

INTEGRATED PEST MANAGEMENT PROGRAM BEST MANAGEMENT PRACTICES (2025)

2025 Integrated Pest Management Program Best Management Practices

#	BMP	Functional Groups	Responsible Party	Timing
1.	Annual Pesticide Literature Review Conduct an annual review of all newly published toxicological, regulatory, and efficacy information relevant to products on the "Approved Pesticide List."	Administrative	IPM Coordinator	Annual planning; Prior to treatment
2.	Glyphosate Use Reduction Where feasible, the District shall reduce the use of glyphosate in its preserves by replacing glyphosate use with the safest effective alternative.	Administrative	District staff	Annual planning; Prior to treatment
3.	Pest Control Recommendation All pesticides and adjuvants shall be used consistently with written Pest Control Recommendations prepared annually by a licensed Pest Control Advisor. All pesticide applications are to be performed at the time of year and phenological window for maximum effectiveness, thereby increasing treatment efficacy and reducing the need for follow-up applications, unless constraints limit application at the optimal time.	Administrative	Licensed pest control advisor	Prior to treatment; During treatment
4.	Pesticide Label Applicators shall follow all pesticide label requirements and refer to all relevant IPMP BMPs regarding mandatory measures to protect sensitive resources, and employee and public health during pesticide application. Some herbicides, such as Envoy, Milestone, Transline, and Capstone, contain specific label language restrictions that shall be adhered to, such as those pertaining to when to use in grazed rangelands.	District staff/ Contractor	Pesticide applicator (qualified District staff/ contractor)	Prior to treatment; During treatment
5.	Pesticide Certification and Supervision Pesticide applicators must hold or operate under a Qualified Applicator License (QAL) or Qualified Applicator Certificate (QAC). Contractors and agricultural tenants may apply District-approved pesticides with District approval and QAL/QAC supervision. District-approved rodenticides may only be used by qualified contractors, and only for urgent human health concerns, following label	District staff/ Contractor	Pesticide applicator (qualified District staff/ contractor)	Prior to treatment

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	guidelines and placed indoors in anchored, tamper-proof containers. Termiticides must be applied by applicators licensed by the Structural Pest Control Board. Employees, contractors, and tenants may install ant and roach bait stations in tamper-proof containers indoors and approved bacterial agents to water troughs for mosquito control without QAL/QAC supervision.			
6.	Pesticide Storage, Loading, and Mixing All storage, loading, and mixing of pesticides shall be set back at least 300 feet from any aquatic feature, known locations of special-status species, occupied or suitable special-status species habitat, or sensitive natural communities. Applicators shall use an air gap or antisiphon device to prevent backflow while loading pesticides. All mixing and transferring shall occur within a contained area. Any transfer or mixing on the ground shall be within containment pans or over protective tarps and away from drain inlets, culverts, wells, areas with porous or erosion-prone soil, or other features that may allow for runoff.	District staff/ Contractor	Pesticide applicator (qualified District staff/ contractor)	Prior to treatment
7.	Uses of Herbicide Dyes As deemed necessary by the Pest Control Adviser, QAL, or QAC, appropriate, non-toxic colorants or dyes shall be added to the herbicide mixture to determine treated areas and prevent over-spraying, particularly in public areas.	District staff/ Contractor	Pesticide applicator (qualified District staff/ contractor)	Prior to treatment
8.	Notification of Pesticide Application Signs stating “Pesticide Use Notification” shall be posted notifying the public, employees, and contractors of the District’s use of pesticides. The sign shall consist of the following information: • product name, signal word, and manufacturer, active ingredient, and EPA registration number; • target pest; • preserve name and/or building; • date and time of application; • for buildings, if vacancy is required and duration; • date which notification sign may be removed; and • contact person with telephone number (typically IPM Coordinator).	District staff/ Contractor	District staff/ Contractor	Prior to treatment

