

DRAFT - Integrated Pest Management Plan - City of Redmond

Introduction

The City of Redmond manages hundreds of acres of property, including parks, rights-of-way, natural areas, utility assets and easements. Different pests are present on all these property types. Pests can include insects, plant diseases, invasive weeds, and animals. Although the varying landscapes are used and maintained differently, Redmond recognizes the importance of preserving the health of the environment with the least harmful methods available.

Within the city managed lands are sensitive areas such as streams, wetlands and forests that are home to a diversity of wildlife. Redmond parks include a variety of landscapes from forests and sports fields to the well-used downtown park. In every neighborhood throughout the city, there are properties, like stormwater ponds, that are maintained by city utilities. Managing all these areas in a responsible way includes using Integrated Pest Management (IPM).

IPM is "...a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives." (RCW 17.15.010)

IPM Approach

Following the guidance in this IPM plan means prioritizing alternatives to pesticides. Pesticides include different chemical applications, including herbicides, insecticides, pesticides, and rodenticides. Most pests can be managed without the use of chemicals. This IPM plan is for use by internal city groups and their contractors that manage the land. Refer to Appendix 1 for a step-by-step approach.

Implementing IPM:

1. Pest prevention through active land management
2. Monitor properties for pests
3. Identify pest species
4. Estimate and record infestation and establish action threshold
5. If threshold is exceeded, select appropriate control method
6. Evaluate control method implemented
7. Use adaptive management as necessary to meet thresholds

DRAFT - Integrated Pest Management Plan - City of Redmond

On-going Strategies

Prevention

A key element of the IPM plan is to actively prevent pests from becoming established. Cultural methods, like mulching, maintaining optimum soil moisture through proper drainage and irrigation and using a variety of native plants can help to prevent pests from becoming established.

For rodents, eliminating food sources, preferred habitat and nesting areas is important for preventing an infestation. Installing mesh caging or plant tubes around trees can prevent herbivory from animals such as beavers, voles, and deer. Planting non-preferred plants (e.g. Pacific Ninebark for beavers) is a way to avoid plant mortality.

Some pests such as New Zealand Mudsnail (NZM) are already present in High School Creek, but preventative measures, such as following decontamination protocols, can keep pests from spreading into new areas.

Monitoring

Regularly monitoring sites provides the data needed to implement IPM control methods. Mapping known noxious weeds and other pests allow all stakeholders access to the location data and ability to coordinate on treatment options. A centralized GIS map will be used to record the pest location and any treatment used. By mapping and updating the extent of an infestation, the status can be tracked over time and adaptive management actions can be applied to successfully manage the pest.

Communication between work groups is important so pests are managed with the best methods available, and any pesticide used is limited to appropriate application rates. Active coordination between departments also assures areas are not over-managed or over-looked.

When a new pest is detected, early action is critical to contain its spread. King County Noxious Weeds, Washington Department of Fish and Wildlife and others listed in the resources section provide valuable information for questions on identifying pests and which control methods are most effective.

Action Thresholds

Injury level refers to the point in the growth of the pest at which it will cause some unacceptable level of safety, recreational, public health, ecosystem, aesthetic, or economic injury (Thurston County, 2014). Determining the injury level is based on case-by-case evaluation.

Action level is the level at which action must be taken to prevent a pest population or vegetation problem at a specific site from reaching the injury level (Thurston County, 2014). Most pest problems do not have a pre-determined threshold, except Class A and B regulated weeds, which require control for even one plant found.

DRAFT - Integrated Pest Management Plan - City of Redmond

Treatment Methods

In most situations, using multiple coordinated treatment methods will provide the best long-term results. When deciding on a method, it's important to establish goals and objectives. For example, the goal may be to establish a healthy riparian buffer along Peters Creek. The objective may be to achieve and maintain less than 10% cover of invasive plants in the buffer through cultural and manual methods.

Typically, by not using chemicals to maintain a pristine-looking condition, there will likely be some weeds present. Most of the time, it's acceptable to have some weeds (besides Class A and B noxious weeds) present at a site. The following methods can be used individually or in combination. Appendix 2 provides a list of common methods.

Biological

The use of one living organism to control another organism is a natural way to reduce an infestation. Insects are a common biological agent to control pests and can work when there is a monoculture or wide-spread noxious weeds but should only be used with approved species from the USDA. Insects, such as Poison hemlock moths, can be used for long term treatment of specific plants. It's essentially reuniting a control agent with the pest from where they originated.

