

***2008 ANNUAL ANALYSIS
OF PESTICIDE USE
EAST BAY REGIONAL PARK DISTRICT***

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2008 ANNUAL ANALYSIS OF PESTICIDE USE

This annual report is intended to provide the Board of Directors of the East Bay Regional Park District, Ecology Committee (A joint union-management special committee), and the interested public with a summary, analysis, and evaluation of pesticide use by this agency for year 2008. This report reviews pest management needs and practices within the properties owned and managed by the East Bay Regional Park District. Approximately 98,500 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 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.

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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

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. 62719-40

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

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. 10965-5001 Ditrac EPA. Reg. No. 12455-80 Rozol EPA Reg. No.7173-190

DISTRICT-WIDE PESTICIDE USE

In 2008, twenty eight (28) parks, five (5) concessionaires, four (4) District program units, five (5) 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 2008 Pesticide Usage, provides an accounting of pesticide use District-wide.

Table 2: 2008-2007 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.

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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 2008, as in 2007, weed control efforts to contain the expanding infestation of teasel, and fennel in open grasslands.

In addition, the change in the use of specialty products from broad spectrum invasive weed control materials is reflected in the increase (+34%) in acreage treated and amounts used.

Table 5: Five-Year Comparative Use Levels, lists six (6) pesticide products identified for tracking with a comparison of use 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 98,500 acres. The opening of new parks (Camp Arroyo, Quarry Lakes, Middle Harbor 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, 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 2008 sharply contrasted with that of the prior years. The year 2008, as well as 2007 were characterized with cold temperatures and intermittent winter rains followed by an abnormally dry spring and summer drought conditions. 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 conditions in 2008 meant that the focus for 2008 weed control would be to reduce fire hazards around service yards, parking lots, campground and park structures.

PARK OPERATIONS

Interpretive/Parklands

Black Diamond, Sunol and Coyote Hills 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.

Sunol focused their weed control to reduce annual and perennial weed growth in and around parking lots and roadside sections

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near the equestrian pack station corral and the hang-gliding landing site at Mission Peak.

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 2008 was the management of blackberries, poison oak and scouring rush in planter beds.

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

Weed control efforts within Tilden Park for 2008 focused on cape ivy control and eucalyptus resprout control.

In 2008, as in 2006, a serious effort continued to control roof rats at the Pleasanton Ridge residence, Botanic Garden and Redwood School House. Four and one half pounds (4.5 lbs.) of bait was dispensed in tamper-proof bait stations in 2008.

Maintenance, Interpretive and Recreation

In 2008, as in 2007, the focus of pest management activities at Tilden Corp. Yard and Tilden Little Farm was the control of roof rats. A total of Eleven and 1/4 pounds (11.25 lbs.) of bait was dispensed in tamper-proof bait stations in 2008. This substantial increase was attributed to reduced maintenance of the Little Farm compost bin.

Lakes

Shadow Cliffs park staff prioritized, as in 2007, their use of Roundup to control weedy plants in underdeveloped sites such as the unpaved overflow lot for the waterslides, picnic sites, and 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 on park property. Selective eucalyptus removal along this twenty (20) acre fuel break between park property and the adjacent residential community should accomplish this goal.

Del Valle continues their weed control efforts in 2008 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 2008 to control Stinkwort, an invasive annual, along a one (1) mile section along the service yard roadway.

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Shorelines

Point Pinole, Martin Luther King/Oyster Bay and Miller Knox accounted for the majority of Roundup and Surflan use in this operations unit. Curbs, parking lots, picnic sites and landscape areas 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 and Temescal 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.

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 most of their weed control efforts to spot spraying Roundup to selected sites within the park (Beach house, garden and parking lot). Garlon was used to reduce both poison oak and French broom along trails and pathways of the park.

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 2008 to control brush intrusion as part of a new rail track alignment.

The Ardenwood train concessionaire contracted out this annual weed control work in picnic areas and the railroad tracks in 2008. Ardenwood park staff contracted out this same service in 2007.

The Tilden Redwood Valley train reported surflan use in 2008 for weed prevention in train tracks.

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Golf Courses

In 2008, only Willow Park Golf Courses used Roundup for the control of weedy species. Late winter turf diseases at Tilden Park Golf Course resulted in higher disease pressure in 2008, resulting in increased pesticide use than that of 2007.