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	Signs shall be posted in accordance with the following dependent upon the location and urgency: • <i>Outdoor areas of all District-owned preserves and unoccupied buildings:</i> posted at each end of the outdoor treatment area and any intersecting trails 24 hours before the start of treatment until 72 hours after the end of treatment • <i>Occupied buildings:</i> - notification will be provided to building occupants (employees, visitors, residents) 24 hours before the start of treatment by email, letters or telephone calls - posted at the entrances to the building 24 hours before the start of treatment until 72 hours after the end of treatment (except for approved insecticidal baits in tamper-proof containers) • <i>Urgent application of pesticides to control stinging insects or immediate public safety concern:</i> posted at the treatment area until 72 hours after the end of treatment In no event shall a sign be in place longer than 14 days without dates being updated. See the IPM Guidance Manual for further details and exceptions.			
9.	Closures <i>Parking lots, Trails, and Trailheads.</i> Establish a minimum 5-ft no-spray buffer from parking lots and trails unless a temporary 24-hour closure is used to prevent visitor exposure. <i>Building.</i> Buildings shall be closed for the recommended label timeframe (from 24 to 72 hours) when pesticides are used for structural pests (e.g., Vikane). Closures are not required for baiting or perimeter applications.	District staff/ Contractor	District staff/ Contractor	Prior to treatment
10.	Crew Training Annual worker environmental awareness training shall be conducted for all treatment field crews (staff and volunteers) and contractor crews, which shall include the following at a minimum: • Preventing the spread of weeds and pests to other sites. • Special-status species and sensitive natural communities that are known to occur or determined to have the potential to occur on the treatment site by a District-approved biologist. The education training shall be conducted prior to	District staff/ Contractor	District staff/ Contractor	Prior to treatment

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	starting work and upon the arrival of any new. The training shall consist of a brief review of life history, field identification, and habitat requirements for each special-status species, their known or probable locations in the vicinity of the treatment site, potential fines for violations, avoidance measures, and necessary actions if special-status species or sensitive natural communities are encountered. • All District field crews who perform herbicide treatments shall have specialized experience and training in pesticide safety, IPM principles, and special-status species. • Identification and protection of sensitive archaeological, paleontological, or historic resources (e.g., projectile points, mortars, midden sites, historic bottles, cans, trash deposits, or structures and structural remnants).			
11.	Pre-Treatment Surveys Treatment sites shall be surveyed by a District-approved biologist once every 5 years. Treatment sites are defined as areas where IPM activity, including manual, mechanical, and chemical treatment, is expected to occur. Brush removal on rangelands require biological surveys before work is conducted in any year. Site inspections are to determine existing site conditions at a given treatment site including the presence, population size, growth stage, and percent cover of target weeds and pests relative to native plant cover and the presence of special-status species and their habitat, or sensitive natural communities and develop any necessary site-specific measures, such as buffer strips to avoid disturbance of grassland wildlife. <i>Aquatic Areas</i> During the pre-treatment surveys, a District-approved qualified biologist or other District-approved personnel shall survey the treatment sites to determine whether any aquatic features or water-supply infrastructure are located on site. Aquatic features are defined by the presence of wetland indicators and/or a defined bed and bank, and can include any natural or manmade lake, pond, wetland, stream, ditch, spring, saturated soils, or similar feature. Water-supply infrastructure includes spring boxes, wells, troughs, tanks, and water-distribution lines, and other infrastructure necessary to divert, store, or convey water, but does not include fully sealed pipes that are aboveground or	District staff/ Contractor	District-approved biologist or other personnel	Prior to treatment

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	underground. If during the survey it is found that aquatic features or water-supply infrastructure are present within 30 feet of the proposed treatment area, the District shall either eliminate all treatment activities within 30 feet of the features from the project (i.e. do not implement treatment actions in those areas) or if the District chooses to continue treatment actions in these areas, it shall use pesticides and adjuvants in accordance with label requirements (BMP #4) that are labeled for aquatic use and follow all relevant permit requirements (e.g., CDFW Streambed Alteration Agreement), if appropriate. <i>Rare Plants</i> During the pre-treatment surveys, rare plant surveys shall be conducted by a District-approved biologist during the appropriate season to assess the occurrence, if any. If special-status plants are reported, information such as species and location shall be uploaded into an electronic inventory system and a District-approved biological monitor shall be present to oversee the planned IPM treatment. A 30-foot buffer shall be established from special-status plants. No application of herbicides shall be allowed within this buffer. Non-herbicide methods can be used within 30 feet of rare plants but they shall be designed to avoid damage to the rare plants (e.g., pulling).			
12.	Nesting Birds For IPM activities that may cause noise or land disturbances affecting nesting birds (e.g., tree removal, mowing during nesting season, mastication, brush removal), sites must be surveyed by a District-approved, qualified biologist or biological monitor within 15 days prior to treatment to assess nesting activity. Tree removal shall be limited when feasible based on nest presence. During nesting season (March 15–August 30 for passerines; February 15–August 30 for raptors), if nesting behavior is observed, appropriate buffers shall be established: 1,000 feet for large raptors (e.g., buteos), 500 feet for small raptors (e.g., accipiters), and 250 feet for passerines. However, buffers may be adjusted by a District-approved biologist in coordination with CDFW and USFWS based on a number of factors including site conditions, time of year, and type/duration of disturbance. If treatment is therefore allowed to proceed by CDFW/USFWS, the nest must be monitored by a District-approved biologist to confirm that the treatment activities are not negatively affecting bird behavior. If negative effects	District staff/ Contractor	District-approved qualified biologist or biological monitor	Prior to treatment

