

COUNCIL POLICY			
Subject: CITY-WIDE INTEGRATED PEST MANAGEMENT POLICY	Policy Number	Effective Date	Number of Pages

BACKGROUND

The City of Santa Rosa (City) has responsibility for the maintenance of land and landscapes in City parks, open space areas, traffic islands, road frontages, city buildings, plazas, parking lots, drainage channels, creeks, pump stations, water tanks, and rural sites. Inherent in this responsibility is the management of pests, including unwanted plants, insects, rodents, and fungus. Pest are controlled for assorted reasons including public safety, public health, plant health, aesthetic, and control of invasive plants, pathogenic organisms and/or insects.

The need for a city-wide Integrated Pest Management (IPM) Program is identified in the Russian River Friendly Landscape Guidelines (RRFLG). The RRFLG guidelines set forth seven best practices for managing landscapes in a sustainable manner, which include: landscaping for local conditions, developing and maintaining landscapes that generate less waste for landfills, nurturing the soil, conserving water and energy, protecting water quality and air quality, and creating and protecting wildlife habitat. An effective IPM program is a good start to developing sustainable landscapes.

PURPOSE

The purpose of this IPM Policy is to attain the City’s goal of using long-term pest management strategies that protect human health, the environment and non-target organisms. This Policy provides guidelines for a City-wide IPM program and establishes standardized protocols for the management of pests.

The goals of this IPM Policy are as follows:

- Eliminate the need to use pesticides in sensitive areas like playgrounds, picnic areas, and public gathering spaces. Reduce the use of pesticides throughout city landscapes including roadway medians and parking areas.
- Provide for the utilization of alternatives to chemical control methods in the control of pests.
- Where chemical treatment control methods become the only effective tool to manage a pest, select the “least-toxic” pesticides that will provide acceptable control of the pest.
- Ensure safe application of pesticides following best management practices.
- Provide appropriate pre-and post-notification of pesticide application in parks and other

areas where the public may be affected.

- Ensure pesticide usage does not threaten water quality.
- Ensure pesticides are not applied within the storm drain system including drainage ditches and low-impact development strategies.
- Ensure that no banned or unregistered pesticides are stored or applied.
- Ensure staff applying pesticides are certified in the appropriate category by the California Department of Pesticide Regulation or are under the direct supervision of a pesticide applicator certified in the appropriate category.
- Implement procedures to encourage the retention and planting of native or drought-tolerant vegetation to reduce water, pesticide, and fertilizer needs.
- Reduce the use, storage, and handling of hazardous pesticides to reduce the potential for spills.
- Report all pesticide use by City staff and contractors working on City-owned property annually as a part of the annual Stormwater Report. Information on pesticide use will be presented to the public on the City's webpage devoted to IPM.

DEFINITIONS

- 1) **Action Threshold** is an observable condition or set of conditions that must be present before a pest control method can be initiated. Action thresholds are calculated to initiate a specific pest control method(s) when it will be effective in keeping the pest population below an injury level. Typical action thresholds found in this program include:
 - a) Observing the pest in a specified abundance.
 - b) Observing a specified amount of pest damage.
 - c) Observing specific environmental conditions favorable pest environment
- 2) **Fungicide** is a pesticide, synthetic or organic, that controls fungus.
- 3) **Glyphosate** is an active ingredient found in many widely used herbicides that can kill certain weeds and grasses. Common herbicides that have glyphosate in them are Roundup and Rodeo.
- 4) **Herbicide** is a pesticide, synthetic or organic, that controls weeds.
 - a) **Selective herbicides:** Chemicals that kill specific types of plants, such as grass plants or broadleaf plants.
 - b) **Nonselective herbicides:** Chemicals that kill all types of plants.
 - c) **Contact herbicides:** Chemicals that kill the plant only where the chemical touches it. To be effective, the entire plant must be thoroughly covered with the product. They are quick-acting and useful in controlling annuals, biennials, and seedling perennials.
 - d) **Systemic herbicides:** Chemicals that are absorbed through the leaves or roots and move freely throughout the plant. Application to part of the plant will kill the entire plant. Systemic herbicides are effective against most plants and are recommended for perennials. They take time to be effective and may be soil- or foliage-applied.
 - e) **Soil-applied materials** may be selective or nonselective, depending upon the material and the rate of application. Primarily used for preemergent applications.
- 5) **Insecticide** is a pesticide, synthetic or organic, that control insects.