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 2007, generally decreased the overall use of turf fungicides in spite of the heavy early season

fungal pressure due to the wet mild 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 2008 over that of 2007 is attributable to a change in the turf superintendents position and reduced disease pressure to turf because of 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

Fungicide	2008 Total Amount	2007 Total Amount	% Chg.
Mancozeb	0	0	0
Thiophanate -Methyl	10 g.	11.25 g.	-11
Quintozene	12 lbs.	350 lbs.	>100
Chlorothalonil	440 lbs.	132 lbs.	>100
Flutolanil	32 lbs.	18	+77
Vinclozidin	8 lbs.	0	+100
Iprodine	240 oz.	0	+100
Herbicides			
Powerzone	10 g.	24 oz.	>100
Roundup	0	4 oz.	-100
Plant Growth Regulators			
Primo/Proxy	811 oz.	1280 oz.	-37

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WILLOW PARK GOLF COURSE

Fungicide	2008 Total Amount	2007 Total Amount	% Chg.
Mancozeb	13 lbs.	10.5 lbs.	+24
Quintozene	0	0	0
Iprodione	0	0	0
Thiophanate -Methyl	0	0	0
Triazole	125 oz.	0	>100
Chlorothalonil	256 oz.	0	>100
Herbicides			
Roundup	87 oz.	4.5 oz.	+183

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. Only Roundup was used in 2008 for pre-pavement weed control at Crown Beach.

The Design and Construction Department reported pesticide use in 2007 and 2008. Major landscape renovation and trail paving projects in four (4) shoreline parks resulted in Roundup, Surflan, and Casoron use in 2007. Only Roundup was used in 2008 for pre-pavement weed control at Crown Beach.

PEST MANAGEMENT PROJECTS

Banvel (=Clarity) is the primary herbicide for the control of rangeland weeds (artichoke thistle, purple starthistle). Similar to 2007, action levels were reached at Briones, Carquinez Strait, Mission Peak, Pleasanton Ridge (Vargas Plateau), Canyon

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Heights and Dublin Hills in 2008. Action levels of purple starthistles were reached in Wildcat Canyon in 2008. Control in 2008, as well as 2007, was provided by Contra Costa Department of Agriculture in conjunction with the artichoke thistle control project.

Ground squirrel populations at Del Valle and Camp Arroyo reached action thresholds in 2008, as well as in 2007. Contract control work with Alameda County Department of Agriculture has assisted in 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 (MLK, and Miller-Knox) continue to reach action thresholds in 2008, as well as 2007. It is anticipated that the ground squirrel control efforts in Shoreline parks will continue in the year 2009.

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 Airport channel at MLK). In 2008, the District treated three hundred forty one acres (341) in these same three Shoreline parks. This control project continues to demonstrate a reduction in target plant populations and chemical required to achieve this level of success.

Artichoke Thistle:

In 2008, 75 acres of artichoke thistle were treated in Wildcat Canyon principally with the use of Banvel (= clarity) to protect the Federally-listed species: Santa Cruz Tarplant (*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 2008, the District treated one thousand one hundred ninety (1,190 acres) acres at Crockett Hills, Briones and Del Valle with Transline herbicide. Preliminary results on project sites suggest better than 95% control. In 2006 and 2008, a total of 100 acres (Round Valley and Diablo Foothills) each year were subjected to prescribed fire for yellow starthistle control. No prescribed burns were conducted in 2008 for yellow starthistle control.

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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. 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	Delta traps	Sterling traps
Aquatic weeds	Rake sampler	Mechanical Weed Harvester
Terrestrial weeds Range:	Yellow starthistle Yellow starthistle Medusahead French broom	Biological control (5 seed head insects:1 rust)12 District parks Prescribed grazing (goats/sheep) 2 parks: Total 100 acres Prescribed burns 3 parks; Total 200 acres Volunteer hand removal, Redwood - Miller Knox
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)

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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.

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 2007 with the exception of an increase in Roundup use (29%) in park operations and a decrease (25%) in resource management projects.

These figures reflect not only the impact of the 2008/2007 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 thirty eight (38 %) more acreage (108-150) in 2008, the volume of Roundup use per acre did not measurably increase (+2%) 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 slight decrease in Roundup use for priority resource projects (+1.5%) is reflected in the change to specialty

herbicide products to control yellow starthistle and spartina. The use of Transline to control yellow starthistle on an experimental basis continues to suggest this herbicide provides the level of efficacy required to reduce this invasive weeds impact on open grassland.