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	are observed, treatment activities shall be paused, or substantially modified to avoid the disturbance in further consultation with CDFW/USFWS, and may resume only after fledglings have fully left the nest. IPM activities unlikely to affect nesting birds (e.g., indoor treatments, spot herbicide spraying) do not require a nesting bird survey.			
13.	Cultural Resources Where work occurs in locations with potential cultural resources, District staff shall provide instruction to protect and report any cultural artifacts that might be uncovered during hand-digging activities. If highly sensitive sites are known within or near the treatment site (e.g. burials or significant midden sites, which have a high potential for burials), the nature of the site should not be disclosed to volunteers or contractors, except to state that the site is sensitive and must be avoided (or treated only with appropriate methods). If archaeological or paleontological resources are known or encountered on a treatment site and the treatment method consists of physical disturbance of land surfaces (e.g., mowing, brush cutting, pulling, or digging), work shall avoid these areas or shall not commence until the significance of the find can be evaluated by a qualified archeologist.	District staff/ Contractor	District staff/ Qualified archaeologist	Prior to treatment; During treatment
14.	Pesticide Application Restrictions in California Red-Legged Frog Habitat Application of glyphosate, triclopyr, and chloropicrin shall be conducted in accordance with the California Red-Legged Frog Injunction (Center For Biological Diversity v. U.S. Environmental Protection Agency (2006) Case No.: 02-1580JSW) in critical habitat or specific sections of non-critical habitat for California red-legged frog habitat specifically by complying with all of the following: • only using the amine formulation of triclopyr • not applying specified pesticides within 15 feet of aquatic features (including areas that are intermittent creeks, seeps, and springs; • utilizing only localized spot treatment using hand-held devices by a certified applicator (QAL or QAC) or person working under the direct supervision of a certified applicator; and	District staff/ Contractor	Pesticide applicator	Planning prior to treatment; During treatment

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	not applying during precipitation or if precipitation is forecast to occur within 24 hours before or after the proposed application. Preserves in which these precautions must be undertaken are: Cloverdale Ranch, Coal Creek, El Corte de Madera Creek, La Honda Creek, Miramontes Ridge, Monte Bello, Picchetti Ranch, Purisima Creek Redwoods, Rancho San Antonio, Russian Ridge, Sierra Azul, Skyline Ridge, and Tunitas Creek. Alternatively, as applicable and appropriate, application of glyphosate, triclopyr, and chloropicrin shall be conducted in accordance with the most recent incidental take permit issued by the USFWS (Endangered Species Act section 7(a)(2)).			
15.	Fipronil Special-Status Species Buffer Requirements In accordance with the 2010 Stipulation Injunction (Center for Biological Diversity v. EPA, Case No. 07-2794-JCS (N.D. Cal.), May 30, 2007), prior to Fipronil pesticide treatment, the following buffer requirements shall be complied with: <i>San Francisco Garter snake</i>: Within Cloverdale Ranch and Russian Ridge OSPs, do not apply Fipronil within 200 feet of fresh-water ponds (including natural or manmade, such as stock ponds), slow moving streams or pools within streams, vernal pools and other ephemeral or permanent water bodies, which typically support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall. <i>Bay checkerspot butterfly</i>: Do not apply Fipronil within 100 feet of the Bay checkerspot butterfly habitat within Pulgas Ridge OSP, Edgewood County Park, and the Midpen-managed portion of the San Francisco Public Utility Company land at Pulgas Ridge. <i>California clapper rail</i>: Within Ravenswood OSP, do not apply Fipronil within 300 feet of the high water line of salt or brackish water marshes. Also do not apply Fipronil within 200 feet of a cordgrass/pickleweed stand if any part of the stand occurs within 100 feet of the high water line of a salt or brackish water marsh. <i>Tidewater goby</i>: Within Cloverdale Ranch and Tunitas Creek OSPs, do not apply Fipronil within 100 feet of lagoons, estuaries and backwater marshes that are adjacent to the Pacific Ocean; and freshwater streams up-gradient of and tributary to brackish habitats.	District staff/ Contractor	Pesticide applicator	Planning prior to treatment; During treatment