- 6) **Integrated Pest Management (IPM)** is a pest management strategy that focuses on long-term prevention or suppression of pest problems with minimum impact on human health, the environment and non-target organisms. These strategies require the selection, integration and implementation of various pest control techniques considering the various economic, ecological, and sociological consequences. The most effective ways to manage pests use a combination of four control categories: biological, cultural, mechanical/physical, and chemical.
 - a. **Cultural controls** are management practices that reduce the incidence of weed infestations by using proper planting times and planting rates, planting mulching, managing fertilization and irrigation to favor desired plants rather than weeds.
 - b. **Mechanical/Physical controls** physically disrupt the weed by hand-pulling, hoeing, mowing, tilling, and flooding.
 - c. **Biological control** is the use of a living organism to manage pests.
 - d. **Chemical control** involves the use of herbicides, synthetic or organic, to manage pest plants.
- 7) **Neonicotinoid** pesticides are a class of neuro-active insecticides that kill a wide-variety of insects. Plants sprayed with these insecticides uptake the active ingredient and convey the poison to any insect that feeds on the plant, including non-target species like bees as they pollinate the plant.
- 8) **Organic**, in horticultural terms, is defined as a method of growing or maintaining ornamental or food plants without the aid or application of synthetic chemicals (fertilizers, pesticides, hormones, etc.).
- 9) **Organic Materials Review Institute (OMRI)** is an international nonprofit organization that determines which input products are allowed for use in organic production and processing. OMRI Listed® products are allowed for use in certified organic operations under the USDA National Organic Program.
- 10) **Personal Protective Equipment (PPE)** is worn to minimize exposure to hazards. Examples in pesticide applications include chemical resistant gloves, eye protection, and disposable chemical resistant suits.
- 11) **Weeds** are unwanted vegetation or a plant that is not valued where it is growing and is usually of vigorous growth; especially one that tends to overgrow or choke out more desirable plants. Weed Control is most effective when it includes several strategies.
- 12) **Weed prevention** includes using transplants, amendments and mulches that are known to be weed-free and cleaning vehicles and equipment to prevent the spread of weed seed and weed plant parts from one area to another. Prevention also includes removing weeds before they can form seed heads or spread by other methods.

POLICY

City staff and contractors performing pest control work for the City in landscaped areas must follow the IPM Policy and guidelines as set forth. This Policy sets forth prohibitions on the use of neonicotinoid-containing pesticides and glyphosate-containing herbicides including, but not

limited to: Roundup, Rodeo, and Ranger. Specific management actions for common pest species and specific action thresholds are described in detail in Appendix A. The pest control methods established by this Policy shall be used only if evaluation indicates they are needed, or impacts have surpassed thresholds described in Appendix A. Treatments shall be performed with the goal of removing only the target organism. Pest controls shall be selected and applied to minimize risks to human health, non-target organisms, and the environment, and pesticides shall be selected that do not threaten water quality. The higher the potential for human, animal, or water exposure in an area, the more vital it is to use a very low-hazard pest management material.

All pesticide treatments are prohibited within dog parks, children's playgrounds, group picnic areas, creeks and bio-swales or bio-retention areas. For shared school-park sites, and parks with childcare or pre-school buildings, pesticide treatments must only be applied on days when students are not present. Pesticide applications must follow all provisions of the Healthy Schools Act (California Education Code Sections 17608-17613) including recordkeeping, posting, and pesticide use reports.

Exceptions to glyphosate prohibition

Glyphosate may be used in specific instances as follows:

- In medians and parking areas where impact to the public is at a minimum.
- In cases where the Fire Marshal or Police Chief has determined it is necessary for public safety.
- On ball fields when the fields are closed for renovations.
- On invasive plants where control would only be needed to remove the existing plants and allow the natural plant community to occupy the landscape.