The experimental product, Imazapyr (Habitat) was substituted for Roundup/Aquamaster in 2005 to determine its efficacy in controlling *Spartina alterniflora*, an invasive wetland plant. Field evaluation continues to provide the necessary efficacy information for short-term/long term evaluation and appropriateness of this herbicide. Two hundred twenty nine gallons (229) over 341 acres were used in the *Spartina alterniflora* project in 2008. 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 (>98,500 acres) of this District, its facilities and maintenance operations, it is a valuable perspective to realize that less than one tenth (0.1%) of one percent of the District's acreage is subjected to pest management activities.

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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 2008.

TABLE 7 – 2008 PESTICIDE EXEMPTIONS

Pesticide	Applicator	Type	Toxicity Class	Park	Amount	
					2008	2007
Aluminum Phosphide	Contractor	Rodent Fumigant	Category 1 Danger	Quarry Lakes Camp Arroyo, Del Valle, Shadow Cliffs	7 lbs.	5.5 lbs.
Premise 75 (Pyrethroid)	Contractor	Termiticide	Category III Caution	Ardenwood	90 lbs.	.09 oz.
Sanafoam Sewer root control	Contractor	Foaming Fumigant	Category 1 Danger	Anthony Chabot Campground	1.5 g	1.5 g.

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PEST MANAGEMENT WORKING GOALS FOR 2009

- 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 annual IPM training for all interested Park District employees by March, 2010.
- Complete the Pest Management Program for Tilden Park Golf Course by December, 2010.
- Reconstruct the Pest Management Technical Advisory Committee.

APPROVED LIST OF PESTICIDES FOR EBRPD FOR 2008**CATEGORY I – DANGER****NONE USED****CATEGORY II – WARNING**

NAME	USE	DEPARTMENT
Chlorpyrifos (Dursban)	Insecticide	Tilden Golf Course**
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)	Multi-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)	Herbicide	Operations, Range, Fuel Break, Tilden and Willow Park Golf Courses**, Botanic Garden
Insecticidal Soap* (Safer)	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)	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 sclerotinia 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

**EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2008 PESTICIDE USAGE**

PARKS	PURPOSE	HERBICIDES						RODENTICIDES
		ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS	
Anthony Chabot	Eucalyptus resprout control					x16		
Black Diamond	Weeds: Fennel. Rats: roof rats, parking lots, ground squirrels	825	10					
Botanic Garden	Weeds: poison oak, blackberries in plantings. Rats: roof rats	38				9	.25	
Camp Arroyo	Weeds: pathways, parking lot, leachfield, rope course	350	480				*4.87	
Contra Loma	Weeds: picnic sites, parking lot, storage yard, cottonwoods, park entrance	512	512					
Coyote Hills	Weeds: trail sides, picnic area, parking lot, fennel	1328	536					
Crown Beach	Weeds: parking lots, service yard, picnic sites, asphalt cracks	192						
Cull Canyon	Weeds: parking lot median, picnic sites	320						
Del Valle	Weeds: campground, eastside buildings, propane tank sites, service yards, east shore trail	530	480	x256				
Diablo Foothills	Weeds: Picnic sites	256	100					
Don Castro	Weeds: picnic sites, parking lot median, service yard	90						
Garin	Weeds: landscape, Meyer's Estate	10.5						

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PARKS	PURPOSE	HERBICIDES						RODENTICIDES
		ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS	
Kennedy Grove	Weeds: staging area, parking lot, picnic sites, Sobrante Ridge staging areas	275	175					
Lake Chabot	Weeds: trail heads, staging areas, picnic sites, parking lots, eucalyptus	624	304			36		
Las Trampas	Service yard, staging areas (Bishop Ranch, Bollinger, corral)	128	72					
Martinez	Eucalyptus removal, Waterbird, Martinez parking lot	192	96			*80		
Martin L. King	Weeds: picnic sites, AHM grove, trailsides, acacia resprout control	317						
Middle Harbor	Weeds: pathways, turf, landscape, fennel	214						
Miller-Knox	Weeds: picnic sites, landscape, Ferry Pt., Eastshore park trail	**281	576			**260		
Peralta Oaks	Weeds: landscape beds, Trudeau Center pathways, parking lot	*33.5						
Point Pinole	Weeds: eucalyptus, acacia resprout, poison oak, picnic sites, Pinole Shores, Wildcat Trail, teasel, fennel	**914				**516		
Quarry Lakes	Landscape, parking lot, picnic sites	820	208					
Redwood School House	Rats: roof rats						* .25	

