2010 ANNUAL ANALYSIS OF PESTICIDE USE EAST BAY REGIONAL PARK DISTRICT

Accepted September 14, 2011

Nancy T. Brownfield
IPM Specialist
Planning, Stewardship and Development

2010 ANNUAL ANALYSIS OF PESTICIDE USE

EXECUTIVE SUMMARY

The overall usage of all Board approved pesticides (Roundup, Surflan, Banvel, Garlon, Casoron and Diphacinone) for District park operation were generally comparable to use figures for 2009 with the exception of a slight decrease in Roundup use (4.5%) in park operations.

These figures reflect not only the impact of the 2009/2010 weather pattern on timing of weed reduction projects, but also a major shift in using specialty herbicide products which are designed for the specific control of targeted exotic invasive tree, shrub and grasses (eucalyptus, black acacia, broom spp. Mayten, pampas grass and spartina). Although Park Operations treated five (5%) more acreage (165-173) in 2010, the volume of Roundup use per acre did measurably decrease (-9.8%) reflecting that IPM and park supervisors continue to utilize alternative pest management and adaptive management strategies to compensate for seasonal variations in the timing of vegetation management.

The substantial decrease in Roundup use for priority resource projects -48%) is reflected in above normal wet weather conditions (La Nina) in winter and late spring resulting in reduced opportunities for well timed invasive weed control.
The experimental product, Imazapyr (Habitat) was substituted for Roundup/Aquamaster in 2005 to determine its efficacy in controlling Spartina alterniflora, an invasive shoreline marsh plant. Field evaluation continues to provide the necessary efficacy information for short-term/long term evaluation and appropriateness of this herbicide. One hundred and sixteen gallons (116G) over 173 acres were used in the Spartina alterniflora project in 2010. Habitat herbicide has provided the level of success in this project by reducing dense monocultures of Spartina spp., meaning fewer marshes requiring control, thus less use of herbicide and accomplishing the goal of recovery of valuable open mudflat marsh habitat.

Given the size (108,000 acres) of this District, its facilities and maintenance operations, it is a valuable perspective to realize that less than two tenths (0.2%) of one percent of the District's acreage is subjected to pest management activities.

This annual report is intended to provide the Board of Directors of the East Bay Regional Park District, Ecology Committee (Advisory to the Board), and the interested public with a summary, analysis, and evaluation of pesticide use by this agency for year 2010. This report reviews pest management needs and practices within the properties owned and managed by the East Bay Regional Park District. Approximately 108,000 acres of regional parklands, providing open space areas, regional trails and recreation facilities, are under management for the control of weeds or other pest species.

The District's definition and use of integrated pest management (IPM) complements that of the University of California statewide IPM Project definition. Integrated pest management is a strategic approach for preventing and suppressing pest problems before they reach unacceptable levels. Using IPM means selecting and integrating the most appropriate combinations of available pest control methods (including cultural, mechanical, chemical, and biological) for a given site/pest occurrence in ways that

2010 ANNUAL ANALYSIS OF PESTICIDE USE

minimize risk to public safety, health and the environment. It is important to understand that while the goal of IPM programs is the same - long-term resolution to pest problems - the actual specific set of strategies selected will vary by park location, the season, type of pest, habitat considerations, level of desired control and cost factors.

Additionally, current practices will change as new information and new technologies are developed.

PESTICIDE USE ANALYSIS

Four major documents maintained by the IPM Specialist form the basis of this section of the report:

(1) IPM Check List

(2) Request for Pest Management Assistance

(3) Pesticide Use Report

(4) Contracts and Maintenance Agreements

In addition, a cross-reference record is maintained in an effort to compare and correlate requests for use of a pesticide with actual reported use of a pest control chemical as reported on the Pesticide Use Report.

The District's current list of approved pesticides includes: Roundup, Surflan, Banvel, Copper Sulfate, Garlon, Casoron, and Diphacinone. Since these are the most commonly used, the annual amount of each pesticide used is tracked and accounted for in this report. The office of the IPM Specialist advises park supervisors and concessionaires individually and collectively on how to work toward the goal of reducing the need and number of annual pesticide applications. Prior authorization by the IPM Specialist is required before purchase and/or use of a pesticide is permitted. This restriction is essential in order to maintain the required level of accountability in the program and to comply with state regulations regarding worker safety training.

PESTICIDE DESCRIPTIONS

Roundup: (Glyphosate) – is a broad spectrum, non-selective post-emergent herbicide used in landscape, right-of-ways and open space. EPA Reg. No. 524-475 AQUAMASTER (=Rodeo) EPA Reg. No. 524-343, Roundup Pro Max 524-579

Surflan: (Oryzalin) – is a broad spectrum, somewhat selective pre-emergent herbicide used in landscape and right of ways. EPA Reg. No. 70506-44

Banvel: (Dicamba) – is a broadleaf, selective, post-emergent herbicide used principally for rangeland noxious weed control. Banvel EPA Reg. No. 55947-46.1. Vanquish EPA Reg. No. 100-884. Clarity EPA Reg. No. 7969-137

Garlon: (Triclopyr) – is a broadleaf, selective, post-emergent herbicide used principally for the control of resprouts from woody plant species such as eucalyptus, mayten, acacia and broom species. EPA Reg. No. 62719-527

Casoron/Barrier: (Dichobenil) – is a broad spectrum, selective, pre-emergent used principally by contractors to inhibit new growth beneath new installations of asphalt paving for trails, staging areas and parking lots. EPA Reg. No. 2217-675

2010 ANNUAL ANALYSIS OF PESTICIDE USE

Copper Sulfate: - is an inorganic copper compound used in aquatic settings as an algicide. Currently, this product is not used in the District. EPA Reg. No. 2935-50139-AA

Diphacinone: (Inadandione) – is an anticoagulant treated grain bait (.005%) rodenticide dispensed in bait stations specifically for the control of ground squirrels and commensal rodents (rats and gophers). CDFA Reg. no. 10965-50001 Ditrac EPA. Reg. No. 12455-80 Rozol EPA Reg. No.7173-190

DISTRICT-WIDE PESTICIDE USE

In 2010, thirty-seven (37) parks, four (4) concessionaires, five (5) District program units, three (3) pest management projects and three (3) priority resource management projects submitted Pesticide Use Reports.

Tables 1 –5 are attached at the end of this document. Tables 6-7 are included within the text discussion.

Table 1: A Summary of 2010 Pesticide Usage, provides an accounting of pesticide use District-wide.

Table 2: 2009-2010 Comparative Summary of Pesticide Usage, provides a two-year comparative review and summary of pesticide use by parks, concessionaires, District program units and pest management projects.

Table 3: Comparative Herbicide Use By Priority Resource Project reviews three (3) resource projects by pest problem, net acres treated with Roundup, Habitat, Banvel, Garlon, and Transline. Transline is an experimental herbicide under review for yellow starthistle control. Habitat (Imazapyr) aquatic herbicide is being evaluated for the control of Atlantic cordgrass (Spartina). Table 3 also summarizes and compares by year the acres treated, amount of herbicide used and the average percent change from treatment year to treatment year.