Biological controls are often not enough to eradicate a pest but can reduce its spread and weaken the pest on a landscape level. Good examples of invasives susceptible to biological controls are tansy ragwort and purple loosestrife. Chemicals should not be used with biologic controls because it will kill the biological control.

Using goats as a biologic control to eat invasive blackberry, can be a useful strategy to promote a project to the public, and can be paired with other control methods, like digging out the roots and reseeding with native plants.

Cultural

A common cultural control is to plant appropriate native vegetation that can compete and thrive in place of invasive and noxious weeds. Using mulch around new and established native plants can help smother invasive plants, as well as provide nutrients to the plant and reduce the need to irrigate. Installing weed barriers, either biodegradable or not, can be used in place of herbicides.

Creating healthy soil is an important element of cultural control. Many pests are kept in check by creating an environment that allows for natural pest control through healthy environments. Healthy environments, for example, allow natural predators to help keep harmful pests below damaging thresholds.

Manual

The manual removal of noxious weeds is most often used in areas that have some native plants already established. Hand-pulling, digging, grubbing, and pruning can avoid damage to existing vegetation that

DRAFT - Integrated Pest Management Plan - City of Redmond

would be impacted by mechanical or chemical methods. Removing Scot's broom, for example, is best achieved by using a hand-puller tool to lever-out the plant.

Manual work can be the most expensive method, but it can often be paired with other methods to make it more efficient. Mowing areas of Himalayan blackberry multiple times, for example, before grubbing out the roots can weaken the plant and make it easier to do the manual work.

Mechanical

Using mechanical control methods is appropriate in areas that are typically larger in size. Mowing and brush-cutting are useful in monocultures and where spreading seed is not a concern. On hard surfaces, like sidewalks and parking lots, weed torches and steam machines are good alternatives to chemicals. Most hard surfaces drain directly to a nearby stream which means any chemical used can have harmful effects when it washes off the surface.

Chemical

The use of chemicals, such as herbicides, to manage noxious weeds should not be the first treatment method considered when developing a strategy for managing pests. For most pests, there are less-toxic alternatives that should be considered before using chemicals. Manual, mechanical, and cultural treatments should be considered first. If chemical application is the only viable method to manage a pest, then the least toxic chemical and the smallest dosage should be used. Applicators must get approval by the department coordinator before applying chemicals to a site.

Alternative chemicals are available and can be effective at managing certain pests. To control mosquito larvae, for example, BTI (*Bacillus thuringiensis israelensis*), a naturally occurring soil bacteria, can be applied to stormwater ponds to keep mosquitoes from reproducing. Horticultural vinegar can be used on individual or small infestations of common weeds in place of pesticides.

Plants like Poison hemlock are required by the county and state to be controlled in public property and rights-of-way and will likely need to be treated using an herbicide application. Similarly, for large-scale knotweed and reed canarygrass infestations, the use of herbicides is often the only effective treatment. Small infestations of knotweed, poison hemlock and reed canarygrass can be dug up, bagged and dispose of in the garbage.

City staff and contractors applying pesticides must be licensed by the Washington State Department of Agriculture or working under the license of an applicator. Staff shall wear appropriate protective equipment when applying pesticides.

Do not use chemical applications in windy conditions (over 5 mph) or when rain is forecast within 24 hours of application. Chemicals should not be applied in or within 50-feet of playgrounds or gardens. Applicators should know if the area being treated drains to a critical area (stream, river, lake or wetland). Only aquatic labeled pesticides are allowed to be applied in and within 50-feet of streams and wetlands by a licensed applicator.

DRAFT - Integrated Pest Management Plan - City of Redmond

Targeted application of chemicals is preferred over broadcast application. For example, injectable treatments, such as an EZ-Ject lance target specific pests, versus non-targeted application when using pre-emergent pesticides.

Pollinator Protection

When applying a chemical to a noxious weed, while the plant is in bloom, try to spray early or late in the day, or on cloudy, cool days when bees and other pollinators are less active (Thurston County, 2014). If possible, spray before the plant is flowering.

Pesticide-free Properties

There are three parks that are pesticide-free, including Nike, Juel and Viewpoint. The city will consider adding additional parks and other properties as pesticide-free.

