree pests is to cover the area beneath a suspect or affected tree limb with a light coloured cloth and brush or beat the leaves by hand or with a padded stick to dislodge any insects that may be feeding there. These can then be observed and counted.

Insect or disease damage on large trees can be monitored by estimating the percentage of the area affected such as the percent of the canopy that is diseased or discoloured, or the overall percent of a sample of individual leaves that are damaged.

Relative rating scales can also be used to record damage such as low, moderate, high, very high or level 1,2,3,4. To be useful these ratings should correspond to a quantifiable value such as low = 1-25% of the area affected.

The small size and elusive behaviour of some pests such as many insects, rodents and other small animals make it difficult to observe them directly. Light, pitfall, chemical attractant or pheromone traps can be used for insects, and tracking powders can be used for rodent pests to get a better indication of pest presence.

The key to a successful monitoring program is simplicity. A certain amount of data must be collected to identify developing problems. However, a complex or tedious system of monitoring and recording will soon fall into disuse when staff becomes busy during the visitor season. An easy-to-use rating system combined with simple, concise charts or maps can be used to track pest populations or damage symptoms. The main criteria when developing the monitoring program is that the methods can be reliably repeated to yield consistent results on each monitoring visit.

Forms or maps should include a space for noting the date of the monitoring visit and general comments or observations. Plant or site conditions should be noted at each monitoring visit even if no pests are recorded. This data, when combined with basic weather observations and simple descriptions of the host condition will be sufficient to alert pest managers to potential problems.

For structural or indoor pests it is useful to note the conditions in and around the structure such as temperature, humidity, mustiness, general level of cleanliness, potential food sources and pest entry points.

4. Selecting Pest Management Strategies

When selecting pest management strategies consider all aspects of the pest problem to determine what factors may be contributing to it. These factors may include site conditions that favour high

pest populations or conditions that weaken the plant such as environmental stresses, improper cultural practices or poor growing conditions. Natural controls (predators, parasites and weather factors) may also influence the pest population.

Any planned pest management activity must be appropriate for the management zone where it will be used and it should also be compatible with the overall goals of the park or site management plan. The presence of threatened or endangered species, ecologically sensitive sites, valuable cultural or natural resources and human health and safety must be considered. Determine if sensitive populations are present at certain times of the year (*e.g.* breeding birds) in the area where pest management activities are planned. Schedule activities such as mowing, brush removal and tree maintenance operations to minimize the impact on these populations.

The overall goal of any IPM program is to shift the pest management practices toward reliance on long term sustainable pest management practices to keep pest populations below an unacceptable level. Even with appropriate preventive practices, pest populations will periodically exceed threshold levels when climate or other conditions favour pest development. When this occurs, short term control treatments are used to reduce the pest population.

Pest management practices commonly used are outlined below. Pest management practices can be divided into long term, indirect suppressive/preventive practices (*e.g.* the use of resistant varieties, appropriate cultural practices, conservation of natural enemies and modification of site conditions that favour high pest populations) and short term control treatments such as biological, physical and chemical control.

4.1 Long Term Preventive Practices

4.1.1 Manipulating Site Conditions to Prevent Pest Damage

Strategies aimed at changing the site conditions that support high pest populations can reduce pest problems. For example, the severity of many diseases can be reduced by decreasing shade or relative humidity and increasing the air movement around plants.

All organisms including pests require food, water and shelter. Modifying habitat by removing or denying access to shelter, food sources or water supplies will make the site less attractive to pests.

Example: Vegetation or debris around the foundation of buildings may be providing a food source and/or shelter for structural or indoor nuisance pests and may also conceal entry points into the structure. Removing problem debris and trimming vegetation, destroying the nests and sealing or screening entry points may reduce pest problems inside the structure.

4.1.2 Use of Pest Resistant Varieties

Varieties within a given species of plant often vary considerably in their tolerance to pest pressure. Proper selection of plants (such as native species) and other materials can effectively reduce pest damage. Wherever possible, select material that is resistant to the pests that are

common to your area. If resistant varieties are not available, choose varieties that are known to be less susceptible to the pest.

4.1.3 Modifying Cultural Practices

Healthy vigorous plants are less susceptible to pest damage. They can usually tolerate more damage without suffering permanent negative effects and recover more rapidly.

Cultural control is the oldest and most widely used method of reducing pest damage. Cultural practices include any practice that involves manipulation of the growing conditions to make the system less favourable to the growth or survival of pests and more favourable to the growth of desirable plants. Combined with the selection of healthy, pest resistant plant materials that are appropriate for the site, cultural practices such as providing proper irrigation and drainage, appropriate soil fertility and pH, and appropriate mowing, pruning, mulching or cultivation can effectively reduce pest problems.

Steps should also be taken to manage plant stress resulting from human activities such as visitor traffic and routine maintenance activities. For example, high levels of foot or vehicular traffic occurring around the root zone of trees or on turfed areas can result in soil compaction. Soil that is compacted impedes the movement of air and water into the root zone of the plants which results in a weakened root system and stress to the plant. Besides being more susceptible to pest damage, plants growing under stress are less tolerant of climate extremes and may suffer damage as a result.

4.1.4 Conserving Natural Enemies

Conservation of natural enemies of a pest is generally done by identifying the factors that the natural enemy needs in its environment to be successful and the factors that interfere with its success. Steps should then be taken to provide conditions that promote adequate populations of the natural enemy. This could include, for example, providing a preferred food source or host plant or slightly altering the cultural practices or site conditions (*e.g.* changing the soil pH) to favour the natural enemies of the target pest(s).

