

MARIN COUNTY INTEGRATED PEST MANAGEMENT PROGRAM COORDINATOR'S ANNUAL REPORT FOR 2014

Executive Summary

The IPM Ordinance and Policy require that an annual report be presented to the Marin County Board of Supervisors each year. This annual report meets all requirements of the IPM Ordinance and Policy and includes a review of pesticide use records and a proposed list of "Allowed Pesticide Products". There is very detailed information in this report on the IPM Program and the full list of recommended products being considered is included.

2014 was a year of transition for the County's Integrated Pest Management program. Unfortunately, former IPM Coordinator Ed Hulme, a key player in the establishment of the County's award winning IPM program retired and subsequently passed away. Chief of Landscape Services, Dave Hattem, also a pivotal role player in the technical aspects of the County's IPM program, retired. With the loss of these two individuals comes a great loss of institutional knowledge surrounding the County's IPM program. New staff has been brought on board to continue the great work that those two individuals, in conjunction with a dedicated and talented IPM Commission.

The County IPM program currently applies to 147 sites that include a variety of parks, landscaped medians, multi-use pathways, public buildings, boat ramps, remote radio antennae sites, pump-stations, detention facilities, and other unique sites. Key components of the program include training, pest monitoring, use of alternative pest control activities focusing on mechanical, biological and cultural practices, a robust volunteer program, and the use of chemical control measures. Each site is evaluated on a regular basis. If there is a problem, the choice of treatment is determined based on severity, timing and available resources. Prior to the adoption of the updated IPM Ordinance and Policy in 2009, only 34 of these sites were subject to the IPM Ordinance and Policy. It is important to note that in 2014, 115 sites were maintained as pesticide free. While that goal cannot always be achieved due to the changing nature of pest problems and weather conditions, it is a notable achievement.

Achievements

- 115 of the 147 county sites were maintained without the use of pesticides.
- Diligent trapping throughout the park system has helped significantly in managing the gopher population and their subsequent damage to the turf.
- All pesticide applications were made in compliance with DPR regulations.
- Rat/Mice trapping continue to help in minimizing rodent damage as there have been very few reports of sightings or damage particularly at the Civic Center campus and McNears Beach Park.
- Sheet mulching has reduced the need for herbicide applications at many sites, with over 300 yards of mulch and cardboard having been spread.

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- Owl boxes at various park sites, including the Civic Center, continue to be maintained and productive in housing owls which aid in rodent control.
- Staff has investigated a variety of low impact technologies to reduce rodents and geese at several sites, although the most effective, least toxic approach continues to be manual labor.
- Through the use of sticky traps, hand cleaning of foliage, selective leaf removal and plant replacement, release of predatory insects (Encarsia, Cryptolaemus, Orius, predatory mites and Delphastus) staff has managed to successfully maintain the interior scape at the Civic Center without the use of chemicals.
- Extensive manual labor, in the form of hand weeding, mowing and weed whipping has reduced need for herbicides.
- Cultural turf management practices, including fertilization, verti-cutting, topdressing, over-seeding and irrigation, have reduced weeds and disease.
- Over 6,600 hours of volunteer time have been spent weeding, picking up litter, spreading mulch and removing invasive species in support of the IPM program.

Of Special Note: Invasive Spartina Project (ISP) at Hal Brown Park at Creekside

In 2014, led by volunteer Sandy Guldman, the ISP, in collaboration with Marin County Parks, has continued its tireless effort to eradicate the invasive spartina plant from the marsh at Hal Brown Park. ISP, Marin County Parks and its community partners have teamed up to promote and host events with local schools and community partners ensuring an organized approach. Native planting efforts have been combined with the removal efforts to increase the success rate of eradication. GPS mapping continued this past year to monitor and track the plant infestation. This driving force behind this eradication continues to be restoring the native habitat of the marsh which is home to the endangered clapper rail and salt marsh harvest mouse.



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2014 Non-Chemical IPM Management & Practices

Month	Staff IPM Labor Hours	Volunteer Hours	Contractor Labor Hours	Total Hours
<i>JANUARY</i>	892	360	600	1,852
<i>FEBRUARY</i>	979	394	662	2,035
<i>MARCH</i>	1,047	416	632	2,095
<i>APRIL</i>	1,307	683	690	2,680
<i>MAY</i>	1,475	529	881	2,885
<i>JUNE</i>	1,502	619	790	2,911
<i>JULY</i>	1,667	429	660	2,756
<i>AUGUST</i>	1,447	444	621	2,512
<i>SEPTEMBER</i>	1,655	1,508	697	3,860
<i>OCTOBER</i>	1,318	472	659	2,449
<i>NOVEMBER</i>	1,459	372	658	2,489
<i>DECEMBER</i>	1,026	452	651	2,129
Total:	15,774	6,678	8,201	30,653

The above table is an indicator of the County's commitment to Integrated Pest Management and an emphasis on alternative least toxic methods of pest management. These practices include mechanical and manual weed removal, modifications to sites, such as irrigation system improvements, sheet mulching, mowing, trapping, etc., each combining to help control pest populations

The results achieved in 2014 would not have been possible without support and funding from the Board of Supervisors (BOS), involvement by the public, and the high level of staff commitment. Parks, Landscape and DPW staff members have all contributed a great deal of time and energy to make IPM a high priority this past year. The extra \$100,000 in IPM funding provided by the BOS this year will provide for the developing new and updating existing site plans, site assessment, data collection, monitoring, the purchase of IPM related supplies, labor to support the IPM efforts and a substantial update to the IPM website.