x - contractor

xx - contractor and park staff

**EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2008 PESTICIDE USAGE**

PARKS	PURPOSE	HERBICIDES						RODENTICIDES
		ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS	
Roberts	Weeds: volley ball court, lower ball field surrounds, acacia resprout, archery range	14	14			*96		
Shadow Cliffs	Weeds: parking lots, medians, picnic sites, poison oak, Stanley Blvd. landscape	588						
Sibley	Weeds: stinkwort, eucalyptus, mayten resprouts	224				*138		
Sunol	Weeds: roadsides, parking lots. Rats: roof rats	70	70					
Temescal	Weeds: picnic areas, eucalyptus. Rats: roof rats	288	416			64	*2.75	
Tilden	Weeds: Brazil Room, cape ivy, weeds, eucalyptus resprouts						*.45	
Tilden Corp Yard	Rats: roof rats						*.75	
Tilden Little Farm	Rats: roof rats						*10.43	
Wildcat Canyon	Eucalyptus, acacia resprouts	32				**83		
CONCESSIONAIRES								
Ardenwood Picnic People-Railroad	Weeds: Railroad tracks, picnic area	*232	*304					
Tilden Redwood Valley Train	Weeds: train tracks		128					
Tilden Golden Gate Train	Weeds: train tracks, brush control, new track area	192						
Tilden Golf Course	Weeds: clubhouse buildings, parking lot edges	0	0					
Willow Park Golf Course	Weeds: course walkways, parking lot, structures	87						

x - contractor

xx - contractor and park staff

**EAST BAY REGIONAL PARK DISTRICT
TABLE 1: SUMMARY OF 2008 PESTICIDE USAGE**

PARKS	PURPOSE	HERBICIDES					RODENTICIDES
		ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	DIPHACINONE LBS
DISTRICT UNITS							
Alameda Creek Trails	Weeds: staging areas, Arundo donax, service yard	373	182				
Contra Costa Trails	Weeds: Canal, Moraga, Lafayette Trail, California Hiking Trail, Iron Horse Trail, Mt. Diablo Trail	1728				*19	
East Contra Costa Trails	Weeds: Delta De Anza, Marsh Creek, Antioch/Oakley Pier, Big Break Trails, staging area	1280	1536				
Fuel Break Projects, FEMA, Fuels Modification	FEMA project: cut stump, resprout control eucalyptus, broom, Claremont Canyon, Anthony Chabot					*3033	
PEST MANAGEMENT PROJECTS							
<i>Purple Starthistle</i>	Net Acres						
Briones	0.10					Banvel	
Carquinez	0.29					.3	
Del Valle	1.00					15.5	
Fairmont Ridge	0.45					52.0	
Garin	.75					4.0	
Las Trampas	1.00					47.0	
Lone Tree	0.01	15.0				9.0	
Mission Peak	1.50					.3	
Pleasanton Ridge	2.30					160.0	
Sunol	1.00					156.0	
Wildcat Canyon	1.25					86.0	
TOTAL ACRES	9.56 acres	15.0				7.0	
						537.1	

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
 TABLE 1: SUMMARY OF 2008 PESTICIDE USAGE

PARKS	PURPOSE	HERBICIDES					RODENTICIDES
		ROUNDUP OZ	SURFLAN OZ	BANVEL OZ	CASORON LBS	GARLON OZ	
PEST MANAGEMENT PROJECTS							
<i>Artichoke Thistle</i>	<i>Net Acres</i>						
Black Diamond	.3			15.0			
Briones	.24			12.3			
Brushy Peak	.10			3.0			
Carquinez	.10			6.1			
Contra Loma	.01			1.0			
Garin	.55			15.0			
Las Trampas	.44	12.0		17.0			
Morgan Territory	.14	1.0		6.6			
Sibley	.10	24.0		0			
Tilden	.66			.33			
TOTAL ACRES	2.64	37.0		76.33			
VERTEBRATE							
GROUND SQUIRRELS							
Ardenwood	Control						50 lbs.
Black Diamond	Control						50 lbs.
Camp Arroyo	Control						xx 90 lbs.
Contra Loma	Control						50 lbs.
Del Valle	Control						xx 300 lbs.
Diablo Foothills	Control						100 lbs.
Martin L. King	Control						250 lbs.
Miller-Knox	Control						300 lbs.
Pleasanton Ridge	Control						300 lbs.
Total Ground Squirrel Control							1490 lbs.
Total Rodent Control		xx 13410 (104.76G)	xx 6199 (48.42G)	xx 613.5 (4.79G)	0	xx 4386 (34.27G)	1509.75 lbs. xx 1509.75 lbs.
TOTAL ALL PARK PESTICIDE USE	2008						