Table 4: Two-year Summary of Roundup/Aquamaster Use By District Parks, Operations and Priority Resource Management Projects is intended to compare Roundup/Aquamaster use by park operations exclusive to that of identified resource management projects. The yearly overall percent change in use by each unit is provided. The slight change in gallon per acre use by District operations can be accounted for specifically defined control projects for the year. As an example, Point Pinole and Lake Chabot staff focused again in 2010, as in 2009, weed control efforts to contain the expanding infestation of teasel, and fennel in open grasslands.

Table 5: Five-Year Comparative Use Levels, lists six (6) pesticide products identified for tracking with a comparison of use averaged over a five-year period.

OVERVIEW

Since the implementation of the IPM Program in 1988, the total acreage of District parklands has increased from 66,000 acres to the current 108,000 acres. The opening of new parks (Camp Arroyo, Quarry Lakes, Big Break Delta Discovery and Crockett Hills), the addition of new acreage to existing parks, continued expansion of the Alameda Creek trails, Central Contra Costa and East Contra Costa Trails system have resulted in projects to provide additional recreational amenities (picnic, campground sites, staging areas,

2010 ANNUAL ANALYSIS OF PESTICIDE USE

parking facilities and new trail connections and extensions). Such changes have increased maintenance responsibilities and those changes are reflected in the number of park units doing pest management activities, which may require the use of pesticides.

ANALYSIS OF USE

The temperature and rainfall patterns for the winter and spring of 2010 sharply contrasted with that of the prior years. The year 2010, as well as 2009 were characterized with cold temperatures and prolonged winter/spring rains followed by an abnormally dry summer drought condition. Such conditions tend to favor either short or overlapping weed germination periods, making it difficult to properly time specific weed control projects. These abnormally dry summer conditions in 2010 meant that the focus for 2010 weed control would be to reduce fire hazards around service yards, parking lots, campground and park structures.

PARK OPERATIONS

Interpretive/Parklands

Black Diamond, Las Trampas, Coyote Hills and Garin/Meyers Estate used Roundup or Surflan to manage weed growth in and around trail staging areas, campgrounds, parking lots, landscape and selected sites around equestrian pack stations.

Black Diamond continued their weed control efforts to manage a spreading population of fennel along Old Black Diamond Road.

Las Trampas directed their weed control to staging areas of Bishop Ranch, Bollinger and Sycamore Canyon.

Coyote Hills continued their program of fennel and thistle control.

Garin/Meyers Estate continued their selective weed control along garden paths within planter beds and newly planted fruit trees.

Parklands

The Botanic Garden used Roundup to manage weed growth in and around pathways and selected landscape sites throughout the garden. The Botanic Garden weed control effort for 2010 was the management of blackberries, poison oak and scouring rush in planter beds.

Sibley focused its Roundup use on the control of stinkwort (Dittrichia graviolens), an invasive annual recently introduced to the Bay Area.

Weed control efforts within Tilden Park for 2010 focused on cape ivy control and eucalyptus resprout control.

In 2010, as in 2009, a serious effort continued to control roof rats at the Sibley residence, Temescal and Redwood School House. Four and a half pounds (4.5 lbs.) of bait was dispensed in tamper-proof bait stations in 2010.

Maintenance, Interpretive and Recreation

In 2010, as in 2009, the focus of pest management activities at Tilden Corp. Yard and Tilden Little Farm was the control of roof rats. A total of two and one thirds pound (2.3 lbs.) of bait was dispensed in tamper-proof bait stations in 2010. This decrease in rodenticide use was attributed to increased maintenance of the Little Farm compost bin.

2010 ANNUAL ANALYSIS OF PESTICIDE USE

Lakes

Shadow Cliffs park staff prioritized, as in 2009, their use of Roundup to control weedy plants in underdeveloped sites such as the unpaved overflow lot for the waterslides, picnic sites, and Brushy Peak staging areas. Weed control was also conducted to reduce plant competition within the established tree planting project along Stanley Blvd.

Contra Loma, at the request of Contra Costa Water District, used only Aquamaster (=Aquatic Roundup) within picnic sites and parking lot areas. Roundup and Surflan applications were limited to the main entrance road and the overflow parking lot to control yellow starthistle and other noxious thistle species.

Lake Chabot Park's use of Roundup and Surflan was substantially less than in prior years. The sites treated were essentially the same locations, but were less in terms of area treated. Teasel control has been successful and treatment area less than half (1/2) acre from the original 20 acres. The focus has shifted to a fuel and fire hazard reduction effort because of frequent wildland fires that occur on park property. Selective eucalyptus removal along this twenty (20) acre fuel break between park property and the adjacent residential community should also assist in this fuels reduction goal.

Del Valle continues their weed control efforts in 2010 to deal with weedy vegetation (thistles, nettles, poison oak) in campgrounds, picnic areas, around rest rooms and the water treatment facility. Del Valle staff do rely on rough mowing service yard and roadside edges. A concerted effort has been made in 2010 to control Stinkwort, an invasive annual, along a one (1) mile section along the service yard roadway.

Shorelines

Point Pinole, Martin Luther King/Oyster Bay and Miller Knox/Eastshore Park accounted for the majority of Roundup and Surflan use in this Trailsides operations unit. Parking lots, picnic sites, landscape areas and restoration project sites were the most frequent locations selected for the control of weed intrusion.

Garlon use at Point Pinole focused on the control of eucalyptus and black acacia resprouts as part of the in-park eucalyptus thinning project and the Pinole Shoreline black acacia reduction project. Garlon was used selectively to control poison oak along Cooks Point Trail, as well as fennel and teasel in the open grasslands.

Recreation Areas

Kennedy Grove, Diablo Foothills and Cull Canyon accounted for the majority of Roundup and Surflan use within the Recreation Unit. Selective weed control in and around the staging areas, parking lots, and new picnic area sites accounted for the reduction in treatment areas and herbicide use.

Diablo Foothills focused on weed control in the overflow parking lot.

Cull Canyon continued their weed control to manage vegetation in and around park facilities, but did expand this effort to include Chabot to Garin trail and Heyer service road trail where vegetation had overgrown into these public walkways.

Temescal limited their use of herbicides in 2010 to Roundup for weed control in the main parking lot.

2010 ANNUAL ANALYSIS OF PESTICIDE USE

CONCESSIONAIRES

Trains

Tilden Golden Gate Live Steamers continue to rely on a late winter to early spring application of Roundup for annual weed control within the railroad tracks. Roundup was used in 2010 to control general weedy species and brush intrusion as part of a new rail track alignment.

The Tilden Redwood Valley train reported surflan use in 2010 for weed prevention in train tracks.

2010 ANNUAL ANALYSIS OF PESTICIDE USE

Golf Courses

In 2010, both Willow Park and Tilden Park Golf Courses used Roundup for the control of weedy species in ornament landscape area. Late winter early spring turf diseases at Tilden Park Golf Course resulted in lesser disease pressure in 2010, comparable to 2009.

Tilden Park Golf Course continues to use two plant growth regulators on tees and greens to suppress seed production of Poa annua (annual bluegrass), a major, but not desirable, component of this courses' bentgrass turf. This strategy provides a novel way to encourage bentgrass competition.