A review of staff hours for 2014 indicates that the workload required to meet all aspects of the IPM Ordinance and Policy is quite high. The program has had a significant impact on staff workload and priorities. Over 15,000 hours of staff time were spent last year in non-chemical IPM labor throughout the parks and landscaped areas. Additional costs of the program include training, web site support, materials and office supplies.

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Challenges - 201 Violations, Exemptions, Reporting and Product Use Issues

With the change in staff there was quite an immediate learning curve for the new IPM Coordinator and the new IPM Specialist. Key challenges included understanding the IPM ordinance, policy and plan, learning the various sites and their respective site managers, meeting the contractors and learning the contract language and various scopes of work, as well as familiarizing ourselves with the various reporting requirements. In reviewing all documents pertaining to the 2014 IPM program it was discovered that none of the structural applications were posted to the County's IPM website. According to the IPM policy, each of these applications was to be posted to the website four days in advance of the application. Each application was however, properly noticed at the respective application sites as well as posted to the structural IPM phone line. This was a procedural error that has recently been rectified.

Violations:

1. On September 8 and September 22, Coast Landscape management, the contractor responsible for maintaining the landscape at the County's Health and Wellness Center, made applications to the weeds growing in the landscaped areas throughout the campus. Combined, 13.5 ounces of Finalsan, an OMRI (organic) listed burndown herbicide, was applied. Finalsan is a non-selective burn down herbicide used as an alternative to traditional glyphosate based non-selective herbicides. Unfortunately, the contractor did not properly notice the site or county staff, therefore there were no signs posting the area in advance of the treatment application nor was the application posted on the County's IPM website. Additionally, Finalsan is not on the County's approved list of products to be used. While the product is OMRI listed and acts as a burndown herbicide similar to other products on the County's list, Finalsan has a warning label. The reason for the warning label is due to the potential ocular hazard to the applicator. A warning label, or category II material, by definition of the County IPM Ordinance is not allowable. It should be noted that staff is recommending that this product be added to the allowable list, by way of exemption, for the 2015 year on a trial basis.

Exemptions:

1. There was an exemption issued in January of 2014 that allowed for the application of pesticides to the golf greens and tees at the McInnis Golf Center. McInnis Golf Course has appx. 20 acres of turf. 19 of those acres are being maintained in compliance with the IPM ordinance. Approximately 1 acre of turf makes up the tee boxes and the putting greens. Due to the nature of the growing and management conditions these areas of turf are hypersensitive and susceptible to a variety of fungi and disease. These fungi and diseases, if not treated preventatively and quickly, can rapidly spread and ultimately destroy a golf course. Course managers have emphasized cultural and mechanical BMP's to reduce the potential for disease and

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they have incorporated the use of a biological fungicide to maintain healthy tees and greens. This exemption provides the course managers the ability to respond and treat, with a product from our allowed list, in the event of an onset of a disease or fungus.

2. On May, 30, 2014 there was an exemption issued that waived the 4 day noticing requirement when using Waspfreeze to treat an active yellowjacket nest that posed an immediate hazard to staff or members of the public. Waspfreeze is on the allowed list and when a nest was treated, a notice was posted and left in place for the required 4 days afterwards.
3. On September 3, 2014 there was an exemption issued for the application of Fusilade II, a selective herbicide, to be applied to the Bermuda grass infestation at Hal Brown Park that had grown beyond the manageable threshold. Fusilade II is on the County's allowed however the exemption was needed to make the application at Hal Brown Park which has been maintained organically.

IPM: Comparison of Usage 2013 to 2014

Organic Products Used (in ounces)

2013

2014

Companion	320	960
Liberate	158	170
Neem oil	355	35
Essentria IC3	582	2554
Eco Exempt G	0	60

- Eco Exempt G was used to treat an outbreak of sow bugs and pill bugs at the Los Gamos facility.
- Liberate is our preferred herbicide adjuvant. It is usually mixed with Aquamaster.
- Companion is a biological fungicide that is being used at the McInnis Golf Course on the courses tee's and greens. This product is being used with some regularity which has significantly improved the overall health of the turf and subsequently reduced the amount of synthetic material applied. Companion is said to affect turf in a similar fashion that Vitamin C effects humans.
- Neem Oil is a horticultural oil that is used to reduce scale and other pests on ornamental trees. Scale outbreaks were more prevalent in 2013 hence the variance in quantity used.
- Essentria IC3 is used to treat crawling and flying insects at several county facilities. Active ingredients include essential plant oils from rosemary and peppermint. The application rates were increased to improve efficacy which is why there is an increase in the total amount used.