x - contractor
 xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES	
				ROUNDUP OZ % chg	SURFLAN OZ % chg	BANVEL OZ % chg	CASORON LBS. % chg	GARLON OZ %chg	DIPHACINONE LBS % chg		
Anthony Chabot	2007								0		
	2008	Eucalyptus resprout control	20,000						xx16	100	
Black Diamond	2007	Weeds: fennel, poison oak, service yards, parking lot. Rats: roof rats	32,000	608	192						
	2008	Weeds: Fennel, picnic sites. Rats: roof rats	32,000	825	10	-95					
Botanic Garden	2007	Weeds: poison oak, landscape weeds. Rats: roof rats	3,500	75					0	1	
	2008	Weeds: poison oak, landscape weeds. Rats: roof rats	3,500	38	-50				9	100	-75
Briones	2007	Weeds: staging areas, trail sides, picnic areas, service yard	18,500	224							
	2008	Weeds: staging areas, trail sides, picnic areas, service yard	--	0	-100						
Camp Arroyo	2007	Weeds: pathway, staging area, propane tanks, parking lot. Rats: roof rats	35,500	384	460						
	2008	Weeds: pathway, parking lot, fence lines	25,500	350	480	+4					
Contra Loma	2007	Weeds: picnic sites, parking lots, roadside entrance, storage yard	40,200	588	576						
	2008	Weeds: picnic sites, storage yard, cottonwoods	38,000	512	512	-11					

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES						
				ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	% chg	DIPHACINONE LBS	% chg	
Coyote Hills	2007	--	--	0		0										
	2008	Weeds, trail sides, picnic area, fennel, parking lot	58,000	1,328	100	536	100									
Crown Beach	2007	Weeds: parking lot, picnic sites, service road edge	8,500	96												
	2008	Weeds: parking lot, picnic sites, asphalt cracks	8,500	192	+50											
Cull Canyon	2007	Weeds: parking lot median, picnic sites	12,000	405												
	2008	Weeds: parking lot median, picnic sites, trail, service rd.	12,000	320	-21											
Del Valle	2007	Weeds: campground, eastside buildings, propane tank sites	4 acres	512		370	0									
	2008	Weeds: campground, eastside buildings; propane tank sites, East Shore trail	4 acres	530	+3.5	480	+30	*256	100							
Diablo Foothills	2007	Weeds: Picnic sites	1,200	10												
	2008	Weeds: Picnic sites	1,200	256	100											
Don Castro	2007	Weeds: parking lot median, picnic sites, service yard buildings	4,500	206												
	2008	Weeds: picnic sites, parking lot median, 5 Canyons	5,000	90	-56											
Garin	2007	Weeds: picnic sites, barn area, service yard, firebreak	3,500	24												
	2008	Weeds: Meyer Estate landscape	3,500	10.5	-56											

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES											
				ROUNDUP OZ	% chg	SURFLAN OZ	% chg	BANVEL OZ	% chg	CASORON LBS	% chg	GARLON OZ	% chg	DIPHACINONE LBS	% chg						
Kennedy Grove	2007	Weeds: staging area, parking lot, trail heads, picnic sites, Sobrante Ridge staging area, Fern Cottage	40,000	390		262															
	2008	Weeds: staging area, parking lot, trail heads, picnic sites, Sobrante Ridge staging area, Fern Cottage	30,500	275	-29	175	-33								32						
Lake Chabot	2007	Weeds: parking lots, trail heads, picnic sites, eucalyptus	25,000	192		128															
	2008	Weeds: parking lots, trail heads, picnic sites. teasel control, eucalyptus	45,000	624	+225	304	+137								36	+260					
Las Trampas	2007	Weeds: picnic sites, staging area. Rats: roof rats	8,500	32		32															
	2008	Weeds: service yard, eucalyptus	10,500	128	+300	72	+125								0	-100					
Martin Luther King	2007	Weeds: picnic sites, AHM Memorial Grove, trailsides	32,000	312																	
	2008	Weeds, picnic site, AHM Grove, trail sides, acacia resprout	32,000	317	+1.6																
Martinez	2007	Eucalyptus, parking lots, Waterbird, Martinez	15,000	128		0															
	2008	Eucalyptus, parking lots, Waterbird, Martinez	25,000	192	+50	96	+100														
Middle Harbor	2007	Weeds: pathways, turf, landscape, eucalyptus	12,000	100																	
	2008	Weeds: pathway, turf landscape, fennel, eucalyptus	20,000	214	+114																