Tilden Park Golf Course has, as in 2009, generally decreased the overall use of turf fungicides in spite of the heavy early season fungal pressure due to the wet cold winter/early spring. The turf superintendent continues to work with the District's IPM Specialist to develop a less intensive turf management program.

Willow Park Golf Course reduced fungicide use in 2010 over that of 2009 is attributable to a reduced disease pressure to turf because of early summer drought conditions.

Maintenance of high quality turf grass on golf courses such as Tilden and Willow Park require the use of fungicides because genetic resistance and cultural management strategies do not provide adequate prevention and control of the many diseases that can affect turf grasses.

Table 6 lists the current fungicide active ingredients, herbicide and plant growth regulators used by both golf courses in disease management. The fungicides listed (Table 6) are currently under review.

TABLE 6

COMPARATIVE GOLF COURSE FUNGICIDE/HERBICIDE USE

TILDEN PARK GOLF COURSE

Products	2010 Total Amount	2009 Total Amount	% Chg.
Fungicides			
Chlorothalonil	35.0G	37.5 lbs.	-7
Vinclozdin	23.0 lbs.	9.0 lbs.	+260
Iprodine	0	3.0G	-100
Herbicides			
Powerzone	14.0G.	14.5G	-3
Roundup	.75G	.75G	0
Plant Growth Regulators			
Primo/Proxy	10.75G	.875G	+1,229

2010 ANNUAL ANALYSIS OF PESTICIDE USE

WILLOW PARK GOLF COURSE

PRODUCTS	2010 Total Amount	2009 Total Amount	% Chg.
Fungicides			
Chlorothalonil	22.5G	5.0G	+450
Propiconazole	175 lbs.	590 lbs.	-70
Harpoon (Algaecide)	0	6.0G	-100
Herbicides			
Roundup	.24G	.92G	-74

DISTRICT UNITS

The District Regional trail units in Central Contra Costa, Alameda-Niles and East Contra Costa are responsible for trailside vegetation management on the District's two-county system. Trail expansion for these trail units has tripled in the last ten (10) years. Trail maintenance, maintenance agreements with other public agencies and a good neighbor policy account for the higher than average operations use of Roundup and Surflan.

The wildland fuel hazard reduction program, including the Oakland Hills FEMA projects and the ongoing 14 mile (70 acres) Fuel Break Maintenance Program are currently under the management of the District's Fire Department. The focus of their efforts is fire safety, fuels management and participation in the planning and technology sharing with seven other public agencies and neighborhood community wildfire prevention associations. Unmaintained eucalyptus, black acacia, pines, scotch and french broom and other non-native trees and shrubs are the focus of these fuel reduction and vegetation management projects. Reduction and prevention of exotic invasive weed species is a major component in the program planning process for these fuel reduction projects.

Garlon herbicide is the current replacement for Roundup for the control of resprouts from those woody herbaceous plants that are mechanically removed from identified project sites. Other woody herbaceous specific herbicides are currently under review for efficacy.

The Design and Construction Department reported pesticide use in 2010 for Trail paving projects in two parks resulted in Roundup and Surflan use in 2010.

PEST MANAGEMENT PROJECTS

Banvel (=Clarity) is the primary herbicide for the control of rangeland weeds (artichoke thistle, purple starthistle). Similar to 2009, action levels were reached at Briones, Carquinez Strait, Mission Peak, Pleasanton Ridge (Vargas Plateau), Canyon Heights and Dublin Hills in 2009. Action levels of purple starthistles were reached in Wildcat Canyon in 2009. Control in 2010, as well as 2009, was provided by Contra Costa Department of Agriculture in conjunction with the artichoke thistle control project.

Ground squirrel populations at Del Valle and Diablo Foothills reached action thresholds in 2010, as well as in 2009. Contract control work with Alameda County Department of Agriculture has assisted in

2010 ANNUAL ANALYSIS OF PESTICIDE USE

damage reduction to park facilities from these burrowing rodents. Diphacinone is a treated grain bait formulation used to control ground squirrels. It is dispensed in tamper-proof bait stations for a two-week period with every other day inspection of bait supply. Shoreline parks (Crown Beach and Pt. Pinole) efforts are directed at maintaining an acceptable number of squirrels above which would result in excessive damage to park facilities. It is anticipated that the ground squirrel control efforts in Shoreline parks will continue in the year 2011.

PRIORITY RESOURCE MANAGEMENT PROJECTS

Table 3 is intended to separate resource management projects, which may be of short duration, from established operational facility pest management needs. These are specific projects with the intent of eliminating exotic invasive plants that have the potential of degrading parkland natural resources, and add an additional element to the Fuel Reduction Program.

Spartina:

The spread of non-native (Spartina spp.) in the San Francisco Bay Estuary continues to be a major concern for wetland managers. The District is working closely with the Coastal Conservancy, which is the lead agency in developing a regional plan to manage, control or eradicate spartina in the Bay area. No control work was authorized in 2003 until an environmental impact report and biological opinion were completed. In 2005, the San Francisco Regional Water Control Board review process permitted the District to treat one hundred eighty two acres (182) acres in three shoreline areas (Oro Loma and Cogswell marsh at Hayward Shoreline, Point Pinole, and Arrowhead Marsh). In 2010, the District treated one hundred seventy three acres (173) in these same three Shoreline parks. This control project continues to demonstrate a reduction in target plant populations and the efficacy of the chemical required to achieve this level of success.

Artichoke Thistle:

In 2010, 40 acres of artichoke thistle were treated in Wildcat Canyon principally with the use of Banvel (= clarity) to protect the Federally-listed species: Santa Cruz Tar-plant (Holocarpa macradenia) and restore grassland diversity.

Yellow starthistle:

Yellow starthistle is a wide-spread problem in the District open space grasslands in both Alameda and Contra Costa Counties. A considerable amount of staff time has been devoted to developing strategies to manage the current infestations and prevent further spread of this noxious weed. In 2009, the District treated four hundred and seven (407) acres at Crockett Hills, Briones and Del Valle with Transline herbicide. Preliminary results on project sites suggest better than 95% control. No 2010 applications were made because of inclement weather. In 2010, a total of 70 acres (Round Valley, Wildcat Canyon and Diablo Foothills) were subjected to prescribed fire for yellow starthistle and medusahead control.

2010 ANNUAL ANALYSIS OF PESTICIDE USE

IPM Alternatives to Pesticide Use

The District has for many years both from a policy, as well as practices perspective, embraced the full definition of what is meant by an integrated approach to pest management. By definition and practice it is an ecological approach to solving pest problems and provides pest management strategies that focuses on pest prevention or suppression with a minimum impact on human health, non-target species and the environment. All of these elements are practical considerations in implementing a public agency IPM program. Preferred pest management techniques include: biological control, mechanical means, habitat modification to make it incompatible with pest development and chemical control where necessary and most target specific.