Special conditions when applying glyphosate

City staff and contractors utilizing glyphosate compounds must use increased PPE including, at a minimum: chemical resistant gloves, protective eyewear, chemical resistant boots, and a disposable chemical resistant suit that covers the applicators' clothes and exposed skin (e.g., Tyvek coveralls with a hood).

Procedures

The following recognized IPM techniques shall be used to control pests. In the management of a pest, as many of these methods as necessary shall be used.

Monitoring

- Establish action threshold levels for pest damage, injury, or nuisance.
- Identify pests and beneficial species and track population levels.
- Review site history to determine past control activities.
- Plan and schedule any treatment option at the target pest's most vulnerable stage.

Mechanical/Physical

- Barriers to exclude entry or introduction of pests. Inspecting new plants before being planted.
- Use of mulch materials or weed fabric.
- Controlled burning.
- Solarizing/tarping to treat seedbank.
- Use of traps.
- Whitewashing trunks of young trees to prevent sunscald.
- Use of discs, weed mowers, string weed trimmers, hoes and hand pulling of weeds.
- Removal of infested plants or plant parts (except for rare and endangered and culturally historical significance).
- Thinning of a tree or shrub to improve air circulation in the canopy.
- Thinning of canopies to increase temperatures for insect control.

Cultural

- Selecting plant materials suited to the site and/or those that have natural pest resistance.
- Providing conditions conducive to healthy plant growth.
- Designing and adjusting irrigation system.
- Ensuring proper soil fertility through mulching, compost, or appropriate fertilizer, avoiding nutrient deficiencies and excesses. Health desired plant that will out compete unwanted weed pests.

Biological

- Use of cattle, sheep, goats, or other grazing animals.
- Encouraging plant diversity to provide food and habitat for beneficial species.
- Maintaining existing populations of beneficial organisms.
- Supplementation of beneficial populations through releases.
- Use of “biological” or non-chemical pesticides.

Chemical

- Use of least-toxic pesticides and the lowest recommended label rate to achieve control.
- Selection and use of products, synthetic or organic, that provide acceptable control with consideration given to human health and environmental effects.
- Proper timing of pesticide application
- Spot treatments.

Landscape Design Considerations

Prevention is the single most critical component of landscape IPM. Recognizing the potential for future pest problems when designing or modifying a site can minimize and even eliminate many pest problems. Those design considerations include:

- Proper site preparation.
- Properly designed irrigation system.
- Selection of plant materials suited to the site and climate.
- Selection of plant materials with pest tolerance or resistance.
- Use of hard surfaces to eliminate weed problems.
- Use of densely growing plants that will choke out weed growth.

Pest Control Recommendation

Any time that a chemical control measure is warranted, regardless of threshold levels, a least-toxic pesticide will be considered first. Follow-up inspections will take place at specific intervals or pre-determined times to evaluate control.

Applicator Training

Continuing education is required by law for Pest Control Advisors and Qualified Applicators to keep their licenses and certificates current. This education is in the areas of laws and regulations and pest control methods and is offered through seminars approved by the State Department of Pesticide Regulation. Personnel involved in pesticide handling and application activities are required by law to have annual training on the safe and proper handling of pesticides. By law, employees and contractors are required to follow product label instructions and to confine sprays to the site being treated. Treat only the smallest area necessary by treating only the targeted pest. Do not allow pesticide to drift away from target areas. Unregistered pesticides shall not be used.

Maintenance Staff Training

The success of any IPM program is dependent on the skills and knowledge of those involved with its implementation. Information and training are to be provided for all maintenance staff and will include:

- Principles and components of IPM.
- Management strategies regarding pests common to all areas.
- Management strategies regarding specific pests to specific areas.
- Non-chemical pest control techniques.