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007-2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES	
				ROUNDUP OZ % chg	SURFLAN OZ % chg	BANVEL OZ % chg	CASORON LBS % chg	GARLON OZ %chg	DIPHACINONE LBS % chg		
Miller-Knox	2007	Weeds: picnic sites, parking lots, Ferry Point trail, fence lines	45,000	528	192						
	2008	Weeds: picnic sites, trail heads, fence lines, broom, Eastshore trail	35,500	**281	-47	**576	+200				
Peralta Oaks	2007	Weeds: landscape, Trudeau Center, pathways, parking lot	12,500	*53							
	2008	Weeds: landscape, Trudeau Center, pathways, parking lot	12,500	*33.5	-37						
Point Pinole	2007	Weeds: eucalyptus, acacia resprout, picnic sites, Pinole shores/Wildcat/San Pablo Trails, poison oak	85,000	**448		**448					
	2008	Weeds: Eucalyptus, acacia, teasel, fennel, poison oak, picnic sites, Pinole Shores/ Wildcat Trails	85,000	**914	+100	*516	+15				
Quarry Lakes	2007	-	-	0	0						
	2008	Landscape, picnic areas and parking lot	60,000	820	+100	208	+100				
Redwood Park	2007	Roof rats (stables)								x2.5	
	2008	Roof rats (stables)								x2.5	0

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007 - 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES	
				ROUNDUP OZ % chg	SURFLAN OZ % chg	BANVEL OZ % chg	CASORON LBS % chg	GARLON OZ %chg	DIPHACINONE LBS % chg		
Redwood School House	2007	Rats: roof rat								*2.5	
	2008	Rats: roof rats								*2.5	0
Roberts	2007	Weeds: volleyball court, lower ballfield margin	1,500	32	0			*48			
	2008	Weeds: acacia resprouts	3,500	14	+56	14	+100		*96	+50	
Shadow Cliffs	2007	Weeds: parking lot, medians, tree bowls, poison oak, Stanley	35,000	552	390						
	2008	Weeds: parking lot, medians, tree bowls, poison oak, Stanley Blvd. landscape	45,000	588	+6	0	-100				
Sibley	2007	Weeds: stinkwort, eucalyptus, mayten. Rats: roof rats	40,000	242					10		*.25
	2008	Weeds: stinkwort, eucalyptus, mayten. Rats: roof rats	40,000	224	-8				*138	+100	0
Sunol	2007	Weeds: roadside, parking lots, rats	10,000	93	93						*.25
	2008	Weeds: roadside, parking lot	10,000	70	-25	70	-25			0	-100
Temescal	2007	Weeds, parking lot, eucalyptus. Rats:roof rats	18,500	458	372				320		*.50
	2008	Weeds: picnic areas, eucalyptus, broom. Rats: roof rats	18,500	288	-37	416	+12		64	-80	*2.75
Tilden	2007	Weeds: eucalyptus resprouts, Anza lawn perimeter, Cape ivy	2,500	x24					*120		*.50
	2008	Weeds: eucalyptus resprouts, Anza lawn perimeter, Cape ivy	2,500	0	+100				*36	-70	*.45