In 2010, a "methods of pest control questionnaire" was created to generate information to be collected regarding alternative methods or practices currently being used by park staff. The questionnaire was an effort to "cast a net" requesting specific information, and to communicate and maintain the exchange of internal and external information and share the results. The questionnaire was sent electronically to thirty-four (34) parks or park groupings, twenty-six (26) parks responded to the questionnaire and all units were well represented. The data was used to compile a report that investigated and shared alternative non-chemical methods used to control pests over the majority of park district lands. The following is a list of commonly used alternative, non-chemical, methods. These methods are used to control pests over the vast majority of the Park District land.

IPM ALTERNATIVES TO PESTICIDE USE

Pest	Monitor	Control Methods
Rat/Mice	Census Blocks	Sanitation, Habitat exclusion (structural repairs)
Gophers	Mound counts	Macabie traps, Owl boxes
Yellowjackets/Ants	Delta traps	Sterling traps/ant stakes
Geese/Pigeons	Turf destruction and feces	Electronic sound makers and dog/handler, hazing (pigeon) Kevlar tape and predatory owl statue
Aquatic weeds	Rake sampler	Mechanical Weed Harvester
Terestrial weeds Range:	Yellow starthistle Yellow starthistle Medusahead Misc. Thistles/stinkwort French broom	Biological control (5 seed head insects:1rust)12 District parks Prescribed burns 2 parks; Total 77 acres Flaming and hand torching (propane) Volunteer hand removal, Redwood, Miller Knox

2010 ANNUAL ANALYSIS OF PESTICIDE USE

Landscape:	Various thistles, nettles, poison hemlock, clover, mallow, sow thistle, filaree	Mowing, weedeating, trailsides, roadsides (all parks) Use of fines (small gravel) beneath picnic tables for weed suppression (20 parks)
Turf improvement	Brown spots and bare areas	Top dressing, compost tea, aeration, properly timed irrigation, compost use from Tilden Nature Area Farm

The Districts IPM Specialist realizes a single method of control will not provide effective levels of sustainable control of a pest species whether it is an insect, range weed or vertebrate species. A successful long-term pest management program, as implemented by this Park District, is designed to include all possible control considerations to achieve the goal of promoting the most environmentally safe, cost effective and sustainable pest management practices that will ensure public and employee protection and that of our mission – public resource management.

PESTICIDE EXEMPTIONS

The District Integrated Pest Management policy permits exemption to the Board approved list of pesticides, with the approval of the IPM Specialist. This provides a measure of flexibility in the program to be able to respond to specific and limited purpose pest control with use of non-approved pesticides. The following tabular representation lists the limited exemptions for 2010.

TABLE 7 – 2010 PESTICIDE EXEMPTIONS

Pesticide	Applicator	Type	Toxicity Class	Park	Amount	
					2010	2009
Aluminum Phosphide	Contractor	Rodent/ Fumigant	Category 1 Danger	Camp Arroyo, Del Valle	8.0 lbs.	6.5 lbs.
Dimension 40WP Gallery 75DF	Stewardship	Herbicide	Category 3 Caution	Hayward Shoreline (Least Tern Island)	12 oz. 10 oz.	12 oz. 10 oz.
Milestone VM Plus	Stewardship Fuels Reduction Land Acquisition	Herbicide	Category 3 Caution	Pt. Pinole Brushy Peak Lake Chabot	2.5G	1.5G

2010 ANNUAL ANALYSIS OF PESTICIDE USE

PEST MANAGEMENT WORKING GOALS FOR 2011

- Provide broader involvement in IPM Program by Unit Managers through quarterly reports and published information.
- Focus on park pest management plans to achieve acceptable levels of pest control by establishing pest management needs, goals and objectives on a park by park basis.
- Continue to reduce pesticide risks to park visitors, District employees and to the environment from the treatment of pests and pesticide use levels.
- Continue to work collaboratively with pest management research specialists to expand non-pesticide alternatives.
- Continue to provide annual pesticide safety training to all District applicators.
- Schedule fall annual IPM training for all interested Park District employees.
- Complete the Pest Management Program for Tilden Park Golf Course by December 2011.

APPROVED LIST OF PESTICIDES FOR EBRPD FOR 2010

CATEGORY I – *DANGER*

NONE USED

CATEGORY II – *WARNING*

NAME	USE	DEPARTMENT
Oxadiazon* (Ronstar)	Herbicide	Tilden Golf Course**
CATEGORY III & IV - *CAUTION*		
NAME	**USE**	**DEPARTMENT**
Amorphous silica gel* (Dri-Die)*	Insecticide	Operations (including concessionaires)
Ant Traps or Stakes* (Arsenic trioxide, Boric Acid)*	Insecticide (ants only)	Operations (including concessionaires)
Bacillus thuringiensis (Dipel, Thuricide)	Insecticide	Operations, Botanic Garden
Hydrated lime and copper sulfate (Bordeaux Mixture)	Muli-purpose (fungicide insecticide)	Botanic Garden, Operations (orchards)
Chlorophacinone/Diphacinone (Rozol)	Rodenticide	Operations (use areas), Range (California ground squirrel) Tilden Golf Course**
Copper Naphthenate	Wood preservative	Operations, Planning, Design
Copper Sulfate	Algicide, molluscide	Water Management (under State DOHS direction)
Dicamba (Banvel)	Herbicide	Range (artichock and purple starthistle)
Dichobenil* (Casoron)	Herbicide	Operations, Planning & Design
Gas Cartridges (U.S. Forest Service)	Fumigant for burrowing rodents	Operations, Range
Glyphosate (Roundup, Rodeo) Aquamaster	Herbicide	Operations, Range, Fuel Break, Tilden and Willow Park Golf Courses**, Botanic Garden
Insecticidal Soap* (Safers)	Insecticide	Operations, Botanic Garden, Commercial farm (Ardenwood)
Oryzalin (Surflan)	Herbicide	Operations, Planning & Design
Pyrethrum* (Pyrenone)	Insecticide	Operations (bee, wasp nests), commercial farm (Ardenwood)
Scotts Fertilizer Plus* (has Benomyl)	Fungicide	Golf Course**
Sulfur*	Fungicide	Commercial farm (Ardenwood)
Triclopyr (Garlon 4, pathfinder II) Garlon 4 Ultra	Herbicide	Operations, Fuel Break

* Indicates material not appearing in the list in Exhibit B of the 1984 Policies and Practices.
** Material subject to cancellation pending completion of IPM Golf Course Plan.

GOLF COURSE PESTICIDE DESCRIPTIONS

Iprodione/Thiophanate-Methyl (Scotts Fertilizer plus Fungicide VII) – is a combination of two fungicides used on greens to control fusarium. Category III – Caution. EPA Reg. No. 538-194

Mancozeb (Fore) – is a fungicide used to control anthracnose on greens. Category III – Caution. EPA Reg. No. 707-240

Quintozene (Lesco PCNB plus Fertilizer) – is a fungicide used to control sclerotina on greens. Category III – Caution. EPA Reg. No. 10404-37. Also, (Scotts Fertilizer plus Fungicide II). Category III – Caution. EPA Reg. No. 538-108

Thiophanate-Methyl (Cleary's 3336) – is a fungicide used to control fusarium on greens. Category III – Caution. EPA Reg. No. 1001-63. Also, (Scotts Systemic Fungicide). Category III – Caution. EPA Reg. No. 538-88

Flutolanil (Prostar) - is a systemic fungicide that controls diseases caused by brown patch, red thread, snow mold and fairy ring. Category III – Caution EPA Reg. No. 432-1223

Ethephon (Proxy, Primo Maxx) is an organic phosphorus compound used in turf as a growth regulator for Poa annua seedhead suppression. Category III – Caution EPA Reg. No. 100 -937

Chlorothalonil (Daconil, Primera One 720SFT, Mainsail-6) is a nitrile compound used as a preventative foliar Fungicide. Category III - Caution EPA Reg. No. 72112-6.