Public Education and Notification

To ensure that the public and City staff are aware when pesticides are to be used in parks, public building landscapes, or roadways, any of the following methods or combinations of methods are to be utilized:

- Signs
- Isolation, in combination with signs
- Blue indicator dye in spray mix
- Media sources/neighborhood notification

Signs

Posting signs is intended to warn individuals that a pesticide application is planned or recently occurred. Signs shall be posted at public entries to sites such as gates and walkways. If the location

is not publicly accessible or not intended for public recreation use, signs may be fewer. Posting duration shall comply with the State Healthy School Act where adjacent to schools. In other locations signs shall be posted a minimum of 48 hours prior to the start of the pesticide application and will remain posted for a minimum of 48 hours after the application unless the pesticide label specifies a longer interval. At a minimum, public notification signs shall include the following information:

- Printed in English and Spanish.
- Date and time of planned application.
- Area(s) within a site to be treated.
- Pest, i.e., “weeds.”
- Label name of the product being used.
- Warning to stay out of treated areas for a specific time. Use the produce label as to when re-entry into the treated area(s) is permitted.
- A departmental phone number to call for more information.

Record Keeping and Reporting

Recording of the pesticide application will be completed and maintained by the applicator and reviewed by the individual departments or division overseeing the application or the city representative overseeing the application contact.

Applicator’s departments will make monthly use reports to the Sonoma County Agricultural Commissioner by the 10th of the month following application. In addition, annual pesticide use reports will be sent to the city’s Stormwater and Creeks team for publishing in the annual city-wide annual report. These records are to include:

- Date and time of application.
- Brand name of the pesticide.
- Target pest(s).
- Amount of pesticide used.
- Concentration of pesticide used.
- Quantity of area treated (e.g., acres or square feet).
- Name (or initials) of applicator.
- Location application was made (location, specific site within a park, etc.).

APPENDIX A
CITY INTEGRATED PEST MANAGEMENT POLICY

PLANT DISEASE MANAGEMENT

With few exceptions, plant diseases do not constitute a severe enough problem to require extensive control efforts. Leaf blights caused by anthracnose, powdery mildew and entomosporium leaf spot can occur on several of our city's tree and shrub species and can at times cause severe and repeated defoliation. These problems are weather dependent. That is, they spread during specific weather conditions. When weather conditions change, the disease subsides, and the problem resolves itself. While control can be achieved chemically, it would typically require many repeat applications during these specific weather conditions. Because of these factors a non-chemical approach is utilized with these diseases; no action thresholds set for parks with the exception being Luther Burbank Home & Gardens. (See Luther Burbank Home & Garden Pest Management Action Thresholds table below.)

ANIMAL PEST MANAGEMENT

Insects

Insect pest management involves controlling damaging insects and those causing nuisance problems. These pests can cause significant flower and foliar damage, physically weaken plants, spread disease, and provide opportunities for disease and other insects to invade plants. Although control can be achieved through a variety of methods, focus on plant health resolves most cases.

The typical insect pest problems found in the city involve only a few insect pests and a handful of plant species. Whether this is fully attributable to beneficial insect diversity or because the plants that remain are those that suffer fewer insect pest problems and/or can tolerate higher insect populations is not known.

Mechanically, pests and/or infested plant parts should be removed by hand when possible. Removal of "brood wood" is effective in controlling certain insect species. Periodic, high pressure water washes can be used when insect populations are low.

Culturally, maintenance of plant health is of foremost importance in insect pest control. Properly cared for plants are less stressed and therefore less susceptible to insect (and disease) attack. Along the same lines, plant materials should be selected with care, matching species to conditions present at the site.

Biologically, beneficial insects provide the single greatest effort in controlling plant pests. This has resulted in few insect pest outbreaks, many of which require no attention on our part. Maintenance of beneficial insects is the key to controlling pest problems. This is accomplished by encouraging additional beneficial insects' habitat.

Chemicals may be a directive of the City Council, County or State for public health or neighboring

economic crop loss reasons. Those pesticides that are reduced risk are to be considered first. The use of attractants in conjunction with traps can be used, though this approach is most effective in dealing with specific pests and best used when monitoring pest levels. No action thresholds are necessary, currently, for park lands except for Luther Burbank Home & Gardens. (See Luther Burbank Home & Garden Pest Management Action Thresholds table).