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES	
				ROUNDUP OZ % chg	SURFLAN OZ % chg	BANVEL OZ % chg	CASORON LBS % chg	GARLON OZ % chg	DIPHACINONE LBS % chg		
Tilden Corp Yard	2007	Rats: roof rats								x.5	
	2008	Rats: roof rats								x.75	+50
Tilden Little Farm	2007	Rats: roof rats								x.50	
	2008	Rats: roof rats								x10.43	+100
Wildcat Canyon	2007	Weeds: Alvarado park: picnic sites, pathways; Wildcat Canyon: Eucalyptus	2,500	0					xx544		
	2008	Weeds: Alvarado park: picnic sites, pathways; Wildcat Canyon: Eucalyptus	2,500	32	+100				xx83		
CONCESSIONAIRES											
Ardenwood Picnic People Rail Road	2007	--	20,000	0	0						
	2008	Weeds, picnic sites, railroad tracks	20,000	*232	+100	*304	+100				
Tilden Redwood Valley Train	2007	Weeds: train tracks	2,000			128					
	2008	Weeds: train tracks	2,000			128	0				
Tilden Golden Gate Train	2007	Weeds: train tracks	43,560	256		224					
	2008	Weeds: train tracks	43,560	192	-25	0	-100				
Tilden Golf Course	2007	Weeds: walkway, greens and roughs	10,500	4							
	2008	Weeds: walkway, greens and roughs	10,500	0	-100						
Willow Park Course	2007	Weeds: course walkways, buildings, parking lot, structures	5,500	4							
	2008	Weeds: course walkways, buildings, parking lot, structures	12,000	87	+2000						

x - contractor

xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	Spray Area Size: SQFT/AC	HERBICIDES						RODENTICIDES	
				ROUNDUP OZ % chg	SURFLAN OZ % chg	BANVEL OZ % chg	CASORON LBS % chg	GARLON OZ % chg	DIPHACINONE LBS % chg		
DISTRICT UNITS											
Alameda Creek Trail	2007	Weeds: Arundo control, staging area	8,500	157							
	2008	Weeds: Arundo control, staging area, Iron Horse Trail	8,500	373	+137	181	+170				
Contra Costa Trails	2007	Weeds: Canal, Moraga, Lafayette, California Hiking, Mt. Diablo, Iron Horse trail	15 acres	512					*12		
	2008	Weeds: Canal, Moraga, Lafayette, California Hiking, Mt. Diablo, Iron Horse trail	15 acres	1728	+237				*19	+58	
Design/Construction	2007	Landscape, paving, Otis parking lot	8 acres	*531							
	2008	Landscape, paving, Otis parking lot	1000 sq. ft.	192	-64	0	-100				
East Contra Costa Trails	2007	Weeds: Delta De Anaza, Marsh Creek Canal, and Big Break trails, staging area	25 acres	752			768				
	2008	Weeds: Delta De Anaza, Marsh Creek Canal, and Big Break trails, staging area	25 acres	1280	+70	0	-100				
Fuel Break FEMA Projects Fuels Reduction	2007	Weeds: eucalyptus, broom resprout control, Raws Station weed control, FEMA projects	60 acres						*2879		
	2008	Weeds: eucalyptus, broom resprout control, Raws Station weed control, FEMA projects	70 acres						*3033	+5	

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	NET ACRES	HERBICIDES						RODENTICIDES	
				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									
	2007		.20			x .30					
Briones	2008		.20			x .30	0				
	2007		1.00			x6.70					
Carquinez	2008		1.00		*	x15.50	+131				
	2007		.35			x6.00					
Del Valle	2008		.35			x52.00	+766				
	2007		.45			x4.00					
Fairmont Ridge	2008		.45			x4.00	0				
	2007		--			0					
Garin	2008		.75			x47	+100				
	2007		1.00	x4		x3.90					
Las Trampas	2008		1.00	x15 +275		x9.00	+130				
	2007		.01			x.30					
Lone Tree Rodeo	2008		.01			x.30	0				
	2007		.45			x15.00					
Mission Peak	2008		.45			x160.0	+967				

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	NET ACRES	HERBICIDES						RODENTICIDES	
				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	2007		2.3			24					
	2008		2.3			156	+550				
Sunol	2007		1			16.5					
	2008		1			86	+421				
Wildcat Canyon	2007		2.25	116		25					
	2008		2.25	0	100	7	-72				
TOTAL ACRES PESTICIDE	2007		9.21	120		101.70 (-8G)					
	2008		9.56	15	-87.5	537.1 (4.20G)	+428				

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	NET ACRES	HERBICIDES						RODENTICIDES	
				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	2007		.75			21					
	2008		.30			15	-28				
Briones	2007		.10			8.2					
	2008		.24			12.3	+50				
Brushy Peak	2007		.10			8					
	2008		.10			3	+62				
Carquinez	2007		.10			8					
	2008		.10			6.1	-24				
Contra Loma	2007		.06			3					
	2008		.01			1	-66				
Diablo Foothills	2007		.02	1		0					
	2008		0.00	0	-100	0	0				