Propiconazole (E.PRO 14.3MEC, Banner Maxx) is a triazole fungicide that has protective, curative, and systemic activity. Category II - Warning EPA Reg. No. 79676-8.

Vincolozdin (Touche EG, Curalan) is an analide compound used as a contact and preventative fungicide. Category III – Caution EPA Reg. No. 7969-85-10404.

EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2010 PESTICIDE USAGE

		HERBICIDES					RODENTICIDES
PARKS	PURPOSE	ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS
Anthony Chabot	Campgrounds: eucalyptus resprouts, poison oak, stables					xx553.0	x1.87
Ardenwood	Deer Park picnic sites, railroad tracks	x160.0	x160.0				
Black Diamond	Weeds: Fennel. Rats: roof rats, parking lots, roadside entrance	252.0					x 1.5
Botanic Garden	Weeds: poison oak, blackberries in plantings, horsetail	44.0					
Briones	Picnic areas, parking lots, fence lines, staging area	296.0					
Camp Arroyo	Weeds: pathways, parking lot, leachfield, rope course, rats	80.0	120.0				x2.5
Carquinez Strait	Parking and staging areas	147.0	51.0				
Contra Loma	Weeds: picnic sites, parking lot, storage yard, cottonwoods, park entrance	512.0	412.0				
Coyote Hills	Weeds: trail sides, picnic area, parking lot, fennel	455.0					
Crockett Hills	Crockett Ranch staging area, edge of pavement	140.0	51.0				
Cull Canyon	Weeds: parking lot median, picnic sites	150.0	115.0				
Del Valle	Weeds: campground, eastside buildings, propane tank sites, service yards, east shore trail	xx1392.0	384.0	x446.0			

x - contractor
xx - contract and park staff

EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2010 PESTICIDE USAGE

		HERBICIDES					RODENTICIDES
PARKS	PURPOSE	ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS
Diablo Foothills	Weeds: picnic sites, recreation area	231.0	113.0				
Don Castro	Weeds: picnic sites, parking lot median, service yard	250.0					
Eastshore State Park	Weeds: trailside, blackberry, fencelines, fennel, pepperweed	xx632.0				x16.0	
Garin	Weeds: landscape, Meyer's Estate, parking lot, rats	70.0					x2.16
Kennedy Grove	Weeds: staging area, parking lot, picnic sites, Sobrante Ridge staging areas	100.0	50.0				
Lake Chabot	Weeds: trail heads, staging areas, picnic sites, parking lots, eucalyptus	620.0	384.0			20.0	
Las Trampas	Service yard, staging areas (Bishop Ranch, Bollinger, corral), rats	425.0					x3.0
Martin L. King	Weeds: picnic sites, AHM grove, trailsides, acacia resprout control	424.0					
Middle Harbor	Weeds: pathways, turf, landscape, fennel	106.0				x8.0	
Miller-Knox	Weeds: picnic sites, landscape, Ferry Pt.	192.0	96.0				
Oyster Bay	Weeds: picnic sites, trailsides, sculpture	80.0					
Peralta Oaks	Weeds: landscape beds, english ivy	x3.0					

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2010 PESTICIDE USAGE

		HERBICIDES					RODENTICIDES
PARKS	PURPOSE	ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS
Point Isabel	Trailside fennel and pampas grass control	0.0					
Point Pinole	Weeds: eucalyptus, acacia resprout, poison oak, picnic sites, Pinole Shores, Wildcat Trail, teasel, fennel	xx162.0				xx208.0	
Quarry Lakes	Landscape, parking lot, picnic sites, fencelines, trailsides	350.0					
Redwood School House	Rats: roof rats						x.75
Roberts	Weeds: volley ball court, lower ball field surrounds, acacia resprout, archery range	68.0					
Shadow Cliffs	Weeds: parking lots, medians, picnic sites, poison oak, Stanley Blvd. landscape, Brushy Peak	642.0	400.0				
Sibley	Weeds: stinkwort, eucalyptus, staging areas, rats	392.5					x.75
Sunol	Weeds: roadsides, parking lots. Rats: roof rats	----					x.93
Temescal	Weeds: picnic areas, eucalyptus. Rats: roof rats, poison oak	x42.0					x2.25
Tilden	Weeds: Brazil Room, cape ivy, weeds, eucalyptus resprouts	x64.0				x128.0	x2.5
Tilden Corp Yard	Rats: roof rats						x1.3
Tilden Little Farm	Rats: roof rats					x256.0	x1.0
Waterbird Preserve	Parking lots, roadside curb	101.0	51.0				
Wildcat Canyon	Eucalyptus, acacia resprouts					x384.0	

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2010 PESTICIDE USAGE

		HERBICIDES					RODENTICIDES
PARKS	**PURPOSE**	**ROUNDUP OZ**	**SURFLAN OZ**	**BANVEL OZ**	**CASORON LBS**	**GARLON OZ**	**DIPHACINONE LBS**
CONCESSIONAIRES							
Tilden Redwood Valley Train	Weeds: train tracks		128.0				
Tilden Golden Gate Train	Weeds: train tracks, brush control, new track area	192.0					
Tilden Golf Course	Weeds: clubhouse buildings, parking lot edges, service yard	112.0					
Willow Park Golf Course	Weeds: course walkways, parking lot, structures	33.0					

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2010 PESTICIDE USAGE

		HERBICIDES					RODENTICIDES
PARKS	**PURPOSE**	**ROUNDUP OZ**	**SURFLAN OZ**	**BANVEL OZ**	**CASORON LBS**	**GARLON OZ**	**DIPHACINONE LBS**
DISTRICT UNITS							
Alameda Creek Trails	Weeds: staging areas, Arundo donax, service yard	211.0	62.5				
Contra Costa Trails	Weeds: Canal, Moraga, Lafayette Trail, California Hiking Trail, Iron Horse Trail, Mt. Diablo Trail	1280.0	1280.0			83.2	
Design/Construction	Weeds: Big Break, blackbery	x384.0					
East Contra Costa Trails	Weeds: Delta De Anza, Marsh Creek, Antioch/Oakley Pier, Big Break Trails, staging area	1442.0	1080.0				
Fuel Break Projects, FEMA, Fuels Modification	FEMA project: cut stump, resprout control eucalyptus, broom, Claremont Canyon, Anthony Chabot, RAW station	6.0				xx852.5	
PEST MANAGEMENT PROJECTS							
Purple Starthistle	***Net Acres***	***Roundup***		***Banvel***			
Briones	.015	2.0		0.0			
Carquinez	1.380	16.0		19.8			
Del Valle	1.00			48.0			
Fairmont Ridge	1.50			60.0			
Garin	1.50			60.0			
Las Trampas	.29			13.2			
Lone Tree	.006			.30			
Mission Peak	4.25			216.0			
Pleasanton Ridge	3.0			124.0			
Sunol	4.50			232.0			
Wildcat Canyon	2.20	69.0		0.0			
TOTAL ACRES	**19.64**	**87.0**		**773.3**			