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Conventional Products Used- (in ounces)	2013	2014
Agrifos (Exemption)	320	2048
Aquamaster	1081	741
Banner Maxx II (Exemption)	256	128
Fusilade II	Not used	22
Habitat	14	34
Wasp Freeze	87.5	123
Terro PCO	29	58
Max Force Ant Killer Bait Gel	Not used	1
Pentra-Bark	Not used	72

- Agrifos is used as a preventative treatment for high value oak trees to reduce their susceptibility to Sudden Oak Death. This treatment focused on the Oak trees throughout the Greenbrae, CSA-16 neighborhood. There were no treatments to the Oak trees last year hence the increase in material used in 2014
- Aquamaster was used for the spot-spray treatment of weeds at 13 of the County's 147 sites that fall under the County's IPM program.
- Banner Maxx II was used to treat a pink snow mold outbreak at the McInnis Golf Center. Usage totals were down from last year as a result of the integrated use of Companion, a biological fungicide.
- Fusilade II is a selective herbicide that was used to control Bermuda grass that had exceeded the allowable threshold at 3 county sites (Hal Brown Park, Veterans Memorial Auditorium and the Meriam Dr. median). The infestation of Bermuda grass was managed through alternative means last year, however each site continued to encroach into adjacent plantings and reached the treatment threshold.
- Habitat this product was used at Hal Brown Park as part of the Invasive Spartina removal project as well as single treatments at McInnis Park and McNear's Beach to control the invasive pepperweed.
- Wasp Freeze Applications were made to as few nests as possible, and only when the yellow-jacket nest posed a risk to the public.
- Terro PCO was used to aid in controlling ants and other crawling insects. This product was used in protected bait stations.
- Max Force Ant Killer Bait Gel was applied to aid in controlling ants at the Health and Wellness center.
- Pentra-Bark is a surfactant that was used in conjunction with Agrifos as a preventative treatment to the high value oak trees in the Greenbrae (CSA-16) area.

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The Allowed Pesticide List

The pesticide list approved by the Board of Supervisors for 2013 has allowed staff and its contractors to respond to most pest problems in a timely and effective manner. Due to the change in staff and the transition period, there was no formal list approved by the board of supervisors for 2014. Instead, the use of the list established in 2013 was continued in 2014. There are a few additions and deletions to the list for 2015 to incorporate emerging science and to remove materials that are no longer manufactured. The full list is attached for your review and discussion.

IPM Trainings in 2014

IPM relies heavily on knowledgeable persons trained in the science and practice of integrated pest management. Parks and landscape staff members involved with IPM participate in an annual training program, "Safe Handling and Use of Pesticides". All employees who work with these chemicals are required to take an annual four hour class. The class covers the use of OMRI and commercial pesticide applications, proper use of equipment, personal protective gear, organic alternatives to commercial chemicals, "best management practices" to reduce the need for applications, mapping sites, monitoring, reading pesticide recommendations, reading a chemical label, etc. Other training topics range from calibration of equipment, laws and regulations, insect and weed identification, turf management, plant diseases, to proper sheet mulching, and best management practices. Each training class covers IPM methodology and practices in addition to commercially recognized methods of pest reduction.

Staff also attend a variety of trainings throughout the course of the year that focus on emerging IPM products, laws and regulations, and best management practices. Topics included Sudden Oak Death management and preventative treatment, plant health care, use and impacts of organic mulch, use of Owls as a component of an IPM program, rodent control methods, etc.

In addition to the on-going training for the IPM program, staff conducts a range of training activities for the hundreds of volunteers who contribute thousands of labor hours to non-chemical IPM practices on county properties. The Association of Bay Area Governments (ABAG) continues to host quarterly IPM Coordinator meetings to ensure that Best Management Practices (BMP) are shared throughout the Bay Area. The IPM Coordinator will include BMP updates and other information obtained at ABAG meetings in the on-going IPM training activities. Staff continues to attend the San Francisco Department of the environment's technical advisory committee meetings to stay abreast of other IPM efforts throughout the bay area.

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Conclusion

Marin County continues to lead the way in the field of integrated pest management. Local agencies throughout the nation continue to look at Marin for information, guidance and support. The program has focused its efforts, as evidenced by the information in this report, on non-chemical and alternative control methods. Over 30,000 hours were spent performing tasks related to non-chemical pest control. Over 15,000 of those hours were performed by DPW and Parks staff, often shifting resources away from other projects and programs. Maintaining the balance of the current levels of IPM service combined with the additional functions involved in the management of the public facilities will continue to be a challenge. As new staff continues to become familiarized with the entirety of the IPM program