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	<i>Salt marsh harvest mouse</i>: Within Stevens Creek Shoreline Nature Study Area and Ravenswood OSP, do not apply Fipronil within 300 feet of the high water line of salt or brackish water marshes. Also, do not apply Fipronil within 200 feet of a cordgrass/pickleweed stand if any part of the stand occurs within 100 feet of the high water line of a salt or brackish water marsh.			
16.	San Francisco Dusky-footed Woodrat and Santa Cruz Kangaroo Rat Restrictions San Francisco dusky footed woodrat and their nests, and Santa Cruz kangaroo rat and their burrows shall normally be avoided and left undisturbed by proposed work activities. If a nest site or burrow will be affected, the District will consult with CDFW. Rodenticides and snap traps shall not be used in buildings within 100 feet of active San Francisco dusky-footed woodrat nests or Santa Cruz kangaroo rat burrows; instead rodent control in these areas shall be limited to non-lethal exclusion and relocation activities, including relocation of nests if approved by CDFW.	District staff/ Contractor	Pesticide applicator/ District staff	Planning prior to treatment; During treatment
17.	Equipment and Vehicle Operation Restrictions Operation of noise-generating equipment (e.g., chainsaws, wood chippers, brush-cutters, pick-up trucks) shall abide by the time-of-day restrictions established by the applicable local jurisdiction (i.e., City and/or County) if such noise activities would be audible to sensitive receptors (e.g., residential land uses, schools, hospitals, places of worship) located in the applicable local jurisdiction. Additionally, if noise-generating activity is planned to occur on a site that spans over multiple jurisdictions, then the most stringent noise restriction, as described in this BMP or in a local noise regulation, would apply. All relevant permit requirements applicable to noise restrictions and special-status species will be adhered to (e.g., CDFW Streambed Alteration Agreement), if appropriate. All motorized equipment and vehicles shall be shut down when not in use. Idling of equipment and off-highway vehicles idling shall be limited to 5 minutes.	District staff/ Contractor	District staff/ Contractor	During treatment
18.	Parameters for Pesticide Applications The following general application parameters shall be employed during herbicide pesticide application: Application shall cease when weather parameters exceed label specifications, when wind at site of application exceeds 7 miles per hour (MPH), or when	District staff/ Contractor	Pesticide applicator	During treatment

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	precipitation (rain) occurs or is forecasted with greater than a 40 percent probability in the next 24-hour period to prevent loss of efficacy and lessen the potential for pesticides to enter surface water. • All restrictions and limitations, including those on irrigation, cultivation, re-entry, etc., as described on the pesticide product label shall be followed for sites treated with pesticides. • Spray nozzles shall be configured to produce a relatively large droplet size. • Low nozzle pressures (30-70 pounds per square inch [PSI]) shall be observed. • Spray nozzles shall be kept within 24 inches of vegetation during spraying. • Application equipment shall be calibrated periodically per manufacturer specifications or frequently enough such that equipment is applying pesticides according to label directions. • Drift and overspray avoidance measures shall be used to prevent drift in all locations. Particular attention shall be paid to areas where target weeds and pests are in proximity to special-status species or their habitat. Such measures can consist of, but would not be limited to, the use of plastic shields around target weeds and pests and selecting and using appropriate spray nozzles and pressures. Spray areas may also be limited by using application methods such as spot treatments and thin line treatments of one-inch wide or less. Due to the potential presence of temperature inversion layers, no spraying shall be conducted on designated "Spare the Air" days.			
19.	Surface and Groundwater Protection All pesticide application shall be in compliance with regulations 3 CCR § 6800, Groundwater Protection). Where possible, plant cover shall be established on bare soil and hillsides to minimize pesticide and sediment runoff. Pesticides without an aquatic label shall not be applied: 1) to permeable soils, soils prone to or with evidence of erosion without containment strategies (e.g., vegetative buffers, sediment barriers); or 2) in areas where aquatic features are located within 30 feet of the application site. In no cases should pesticides be applied to surface water bodies unless in compliance with an existing permit or appropriate permits are obtained.	District staff/ Contractor	Pesticide applicator	During treatment
20.	Pesticide Contamination Prevention	District staff/ Contractor	Pesticide applicator	During treatment