If pesticide treatments are required, care should be taken to select products and application methods that will result in the least possible impact on the natural enemies of the pest. Many pesticide products are not highly selective and can reduce populations of both the pest and its natural enemies or competitors. Wherever possible spot treat the affected area(s) only to allow pockets of the natural enemy to survive and recolonise the treated area.

It is also beneficial to leave undisturbed areas such as buffer strips in managed sites to provide natural enemies a safe area and allow populations to build up.

4.1.5 Education

Education is a critical and cost-effective component of an IPM program. Education efforts should be designed to include all audiences that may be involved in or concerned about pest management within the park. Park and site staff that are informed about the objectives and goals of an IPM program are more likely to support it. Those responsible for pest management operations should also make every effort to provide basic training in pest identification and

management to staff who perform daily or routine maintenance tasks. These employees regularly see many areas and can often play an important role in spotting the initial build up of a pest population or symptoms of damage. Contractors working in the park or site and individuals leasing federal lands should also be provided with information on the park or site IPM program.

Public education about a real and/or imagined pest problem is also useful. Education can reduce apprehension about the presence of pests and reduce unnecessary or misdirected efforts to control them. Interpretive displays can be used to inform visitors about ways to avoid annoyance or injury from pests and educate visitors as to the useful functions many "pests" perform within the park ecosystem.

**APPENDIX 2
PARKS CANADA
IPM PLAN
SUBMISSION FORM**

IPM PLAN SUBMISSION FORM FOR _____ (Year)

Park /Site _____

Province _____ **Responsible Officer** _____

Phone _____ **Fax** _____

REASON FOR PROPOSED PEST MANAGEMENT ACTIVITIES

(Mark one box.)

To control insect or disease infestations which threaten lands adjacent to areas owned or administered by Parks Canada

To reduce or eliminate populations of non-native organisms which threaten ecological integrity

To control infestations of pests that threaten the survival of species recognised as threatened or endangered

To limit populations of organisms that are interfering with an ecological restoration project

To reduce or eliminate populations of organisms which may cause human health concerns

To control pest infestations which interfere with the function, use or aesthetics of areas owned, leased or administered by Parks Canada

E-mail _____

PEST CATEGORY

(Mark one box. Use a separate form for each category)

- 9 Non- selective vegetation control (includes parking lots, paths, right of ways & weeds around buildings and structures)
- 9 Selective weed control (weeds in the landscape, flowerbeds etc.)
- 9 Turf weed control (lawn, golf course and other turf areas)
- 9 Turf insect control
- 9 Turf disease control
- 9 Landscape insect control
(ornamentals, shrubs, trees)
- 9 Landscape disease control
(ornamentals, shrubs, trees)
- 9 Insect control in or around buildings or stored materials
- 9 Other. Specify type of pest (weed insect, disease, rodents etc.) and type of area
(forested, aquatic etc.)

SECTION 1. PEST IDENTIFICATION

Complete the following for each pest category selected above (*i.e.* Non-selective vegetation control, Selective weed control, Turf weed control, etc.). For non-selective weed control or weed complexes in landscaped areas and turf, list the major species only. (*For additional information, refer to page 2 of the Integrated Pest Management Protocol - Appendix 1*).

Common Name

Scientific Name

**Host plant, area
or structure affected**

Pest 1
Pest 2
Pest 3

SECTION 3. MONITORING

(For additional information, refer to pages 4 & 5 of the Integrated Pest Management Protocol - Appendix I).

Are pest population trends being monitored ? Yes **9** No **9**

Briefly describe how each pest is being monitored (e.g. visual observation, trap, capture etc.):

SECTION 4. PEST MANAGEMENT STRATEGIES

(For additional information, refer to pages 5-9 of the Integrated Pest Management Protocol - Appendix I).

Describe preventive/suppressive measures that are being used or will be used to minimize the damage caused by each pest.

Are non-chemical (e.g. biological, physical/mechanical) methods planned or being used to suppress pest populations?

Yes **9** No **9**

If **No** , state why non-chemical methods are not being used:

If **Yes** , **briefly** describe the methods planned or being used and the facility/site category where they will be used (as appropriate):

Are pesticide applications planned or being used to suppress pest populations? Yes No

If **Yes**, complete the following:

i. Product Trade Name _____ ii. PCP Number _____

iii. Active Ingredient(s) _____

iv. Estimated size of the area that will be treated _____

v. Method of Application:

Granular application

Wick or roller application

Liquid spray (blanket application)

Hack and squirt

Liquid spray (spot treatment)

Other _____

vi. Application Rate _____

vii. Estimated date(s) of application _____

viii. Estimated number of applications required _____

ix. Are any of the following areas within 30 m of the site of proposed pesticide application ?

Potable water supplies

Other wetlands

Standing surface water (e.g. lakes ponds etc.)

Flowing surface water (e.g. river, streams, canals)

Drainage ditch (wet or dry)

9 Endangered species habitat

9 Public use areas

9 Children's play areas

9 Sensitive natural areas

x. If **Yes**, describe the area, including the distance to the proposed treatment area and note any potential hazards:

SECTION 5. FOLLOW-UP EVALUATION

(For additional information refer to page 9 of the Integrated Pest Management Protocol - Appendix I).

Describe how and when the effectiveness of the treatment(s) will be evaluated (*e.g.* visual inspection one week after treatment, pest sampling, sticky trap counts etc.):

Does the pest management plan outlined above differ from the previous year's program?

Yes No

If **Yes**, provide a brief description and evaluation of the previous year's program:

SECTION 6. SIGN-OFF

Contact (individual responsible for ensuring plans are carried out) :

Name

Signature

Date

**Integrated Pest Management Plans
must be completed and submitted to the Field Unit Superintendent
by February 28 in the year of application.**

RETAIN A COPY OF THIS PLAN FOR YOUR OWN RECORDS