Bees

Bees are a beneficial insect of immeasurable value because of their pollination efforts. Bees in general are not viewed by the city as threatening though bee stings are painful and cause extreme allergic reactions in some people. Management activities are designed to eliminate plant materials that are attractive to bees.

Where possible, every effort should be made to preserve bee populations in physical activities and in the selection and use of pesticides. Occasionally situations arise when the removal of a hive by a beekeeper is necessary.

Wasps, hornets, yellowjackets

These groups of stinging insects are collectively known as wasps. Most of these species are beneficial in they are predatory on soft-bodied insects and are best known for their aggressive, unwanted behavior. Their stings are painful and can cause extreme allergic reactions. Yellowjackets may reach nuisance level in parks during the late summer and fall. The Marin/Sonoma Mosquito & Vector Control District is currently offering nest eradication for clearly identified yellowjacket ground nest.

Digger bees (digger wasps, sand wasps)

This is an interesting insect closely related to the wasp group. They are found in large colonies in most of the sand play areas in our parks. This beneficial insect looks and behaves like a yellow jacket and can be a cause for alarm. Though fully capable of stinging, this insect is not aggressive and is no cause for concern. Manage by regularly racking playground sand areas to disturb and discourage nesting activities.

Spiders

This county has many spider species found in a variety of habitats. The black widow spider is also beneficial though its bite is painful and can be fatal. Control of black widow spiders is rarely warranted and more often when single female is found, it is eliminated via mechanical means.

Gophers & Moles

While gopher and mole are quite different in appearance, diet, and behavior, both are burrowing rodents that damage the landscape. Gophers create the greatest landscape damage by digging subterranean tunnels. Gophers also gnaw and damage plastic water lines and lawn systems. Their tunnels can divert irrigation water and destroy layers of soil in athletic fields, such as the soccer fields at A Place to Play Park. Gopher mounds in park turf grass areas interfere with mowing equipment and are oftentimes enlarged by dogs creating larger holes. Collapsed tunnels are another tripping hazard in turf grass. Gophers can also undermine structural integrity of dam and levee surfaces by increasing infiltration into the dam face which increases chance of dam failures. Most of the city's dams fall under regulations by the California Department of Water Resources'

Division of Safety of Dams. It is imperative to reduce costly gopher damage by eradication prior to establishment within turf fields and dam surfaces. Refer to UC IPM Pocket Gopher for more information about life cycles and management tips.

Ground Squirrels

Ground squirrels injure many types of plants, harbor diseases harmful to humans, and their burrowing damages landscapes. Ground squirrels are common in this area and large colonies exist at Howarth Park. Their nest hole burrow can get quite large, having the potential to be a trip hazard and cause soil erosion issues. Abundant population can lead to unnatural, aggressive food stealing interaction with humans. Ground squirrels present a potential for catastrophic hazards if allowed to burrow in the Lake Ralphine dam at Howarth Park or the two dams at Fountaingrove Lake within Nagasawa Park. The State Division of Safety of Dams requires eradication of burrowing animals. Refer to UC IPM Ground Squirrels for more information about life cycles and management tips, <http://ipm.ucanr.edu/QT/groundsquirrelcard.html>.

LUTHER BURBANK HOME & GARDENS

The Luther Burbank Home & Gardens (Gardens) is a two-acre site in downtown Santa Rosa that was Burbank's residence and where he conducted a large part of his plant research. This site is a Registered National Historic Landmark and is visited by thousands of people from around the world annually.

The gardens offer a glimpse at the wide variety of plant materials with which Burbank worked. These are displayed in demonstration gardens throughout the site and include species he worked with and varieties representative of those he developed. Other garden displays include a drought tolerant garden, sensory garden with plants selected for touch and smell qualities, a garden designed to attract birds and a border garden that illustrates the plant materials used for landscaping in Burbank's day.