Synthetic pesticides are not used within 50 feet of playgrounds, tot lots, picnic areas or on lawns. Also turf areas, with the exception being rare applications to sports field turf or during the establishment of new turf areas (very rare and generally fenced off).

Stormwater ponds are maintained by mechanical methods unless a Class A or B noxious weed is identified on site.

Record Keeping for Chemical Applications

All pesticide applications must be recorded on the same day it's applied, and the information shall include:

1. The location of the land where the pesticide was applied;
2. The date and beginning and ending time of the application and each day the pesticide was applied;
3. The product name used on the registered label and the EPA registration number, if applicable, of the pesticide which was applied;
4. The crop or site to which the pesticide was applied;
5. The amount of pesticide applied per acre or other appropriate measure;
6. The concentration of pesticide that was applied;
7. The number of acres, or other appropriate measure, to which the pesticide was applied;
8. The licensed applicator's name, address, and telephone number and the name of the individual or individuals making the application and their license number, if applicable;
9. The direction and estimated velocity of the wind during the time the pesticide was applied.
10. Any other reasonable information

The chemical application records must be filled out after each application and the records must be retained for seven years. The annual records will be stored in a central location.

DRAFT - Integrated Pest Management Plan - City of Redmond

Notification of Chemical Applications

In public areas treated with chemicals, a notification sign must be installed at the location of the application for at least 24 hours after application. The sign shall include a version of this statement: "THIS LANDSCAPE HAS BEEN RECENTLY SPRAYED OR TREATED WITH PESTICIDES" The sign must include the following information:

1. The product names
2. Date of application
3. The location
4. The pest being controlled
5. Contact information

Evaluating Treatments

Is the control method effective in achieving the objectives set for the site? If the method applied to the site is not effective, then other methods or combinations of methods should be considered. Increasing the acceptable pest threshold (e.g., being okay with some weeds) should be considered when evaluating the effectiveness of the treatment.

Invasive species required to be eradicated by King County or Washington State should follow prescribed methods for eradication.

Updates to Plan

The IPM Committee is made up of representatives of different city work groups that manage city property. The committee will meet annually to update the IPM plan.

Each work group will have a representative that can approve the use of pesticides.

Pesticide Use Criteria

When evaluating the proposed use of pesticides, the representative will consider the following criteria:

- Action threshold has been met
- Other control methods have been evaluated and will not achieve objectives
- Risk to public health and environment is low
- Cost effective in short and long term

Training

All staff members that are involved in managing different city properties are trained in IPM practices, including:

- Identification of pests

DRAFT - Integrated Pest Management Plan - City of Redmond

- Monitoring techniques.
- Control treatments and regulations.

Outreach to Public

The IPM guidance is meant for internal city departments, but Redmond staff can provide advice to the public to promote information that is consistent with the IPM. City of Redmond website provides information for the public to use around their home or business.

Resources

Northwest Center for Alternatives to Pesticides www.pesticide.org

King County Noxious Weeds <https://kingcounty.gov/services/environment/animals-and-plants/noxious-weeds.aspx>

Washington State Noxious Weed Control Board <https://www.nwcb.wa.gov/>

Washington Department of Fish and Wildlife <https://wdfw.wa.gov/species-habitats/invasive>

Washington Invasive Species Council <https://invasivespecies.wa.gov/>

Natural Yard Care Booklet

<https://www.growsmartgrowsafe.org/Documents/NaturalYardCare/Natural%20Yard%20Care%20booklet.pdf>