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2010 PESTICIDE USAGE

		HERBICIDES					RODENTICIDES
PARKS	**PURPOSE**	**ROUNDUP OZ**	**SURFLAN OZ**	**BANVEL OZ**	**CASORON LBS**	**GARLON OZ**	**DIPHACINONE LBS**
PEST MANAGEMENT PROJECTS							
Artichoke Thistle	***Net Acres***						
Black Diamond	.516			27.40			
Briones	.212			10.75			
Brushy Peak	.75			36.00			
Carquinez	.075			4.0			
Contra Loma	0			0			
Diablo Foothills	.12			6.8			
Kennedy Grove	.06			3.0			
Las Trampas	.043			1.86			
Morgan Territory	.09			4.5			
Sibley	.02			1.0			
Tilden	.02			1.0			
TOTAL ACRES	**1.90**			**96.31**			
VERTEBRATE	**GROUND SQUIRRELS**						
Ardenwood	Control						0
Black Diamond	Control						0
Camp Arroyo	Control						x80.0
Crown Beach	Control						x170.0
Del Valle	Control						x600.0
Diablo Foothills	Control						x200.0
Martin L. King	Control						0.0
Miller-Knox	Control						0.0
Pt. Pinole	Control						25.0
Sunol	Control						0.0
Total Ground Squirrel Control							**xx1075.0 lbs**
Total Rodent Control							**20.5**
TOTAL ALL PARK PESTICIDE USE	**2010**	**xx12242 oz (95.6G)**	**xx4937.5 oz (38.6G)**	**x1315.6 oz (10.3G)**	**0**	**xx2508.7 oz (19.6G)**	**xx1095.50 lbs**

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS.	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
Anthony Chabot	2009	Eucalyptus respond control	20,000									0		0	
	2010	Eucalyptus, poison oak, rats	20,000									553	+100	x1.87	+100
Ardenwood	2009		0	0		0									
	2010	Picnic sites, railroad track	20,000	x160	+100	x160	+100								
Black Diamond	2009	Weeds: fennel, poison oak, service yards, parking lot. Rats: roof rats	32,000	849		158								x1.25	
	2010	Weeds: Fennel, picnic sites. Rats: roof rats	32,000	252	-70	0	-100							x1.50	+20
Botanic Garden	2009	Weeds: poison oak, landscape weeds. Rats: roof rats, Cape Ivy	3,500	xx58											
	2010	Weeds: poison oak, landscape weeds. Rats: roof rats	3,500	xx44	-26										
Briones	2009		0	0											
	2010	Picnic sites, parking lot staging area	18,500	296	+100										
Camp Arroyo	2009	Weeds: pathway, staging area, propane tanks, parking lot. Rats: roof rats	25,500	390		615								x1.25	
	2010	Weeds: pathway, parking lot, fence lines, rats	25,500	80	-387	120	-412							x2.5	+100
Carquinez Strait	2009		0	0		0									
	2010	Parking lot staging area	3,500	147	+100	51	+100								
Contra Loma	2009	Weeds: picnic sites, parking lots, roadside entrance, storage yard	20,000	320		320									
	2010	Weeds: picnic sites, storage yard, cottonwoods	38,000	512	+60	412	+29								

x - contractor
xx - contractor and park staff

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
Coyote Hills	2009	Weeds, trail sides, picnic area, fennel, parking lot	43,000	1029											
	2010	Weeds, trail sides, picnic area, fennel, parking lot	32,500	455	-785										
Crockett Hills	2009		0	0		0									
	2010	Staging area parking lot	3,500	140	+100	51	+100								
Crown Beach	2009	Weeds: parking lot, picnic sites, service road edge	15,500	0								x84			
	2010	Weeds: parking lot, picnic sites, asphalt cracks, turf	0	0								0	-100		
Cull Canyon	2009	Weeds: parking lot median, picnic sites	12,000	585		0									
	2010	Weeds: parking lot median, picnic sites, trail, service rd.	3,500	150	-+290	115	+100								
Del Valle	2009	Weeds: campground, eastside buildings, propane tank sites	4 acres	490		360		x384							
	2010	Weeds: campground, eastside buildings, propane tank sites, East Shore trail	4 acres	xx1392	+230	384	+7	x446	+16						
Diablo Foothills	2009	Weeds: Picnic sites	2,500	269		15									
	2010	Weeds: Picnic sites, recreation area	2,500	231	-14	113	+100								
Don Castro	2009	Weeds: parking lot median, picnic sites, service yard buildings, 5 Canyons	8,500	330		40									
	2010	Weeds: picnic sites, parking lot median, 5 Canyons	5,000	250	-32	0	-100								

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
East Shore State Park	2009	Weeds: trailside, fenceline, pepperweed	42,000	xx788		xx300						x16		0	
	2010	Weeds: trailside, fenceline, pepperweed	42,000	xx632	-20	0	-100					0	-100	x2.16	+100
Garin	2009	Weeds: picnic sites, barn area, service yard, firebreak	3,500	12										0	
	2010	Weeds: Meyer Estate landscape	3,500	70	+483									x2.16	+100
Kennedy Grove	2009	Weeds: staging area, parking lot, trail heads, picnic sites, Sobrante Ridge staging area, Fern Cottage	10,500	75		75									
	2010	Weeds: staging area, parking lot, trail heads, picnic sites, Sobrante Ridge staging area, Fern Cottage	10,500	100	+33	50	-33								
Lake Chabot	2009	Weeds: parking lots, trail heads, picnic sites, eucalyptus	28,000	410		112						0			
	2010	Weeds: parking lots, trail heads, picnic sites. teasel control, eucalyptus	28,000	620	+51	384	+100					20	+100		
Las Trampas	2009	Weeds: picnic sites, staging area.	35,000	448										0	
	2010	Weeds: service yard, Bolinger Bishop Ranch	35,000	425	+5									x3.0	+100
Martin Luther King	2009	Weeds: picnic sites, AHM Memorial Grove, trailsides	35,000	588											
	2010	Weeds, picnic site, AHM Grove, trail sides	35,000	424	-28										

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
Martinez Shoreline	2009	Eucalyptus, parking lots, Martinez	15,000	0		0									
	2010	Eucalyptus, parking lots, Martinez	15,000	101	+100	51	-100								
Middle Harbor	2009	Weeds: pathways, turf, landscape, eucalyptus	20,000	119								0			
	2010	Weeds: pathway, turf landscape, fennel, eucalyptus	20,000	106	-11							x8	+100		
Miller-Knox	2009	Weeds: picnic sites, parking lots, Ferry Point trail, fence lines	38,000	384		120						128			
	2010	Weeds: picnic sites, trail heads, fence lines, broom, ferry point	15,500	192	-50	96	-20					0	-100		
Peralta Oaks	2009	Weeds: landscape, Trudeau Center, pathways, parking lot	0	0											
	2010	Weeds: landscape, Trudeau Center, pathways, parking lot	500	x3	+100										
Point Isabel	2009	Trail weeds	1,000	0		0									
	2010	Trail weeds	1,000	0	0	0	0								