Because of the amount and variety of landscape materials found in the Gardens, insect pests and plant disease levels can reach elevated levels quite rapidly. Insect pests rarely reach levels needing chemical treatment because this wide plant diversity supports many beneficial insects. Plant diseases, however, can and do reach damaging levels quite rapidly. Fortunately, most of these diseases are host specific and do not spread between different plant species.

Many of the maintenance activities inside the Gardens are thankfully performed by a large contingent of knowledgeable volunteers whose various tasks include hand removal of pests and plant parts that infested or infected with insects or disease. Additionally, these volunteers can provide the visitor with valuable horticultural information including IPM.

ACTION THRESHOLDS CHARTS

VEGETATION MANAGEMENT ACTION THRESHOLDS GENERAL LANDSCAPED AND OFFICE BUILDING AREAS

LOCATION	ACTION THRESHOLD	ACTION
All areas of city responsibility.	Weeds covering 10% or less of the ground where not desired.	<p>Mechanically remove.</p> <p>Use weed burner.</p> <p>Where possible, add mulch to a minimum depth of 4 inches.</p> <p>Consider the use of densely growing plant materials.</p>
	Weeds cover more than 10% of the ground where not desired.	<p>Any of the above non-chemical tactics.</p> <p>Spot treat with appropriate herbicide.</p>
	Weeds cover 5% or less of the ground in planter beds.	<p>Mechanically remove.</p> <p>Use weed burner.</p> <p>Where possible, add mulch to a minimum depth of 4 inches.</p> <p>Consider the use of densely growing plant materials.</p>
	Weeds cover more than 5% of the ground in planter beds.	<p>Any of the above non-chemical tactics.</p> <p>Spot treat with appropriate herbicide.</p>
	Any area historically requiring weed control measures.	Spring and/or Fall application of pre-emergent herbicide.

**VEGETATION MANAGEMENT
ACTION THRESHOLDS
TURF AREAS**

LOCATION	ACTION THRESHOLD	ACTION
All turf areas.	Broadleaf or grassy weeds cover less than 20% of the turf area.	Observe proper mower sanitation. Remove mechanically. Re-evaluate cultural practices, test soil fertility.
	Broadleaf or grassy weeds cover 20% or more of the turf area.	Any of the above tactics. Spot treat with appropriate herbicide.
Turf edges that can be edged with power edger.	Any time edging is necessary.	Use power edger.
Turf edges that cannot be edged with power edger.	Turf growing up to 3 inches over pavement edge.	Remove mechanically. Use weed burner.
	Turf growing more than 3 inches over pavement edge.	Any of the above tactics. Spot treat with appropriate herbicide.
Turf irrigation heads	Turf growing around head causing water to pond or other disruption of proper operation.	Mechanically remove. Vertical mow to remove built-up thatch. Raise head in extreme case.

**VEGETATION MANAGEMENT
ACTION THRESHOLDS
ATHLETIC FIELDS**

LOCATION	ACTION THRESHOLD	ACTION
All areas of city responsibility.	Winter weed removal for pre-season preparation of baseball and softball fields.	Mechanically remove weed growth with field drags. Spot treat with appropriate herbicide.
	Turf encroached up to 12 inches into bare areas of ball diamonds.	Mechanically remove. Use weed burner.
	Turf encroached 12 inches or more into bare areas of ball diamonds.	Any of the above tactics. Spot treat with appropriate herbicide.
	30% of field lines have unwanted regrowth.	Mechanically remove. Spot treat with appropriate herbicide.

MISCELLANEOUS AREAS

LOCATION	ACTION THRESHOLD	ACTION
Asphalt or concrete roads, pathways, parking areas or other paving and hard surfaces.	Weeds growing in joints or cracks.	Mechanically remove. Use weed burner. Any of the above tactics. Spot treat with appropriate herbicide.
Surplus properties, roadsides, pathways, other R-O-W sites such as fire hydrants traffic signal control boxes.	Weeds & other unwanted vegetation cover less than 25% of the area.	Mechanically remove. If possible, add mulch to a minimum depth of 4 inches.
	Weeds & other unwanted vegetation cover 25% or more of the area.	Any of the above tactics. Treat with appropriate herbicide.