Grow Smart Grow Safe <https://www.growsmartgrowsafe.org/>

Thurston County IPM <https://www.co.thurston.wa.us/health/ehipm/index.html>

References

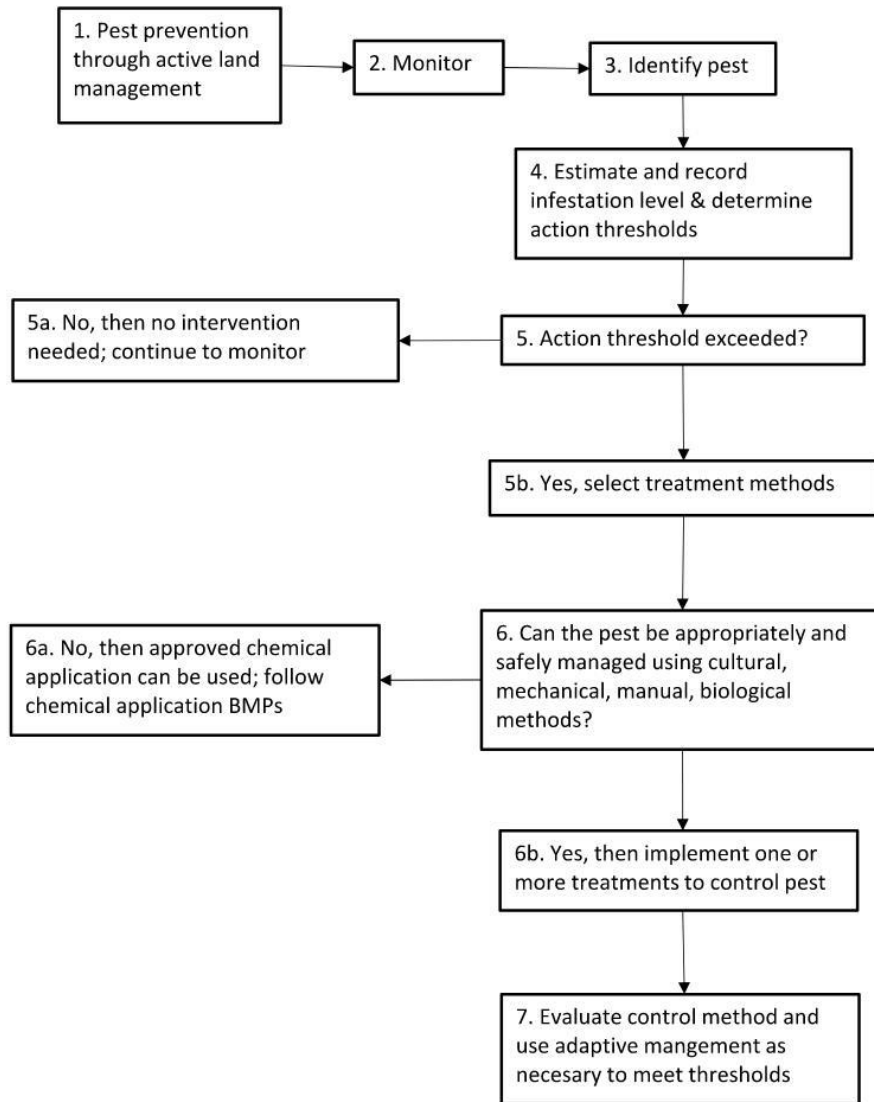
- Thurston County Pest and Vegetation Management Policy, 2014
- King County Guidelines for Integrated Pest Management, 2000
- City of Seattle Integrated Pest Management Information about Landscape Management Practices, 2019
- City of Seattle Pesticide Use Reduction Strategy, 1999
- City of Kirkland IPM flyer, 2018
- City of Redmond Parks IPM, 2011

DRAFT - Integrated Pest Management Plan - City of Redmond

- University of Washington IPM for Outdoor Landscapes, 2019
- Integrated Weed Management Plan for the Keller Farm Mitigation Bank Project, 2020
- Steps of IPM, Penn State Extension, 2011
- Washington Administrative Code (WAC) 17.15.010
- Revised Code of Washington (RCW) 17.21.100

Appendix 1

Step-by-Step Approach to IPM



Appendix 2

Common Treatment Methods

- Biological
 - Insects
 - Goats
 - Pathogens

- Cultural
 - Mulching with clean arborist chip mulch
 - Planting native vegetation
 - Reseeding
 - Developing healthy soil

- Manual
 - Hand weeding
 - Grubbing roots
 - Pruning

- Mechanical
 - Mowing
 - Brush-cutter
 - Excavation
 - Foam steam
 - Flame weeding
 - Tilling
 - Solarization

- Chemical
 - Synthetic chemicals
 - Vinegar
 - Fatty Acids, Soaps

Appendix 3

Noxious Weed Fact Sheets

Poison hemlock [Thurston County IPM Prescription 2 pg.]

Reed canarygrass [2 pg. Thurston County IPM Prescription]

Himalayan blackberry [2 pg. King County Noxious Weed Alert]

Knotweed [2 pg. King County Noxious Weed Alert]

Purple Loosestrife [2 pg. King County Noxious Weed Alert]