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
Point Pinole	2009	Weeds: eucalyptus, acacia resprout, picnic sites, Pinole shores/Wildcat/San Pablo Trails, poison oak	80,000	x307		x377						xx170			
	2010	Weeds: Eucalyptus, acacia, teasel, fennel, poison oak, picnic sites, Pinole Shores/ Wildcat Trails	85,000	xx162	-47	0	-100					xx208	+22		
Quarry Lakes	2009	--		0											
	2010	Landscape, picnic areas and parking lot	39,000	350	+100										
Redwood School House	2009	Rats: roof rats	1,000											x.5	
	2010	Rats: roof rats	1,000											x.75	+50
Roberts	2009	Weeds: volleyball court, lower ballfield margin	1,500	0.5											
	2010	Weeds: acacia resprouts	3,500	68	+135										
Shadow Cliffs	2009	Weeds: parking lot, medians, tree bowls, poison oak, Stanley Blvd. landscape, staging areas	50,000	802		905									
	2010	Weeds: parking lot, medians, tree bowls, poison oak, Stanley Blvd. landscape, staging areas	48,000	642	-20	400	-56								
Sibley	2009	Weeds: stinkwort, eucalyptus, mayten. Rats: roof rats	30,000	136								x4		0	
	2010	Weeds: stinkwort, eucalyptus, mayten. Rats: roof rats	35,000	392	+188							0	-100	x.75	+100

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

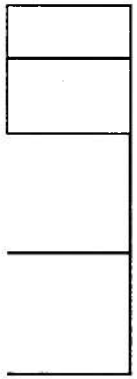
				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
Sunol	2009	Weeds: roadside, parking lots, rats	--											x1.75	
	2010	Weeds: roadside, parking lot	--											x.93	-47
Temescal	2009	Weeds, parking lot, eucalyptus. Rats:roof rats	1,000	0										x2.0	
	2010	Weeds: parking lot, eucalyptus, broom. Rats: roof rats	1,500	x42	+100									x2.25	+12.5
Tilden	2009	Weeds: eucalyptus resprouts, Anza lawn perimeter, Cape ivy	3,500	xx200								x8		x2.5	
	2010	Weeds: eucalyptus resprouts, Anza lawn perimeter, Cape ivy	3,500	x64	-68							x128	+100	x2.5	0
Tilden Corp Yard	2009	Rats: roof rats	1,000											x.70	
	2010	Rats: roof rats	1,000											x1.30	+86
Tilden Little Farm	2009	Rats: roof rats	1,000									0		x.64	
	2010	Rats: roof rats, Eucalyptus	3,000									x256	+100	x1.00	+56

x-contractor
xx-contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	% chg	DIPHACINONE LBS	% chg
Waterbird	2009	--		0		0									
	2010	Parking lot, roadside	1,500	101	+100	51	+100								
Wildcat Canyon	2009	Weeds: Alvarado park: picnic sites, pathways; Wildcat Canyon: Eucalyptus	4,500									x284			
	2010	Weeds: Alvarado park: picnic sites, pathways; Wildcat Canyon: Eucalyptus	4,500									x384	+35		
CONCESSIONAIRES															
Ardenwood Picnic People Rail Road	2009	Weeds, picnic sites, railroad tracks	20,000	x278		x300									
	2010	Weeds, picnic sites, railroad tracks	20,000	0	-100	0	-100								
Tilden Redwood Valley Train	2009	Weeds: train tracks	2,000			128									
	2010	Weeds: train tracks	2,000			128	0								
Tilden Golden Gate Train	2009	Weeds: train tracks	43,500	192											
	2010	Weeds: train tracks	43,500	192	0										
Tilden Golf Course	2009	Weeds: walkway, greens and roughs	10,500	96											
	2010	Weeds: walkway, greens and roughs	10,500	112	+17										
Willow Park Course	2009	Weeds: course walkways, buildings, parking lot, structures	2,500	31											
	2010	Weeds: course walkways, buildings, parking lot, structures	2,500	33	+6.5										

x - contractor
xx - contractor and park staff



x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	% chg	DIPHACINONE LBS	% chg
DISTRICT UNITS															
Alameda Creek Trail	2009	Weeds: Arundo control, staging area	8,500	252		181									
	2010	Weeds: Arundo control, staging area, Iron Horse Trail	8,500	211	-16	62.5	-65								
Contra Costa Trails	2009	Weeds: Canal, Moraga, Lafayette, California Hiking, Mt. Diablo, Iron Horse trail	15 acres	1344		544						0			
	2010	Weeds: Canal, Moraga, Lafayette, California Hiking, Mt. Diablo, Iron Horse trail	15 acres	1280	-5	1280	+100					83	+100		
Design/ Construct-ion	2009	Landscape, Blackberry	14,560	x384											
	2010	Landscape, Big Break Black berry	10,500	x384	0										
East Contra Costa Trails	2009	Weeds: Delta De Anaza, Marsh Creek Canal, and Big Break trails, staging area	25 acres	1,024		768									
	2010	Weeds: Delta De Anaza, Marsh Creek Canal, and Big Break trails, staging area	25 acres	1442	+41	1080	+41								
Fuel Break FEMA Projects Fuels Reduction	2009	Weeds: eucalyptus, broom resprout control, Raws Station weed control, FEMA projects	70 acres	0								x1468			
	2010	Weeds: eucalyptus, broom resprout control, Raws Station weed control, FEMA projects	70 acres	6	+100							xx852.5	-42		

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	NET ACRES	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	% chg	DIPHACINONE LBS	% chg
PEST MANAGEMENT PROJECTS															
RANGE WEEDS		Purple Starthistle													
	2009		0.04	0				1.90							
Briones	2010		0.015	2.0	+100			0.00	-100						
	2009		0.45	0				25.50							
Carquinez	2010		1.38	16.0	+100			19.8	-22						
	2009		1.00					48.0							
Del Valle	2010		1.00					48.0	0						
	2009		0.50					24.0							
Fairmont Ridge	2010		1.50					60.0	+100						
	2009		1.50					32.0							
Garin	2010		1.50					60.0	+87						
	2009		1.25					13.0							
Las Trampas	2010		0.29					13.2	0						
	2009		0.01					0.30							
Lone Tree Rodeo	2010		.006					0.30	0						
	2009		0.25					8.00							
Mission Peak	2010		4.5					216.0	+100						