**ACTION THRESHOLDS
TRAFFIC MEDIANS**

LOCATION	ACTION THRESHOLD	ACTION
All traffic medians.	Weeds cover 5% or less of the surface of landscaped median.	Mechanically remove. Use weed burner. Add mulch to a minimum depth of 4 inches. Consider the use of densely growing plant materials.
	Weeds cover more than 5% of the surface of landscaped median.	Any of the above tactics. Treat with appropriate herbicide.
	Weeds cover 10% or less of the surface of non-landscaped median.	Mechanically remove. Use weed burner. Add mulch to a minimum depth of 4 inches. Consider the use of densely growing plant materials.
	Weeds cover more than 10% of the surface of non-landscaped median.	Any of the above tactics. Treat with appropriate herbicide
	Weeds in the concrete cracks/joints of any median cover less than 5% of the area or are less than 6 inches in height.	Mechanically remove. Use weed burner.
	Weeds in the concrete cracks/joints of any median cover 5% or more of the area or are 6 inches or more in height.	Any of the above tactics. Treat with appropriate herbicide.

**VEGETATION MANAGEMENT
ACTION THRESHOLDS
POISON OAK - BLACKBERRIES - UNWANTED TREES/SHRUBS**

LOCATION	ACTION THRESHOLD	ACTION
All areas of city responsibility.	Poison oak growing in any area with potential for contact.	Remove mechanically.
	Blackberry thicket to be partially or fully removed.	Treat regrowth with appropriate herbicide.
	Blackberries growing in landscaped areas.	Treat regrowth with appropriate herbicide.
	NOTE: When chemical treatment of blackberries is warranted, non-fruiting canes may be treated at any time. Any stands containing fruiting canes can only be treated after all fruit has dried.	
	Unwanted weed species; tree or shrub.	Remove mechanically.
		Remove stump.
		Treat stump and regrowth with appropriate herbicide.

AQUATIC WEEDS

LOCATION	ACTION THRESHOLD	ACTION
<p>Boat launches, dams, spillways and around fish pier at Howarth Park/Lake Ralphine, Nagasawa Park/Fountaingrove Lake and Francis Nielsen Ranch Park/ Nielsen Pond, Meadowlane Ponds, Delta Pond, Brown Farm Pond, Alpha Farm Ponds, and Ambrosini Pond.</p>	<p>Eurasian water milfoil growing to within 18 inches of water surface.</p>	<p>Treat with appropriate herbicide per Fish & Wildlife and/or Water Board permit.</p> <p>Explore viable biological and mechanical control methods.</p>
	<p>Less than 1% coverage Cattails, bulrush, and other tulle weeds growing on the dams, near spillways, boat ramps, areas creating mosquito habitat and areas where summer flows are restricted which may cause siltation increases chance of winter flooding.</p>	<p>Evaluate site for modifications, such as dredging.</p> <p>Mechanically remove when water levels are at their lowest in the late summer.</p> <p>Treat regrowth with appropriate herbicide in spring.</p>
	<p>Floating weeds such as mosquito fern (<i>Azolla</i> spp.), duckweeds (<i>Lemna</i> spp. & <i>Spirodela</i> spp.) and Watermeal, (<i>Wolffia</i> spp.) covering 5% of the water surface.</p>	<p>Mechanically remove by netting and hauling-off.</p> <p>Treat with appropriate herbicide allowable by permit.</p>
	<p>Blue algae and other algae species.</p>	<p>Aerate or increase water circulation.</p> <p>Biological treatment of beneficial bacteria.</p> <p>Physical application of aquatic black pond dye to reduce sunlight penetration.</p>

**GOPHER & MOLE PEST MANAGEMENT
ACTION THRESHOLDS**

LOCATION	ACTION THRESHOLD	ACTION
All areas of city responsibility.	Evidence of mole is observed.	Physically remove mole. Trap; to be set only where it can be done safely.
	1 gopher mound in any turf area, annual planting bed, or dam structure OR 10 mounds in any 1,000 square feet of planted areas OR 20 mounds in any 1,000 square feet of non-planted areas.	Trap in turf non-layer athletic fields. Bait or fumigate in athletic fields and dam structures. Provide control of broadleaf weeds if in turf.