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	Cleanup of all pesticide and adjuvant containers shall follow the product label and local waste disposal regulations. This generally consists of triple rinsing with clean water at an approved site and adding the rinsate to the batch tank for application. Used containers shall be punctured on the top and bottom to render them unusable, unless said container is part of a manufacturer's container recycling program, in which case the manufacturer instructions shall be followed. Disposal of non-recyclable containers shall be at legal dumpsites. Cleaning of equipment and worker clothes and boots shall occur where runoff would flow into the sanitary sewer for treatment.			
21.	Pathogen Sanitation and Prevention of Contamination All personnel working in infested areas shall take appropriate precautions to not carry or spread pathogens outside of the infested area by adhering to the <i>Guidelines for Minimizing Phytophthora Contamination at Midpeninsula Regional Open Space District Preserves</i>. Such precautions will consist of, as necessary based on site conditions, cleaning of soil and plant materials from tools, equipment, shoes, clothing, or vehicles prior to entering or leaving the site.	District staff/ Contractor	District staff/ Contractor	During treatment; Post treatment
22.	Invasive Species Spread Prevention Clothing, footwear, and equipment, including rentals, used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) shall be inspected and cleaned before entering a treatment area or when leaving an area with infestations of invasive plants, noxious weeds, known plant pathogens, or invasive wildlife. District staff shall appropriately maintain facilities where tools, equipment, and vehicles are stored to ensure the area is free from invasive plants. District staff shall ensure that project materials (especially soil, rock, erosion control material, and seed) are free of invasive plant material prior to their use at a worksite. Relevant best practices from the Invasive Species Council of California, University of California Statewide Integrated Pest Management Program, and the California Invasive Plant Council shall also be consulted and implemented, as appropriate.	District staff/ Contractor	District staff/ Contractor	Before Treatment; During treatment; Post treatment
23.	Erosion Control and Revegetation For sites with loose or unstable soils, steep slopes (greater than 30 percent), where a large percentage of the groundcover will be removed, or near aquatic	District staff/ Contractor	District staff/ Contractor	Prior to treatment;

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	features that could be adversely affected by an influx of sediment, approved, biodegradable erosion-control measures and non-filament-based geotextiles shall be implemented before or after treatment as appropriate. These measures could consist of the application of forest duff or mulches, straw bales, straw wattles, other erosion control material, seeding, or planting of appropriate native plant species to control erosion, restore natural areas, and prevent the spread or reestablishment of weeds. Prior to the start of the winter storm season and during storms, if appropriate, these sites shall be inspected to confirm that erosion control techniques are still effective. Where possible, field workers may select vegetation control techniques to maintain sufficient vegetative cover to mitigate erosion.			Post treatment
24.	On-site Disposal Invasive plant material shall be rendered nonviable if retained on site. District staff shall desiccate or decompose plant material until it is nonviable (partially decomposed, very slimy, or brittle). Depending on the type of plant, disposed plant material can be left out in the open as long as roots are not in contact with moist soil, or can be covered with a tarp to prevent material from blowing or washing away. Suitable on-site disposal areas shall be identified and approved by the District's Natural Resources Department to prevent the spread of weed seeds. District staff shall monitor all sites where invasive plant material is disposed on-site and treat any newly emerged invasive plants.	District staff/ Contractor	District staff	Post treatment
25.	Off-site Disposal When transporting invasive plant material off-site for disposal, the plant material shall be contained in enclosed bins, heavy-duty bags, or a securely covered truck bed. All vehicles used to transport invasive plant material for disposal shall be cleaned after each use.	District staff/ Contractor	District staff/ Contractor	Post treatment
26.	Post-Treatment Monitoring District staff shall normally monitor treatment sites within 2 months after herbicide treatment to determine if the target pest or weeds were effectively controlled with minimum impact to the environment and non-target organisms. Future treatment methods in the same season or future years shall be designed to respond to changes in site conditions.	District staff/ Contractor	District Staff	Post treatment

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