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	NET ACRES	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	% chg	DIPHACINONE LBS	% chg
PEST MANAGEMENT PROJECTS															
Range Weeds	*Purple Starthistle*														
Pleasanton Ridge	2009		1.75					64							
	2010		3.00					124	+62						
Sunol	2009		1.75					64							
	2010		4.50					232	+262						
Wildcat Canyon	2009		.45					12.0							
	2010		2.20	69.0				0	-100						
TOTAL ACRES	2009		8.95												
	2010		19.64												
PESTICIDE USED	***2009***			***0***				***292.7***							
	2010			***87***	***+100***			***733.3***	***+100***						

x - contractor
xx - contractor and park staff

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	NET ACRES	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
PEST MANAGEMENT PROJECTS															
Range Weeds		***Artichoke Thistle***													
Black Diamond	2009		.22					11.0							
	2010		.516					27.4	+149						
Briones	2009		.15					7.5							
	2010		.212					10.75	+90						
Brushy Peak	2009		.10					3.0							
	2010		.75					36.0	+1100						
Carquinez	2009		.43					24.0							
	2010		.075					4.0	-83						
Contra Loma	2009		.02					1.0							
	2010		0					0	-100						
Diablo Foothills	2009		0					0							
	2010		.12					6.8	+100						

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	NET ACRES	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
PEST MANAGEMENT PROJECTS															
Range Weeds		*Artichoke Thistle*													
Garin	2009		.55					15.0							
	2010		0					0	-100						
Kennedy Grove	2009		.06					3.0							
	2010		.06					3.0	0						
Las Trampas	2009		.11					4.9							
	2010		.043					1.86	-62						
Morgan Territory	2009		.05					2.5							
	2010		.09					4.5	+80						
Sibley	2009		.03					1.5							
	2010		.02					1.0	-33						
Tilden	2009		0					0							
	2010		.20					1.0	+100						
TOTAL ACRES/ PESTICIDE	***2009***		**1.74**					***74.40***							
	2010		**1.90**					***96.31***	***+30***						

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT

Table 2: 2009- 2010 Comparative Summary of Pesticide Usage

				HERBICIDES										RODENTICIDES	
PARKS	YEARS	PURPOSE	NET ACRES	ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	%chg	DIPHACINONE LBS	% chg
PEST MANAGEMENT PROJECTS															
Vertebrate		*Ground Squirrel*													
Ardenwood	2009													100 lbs.	
	2010													0	-100
Black Diamond	2009													100 lbs.	
	2010													0	-100
Camp Arroyo	2009													x72 lbs	
	2010													x80 lbs	+11
Crown Beach	2009													0	
	2010													x170 lbs	+100
Del Valle	2009													x400 lbs	
	2010													x600 lbs	+50
Diablo Foothills	2009													300 lbs	
	2010													200 lbs	-33
Martin Luther King	2009													x50 lbs	
	2010													0	-100
Miller-Knox	2009													200 lbs	
	2010													0	-100
Point Pinole	2009													50 lbs	
	2010													25 lbs	-50
Sunol	2009													250 lbs	
	2010													0	-100
TOTAL RODENTICIDE USE	*2009*													1696.18 lbs	
	2010													1095.5 lbs	
TOTAL ALL PARK PESTICIDE USAGE	*2009*			*xx 12,825 (100.2G)*		*xx 4,657 (36.4G)*		*x 439.1 (3.4G)*		*8.0*		*xx 2412 (18.85G)*		*xx 1696.18 lbs.*	
	2010			*xx 12,242 (95.6 G)*	*-4.5*	*xx 4,937 (38.6G)*	*+6*	*x 1351.6 (10.3G)*	*+200*	*0*	*-100*	*xx 2508.7 (19.6G)*	*+4*	*xx 1095.5*	*-34.5*

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT

Table 3: 2009- 2010 Comparative Herbicide Use by Prority Resource Project

					HERBICIDES									
PESTICIDE SPECIES	RESOURCE IMPACT	PARK LOCATIONS	YEARS	TREATMENT SIZE IN ACRES	ROUNDUP OZ	% chg	[x] HABITAT OZ	% chg	GARLON OZ	% chg	BANVEL OZ	% chg	[x] TRANSLINE OZ	%chg
Artichoke Thistle	Loss of plant diversity, grass land	Wildcat Canyon	2009	40	561 (4.4G)						72 (.56G)			
			2010	40	384 (2.5G)	-32					102 (.80G)	+29		
Yellow Starthistle	Invasive exotic, loss of valuable grassland	Crockett Hills, Dyer, Del Valle, Vasco, Arroyo Cerro, Briones	2009	407									2,056 (16G)	
			2010	0									0	-100
Spartina Spp.	Loss of Mudflats	Shoreline Parks	2009	273			25,112 (196G)							
			2010	173			14,848 (116G)	-70						
Pepperweed	Loss of Riparian Habitat	Briones	2009	2			[x]640 (5G)							
			2010	0			0	-100						
Mayweed	Least Tern Habitat	Hayward Shoreline	2009	<.50	[x]64 (.5G)									
			2010	<.50	[x]64 (.5G)	0								
Pampas Grass	Loss of Riparian Habitat	Hayward Shoreline	2009	1.0	232 (1.8G)		230 (1.8G)							
			2010	0	0	-100	0	-100						
Hardwoods	Grassland Restoration	Redwood Serpentine Prairie	2009	4					[x]256 (2G)					
			2010	0					0	-100				
2009 TOTALS				**733.5**	**857 (6.7G)**		**25,982 (203G)**		**[x]256 (2G)**		**72 (.562G)**		**2056 (16.0G)**	
2010 TOTALS				**213.5**	**448 (3.5G)**	**-48**	**15,488 (121G)**	**-40**	**0**	**-100**	**102 (.80G)**	**+29**	**0**	**-100**

[x]Experimental product

EAST BAY REGIONAL PARK DISTRICT
Table 4: 2009- 2010 Two-Year summary of Roundup/Aquamaster Use by District Parks, Operations and Priority Resource Management Projects

UNIT	YEAR 2009			2010			PERCENT CHANGE
	ACREAGE	GALLONS	GAL/AC	ACREAGE	GALLONS	GAL/AC	
District Parks, Operations	165	100.0	.61	173	95	.55	-9.8
Priority Resource Projects	9.5	6.7	.71	8	3.5	.44	-38
TOTAL ANNUAL USE	**174.5**	**106.7**	**.61/avg**	**181**	**98.5**	**.54/avg**	**-11.5**

EAST BAY REGIONAL PARK DISTRICT

Table 5: 5-Year Comparative Use Levels for Park Pest Management Activities

YEARS	ROUNDUP (GAL)	SURFLAN (GAL)	BANVEL (GAL)	CASORON (LBS)	GARLON (GAL)	DIPHACINONE/ (LBS)
2006	56	41	5	0	23	1045
2007	85	42	4	20	28	1330
2008	104	48	5	0	34	1509
2009	106	36	3.5	8	18	1696
2010	96	39	10.0	0	20	1095

***2006 through 2010**

- Roundup average use increased by 11.5%
- Surflan average use decreased by 7%
- Banvel average use increased by 150%
- Casoron average use decreased by 100%
- Garlon average use decreased by 29%
- Chlorophacinone/diphacinone average use decreased by 18%
- 5 year park acreage 11% increase
  (97,490 acres to >108,000 acres)

* This year a moving average was utilized as a method of calculating central tendency over time. This method is commonly used with a time series data (2006-2010) to smooth out the fluctuations and highlight longer-term trends or cycles.