**GROUND SQUIRREL PEST MANAGEMENT
ACTION THRESHOLDS**

LOCATION	ACTION THRESHOLD	ACTION
All areas of city responsibility.	Any ground squirrel burrows entrance that is a hazard.	Fill in burrow entrance. Bait; stations to be safely set within burrow.
	Any ground squirrel burrowing within 50 feet of the base of dam at Lake Ralphine.	Bait; stations to be safely set within burrow.

**LBH&G PEST MANAGEMENT
ACTION THRESHOLDS**

LOCATION	ACTION THRESHOLD	ACTION
ROSES	<p>RUST: susceptible varieties showing 15% of foliage infected with rust, OR Weather conditions favor development of disease; 55-75°F and wet foliage.</p>	<p>Provide proper soil moisture and fertility.</p> <p>Remove infected plant parts including those which have fallen.</p> <p>Remove infected canes when dormant pruning.</p> <p>Avoid overhead watering.</p> <p>Treat with fungicide.</p> <p>Apply fungicide with dormant spray.</p> <p>Replace with resistant varieties.</p>
	<p>BLACKSPOT: Susceptible varieties showing signs of infection on 10% of foliage, OR Weather conditions favor development of disease; 55-75°F and wet foliage.</p>	<p>Provide proper soil moisture and fertility.</p> <p>Remove infected plant parts including those which have fallen.</p> <p>Remove infected canes when dormant pruning.</p> <p>Avoid overhead watering.</p> <p>Treat with fungicide.</p> <p>Apply fungicide with dormant spray.</p> <p>Replace with resistant varieties.</p>

LOCATION	ACTION THRESHOLD	ACTION
ROSES, ZINNIA, DAHLIA, CALENDULA, OTHER SUSCEPTIBLE BEDDING PLANTS.	POWDERY MILDEW: Susceptible varieties showing signs of infection on 10% of foliage.	<p>Provide proper soil moisture and fertility.</p> <p>Remove infected plant parts + those which have fallen.</p> <p>Remove infected canes when dormant pruning.</p> <p>Prune to promote air circulation.</p> <p>Apply water in mid-afternoon (on roses: only to varieties resistant to Blackspot and Rust).</p> <p>Treat with fungicide + with dormant spray.</p> <p>Replace with resistant varieties.</p>
ROSES	APHID: 15 aphids found on terminal 6 inches including flower bud.	<p>Insure proper cultural needs, avoid high nitrogen levels.</p> <p>Water wash at any time.</p>
STONE FRUITS	APHID: 10 aphids found on any 10-leaf sample, OR Distortion affects 15% of foliage.	<p>Remove infested parts.</p> <p>Control ants if possible.</p> <p>Treat with insecticide, + with oil in dormant spray.</p>
GLADIOLUS	THRIPS: 2% of foliage showing damage.	<p>Insure cultural needs.</p> <p>Remove severely infested plants. Introduce beneficial insects.</p> <p>Treat with insecticide.</p> <p>Rotate beds in future years.</p> <p>Remove corms to dry.</p>

LOCATION	ACTION THRESHOLD	ACTION
All landscape plants.	MITES: damage visible on 25% of foliage.	<p>Address cultural needs.</p> <p>Address problems that promote population build-ups.</p> <p>Inspect for beneficial species.</p> <p>Treat with miticide.</p>
	WHITEFLY: individuals of any growth stage present on 10% of foliage.	<p>Address cultural needs.</p> <p>Inspect for beneficial species.</p> <p>Release parasitic wasps.</p> <p>Remove infested plant parts.</p> <p>Treat with insecticide.</p>
	SCALE: visible on 15% of branches.	<p>Address cultural needs.</p> <p>Inspect for beneficial species.</p> <p>Remove infested plant parts.</p> <p>Treat with insecticide.</p> <p>Use oil in with dormant spray.</p>