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	NET ACRES	HERBICIDES						RODENTICIDES	
				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									
	2007		.55			32					
	2008		.55			15	-53				
Kennedy Grove	2007		.09			.30					
	2008		0			0	-100				
Las Trampas	2007		.75	1		32					
	2008		.44	12		17	-47				
Morgan Territory	2007		.10	0		15					
	2008		.14	1		6.60	-56				
Sibley	2007		.01			.20					
	2008		.10	24		0	-100				
Tilden	2007		.66			.33					
	2008		.66			.33	0				
TOTAL ACRES/ PESTICIDE	2007		3.24	2		123	(.96G)				
	2008		2.64	37	+1000	76.33	(.60G)	-39			

EAST BAY REGIONAL PARK DISTRICT
Table 2: 2007- 2008 Comparative Summary of Pesticide Usage

PARKS	YEARS	PURPOSE	NET ACRES	HERBICIDES					RODENTICIDES	
				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	2007									0
	2008									50 +100
Black Diamond	2007									150
	2008									50 -66
Camp Arroyo	2007									x108
	2008									*90 -17
Contra Loma	2007									0
	2008									50 +100
Del Valle	2007									x200
	2008									x300 +50
Diablo Foothills	2007									0
	2008									100 +100
Don Castro	2007									20
	2008									0 -100
Martin Luther King	2007									100
	2008									250 +150
Miller-Knox	2007									250
	2008									300 +20
Pleasanton Ridge	2007									0
	2008									300 +100
Shadow Cliffs	2007									235
	2008									0 +100
TOTAL RODENTICIDE USE	2007									1071
	2008									1509.75 +41
TOTAL ALL PARK PESTICIDE USAGE	2007			xx 9372 (73.21G)	xx 5330 (41.64)	x 223.9 (1.74G)	x 20	xx 4867 (38.24G)		xx 1071
	2008			xx 13410 (104.7G)	xx 6119 (48.43G)	x 613.5 (4.79G)	0	xx 4386 (34.27G)	-10	xx 1509.75 +41

x - contractor
xx - contractor and park staff

EAST BAY REGIONAL PARK DISTRICT
Table 3: 2007 - 2008 Comparative Herbicide Use by Priority Resource Project

PESTICIDE SPECIES	RESOURCE IMPACT	PARK LOCATIONS	YEARS	TREATMENT SIZE IN ACRES	HERBICIDES					
					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	2007	125	128 (1G)				1323 (10.33G)	
			2008	75	96 (.75G)	-25			800 (6.20G)	-40
Yellow Starthistle	Invasive exotic, loss of valuable grassland	Crockett Hills, Dyer, Del Valle, Vasco, Arroyo Cerro, Briones	2007	700						3200 (25.09G)
			2008	1190						5792 (45.25G)
Spartina Spp.	Loss of Mudflats	Shoreline Parks	2007	194		18,304 (143G)				
			2008	341		29,312 (229G)				
2007 TOTALS				1019	128 (1G)				1323 (10.33G)	
2008 TOTALS				1606	96 (.75G)	-25	+60		800 (6.20G)	+81

^xExperimental product

EAST BAY REGIONAL PARK DISTRICT
Table 4: 2007- 2008 Two-Year summary of Roundup/Aquamaster Use
by District Parks, Operations and Priority Resource Management Projects

UNIT	YEAR						PERCENT CHANGE
	2007			2008			
	ACREAGE	GALLONS	GAL/AC	ACREAGE	GALLONS	GAL/AC	
District Parks, Operations	108.5	73.25	.67	150	104	.69	+2
Priority Resource Projects	6.75	1.00	.155	4.5	.75	.17	+1.5
TOTAL ANNUAL USE	115.25	74.25	.65/avg	154.5	104.75	.67/avg	+2

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)
2004	85	49	4	15	26	893
2005	83	57	4	0	16	985
2006	56	41	5	0	23	1045
2007	73	41	2	20	38	1071
2008	104	48	5	0	34	1509

2004 through 2008

- Roundup average use increased by 29%
- Surflan average use increased by 1.7%
- Banvel average use increased by 25%
- Casoron average use decreased by 100%
- Garlon average use decreased by 24%
- Chlorophacinone/diphacinone average use increased by 37%
- 5 year park acreage 9%
(89,500 acres to >98,500 acres)

