



Integrated Pest Management

SCHOOL RECORDKEEPING CALENDAR 2015-2016

SCHOOL IPM PROGRAM | SCHOOL-IPM@CDPR.CA.GOV | WWW.CDPR.CA.GOV/SCHOOLIPM



California Environmental Protection Agency
dpr Department of
Pesticide Regulation



Integrated Pest Management

SCHOOL RECORDKEEPING CALENDAR 2015–2016



WHY USE IPM?

Integrated Pest Management (IPM) is the preferred method of managing pests at school sites under California’s Healthy Schools Act (HSA) to reduce children’s exposure to pesticides. IPM focuses on the long-term prevention of pests through use of a combination of techniques such as identifying and monitoring pests, understanding pest biology, excluding pests from structures, using non-chemical methods, and keeping records. Pesticides that pose the least harm to people and the environment are only used if other methods do not achieve adequate control.

RECORDKEEPING AND THE HEALTHY SCHOOLS ACT

This calendar can help you keep track of your pest management activities. The HSA requires each school to keep records of every pesticide application on-site for four years, except certain exempted pesticides. Records must include the pesticide product name, manufacturer’s name, U.S. EPA registration number, dates and areas of application, reason for application, and amount of pesticide used. Records must be made available to the public upon request.





ABOUT THIS CALENDAR

This calendar is designed as a planning tool for managing major pests of school buildings and grounds. It is intended to serve as a reminder of pest management procedures by month, to help integrate pest management with other school maintenance activities, and to provide a handy location to record monitoring results and pest management practices that have been completed. The calendar features major school pests with tips for managing the pests using IPM.

IPM is based on consistently inspecting and monitoring for pests. In addition to the mandatory record keeping of pesticides used on school grounds, you should keep records of information gathered on pests and the problems they cause. Knowing when, where, and what pests are seen, their numbers, and the extent of actual or potential damage at each location will help you focus your district's pest management efforts. This knowledge enables you to anticipate conditions that trigger pest problems, and thus prevent them from occurring, or deal with them before they become more serious. Recordkeeping also provides the important documentation needed to justify budget requests for pest management tools and materials.

SCHOOL IPM TRAINING

The Department of Pesticide Regulation (DPR) has a school IPM video series that is now available on the DPR YouTube channel at www.youtube.com/user/CaliforniaPesticides. These videos are short, fun, and they are engaging to watch and filled with lots of IPM information. DPR also offers one day in-person workshops. These workshops teach IPM principles and include hands-on demonstrations so attendees can learn how to prevent and manage pests around school buildings and grounds. Starting in 2016, DPR will also offer online IPM training courses that will meet the new HSA training requirement. Go to www.cdpr.ca.gov/schoolipm/training for available videos and training courses.



DPR school IPM videos are on YouTube



Learn IPM pest inspection methods

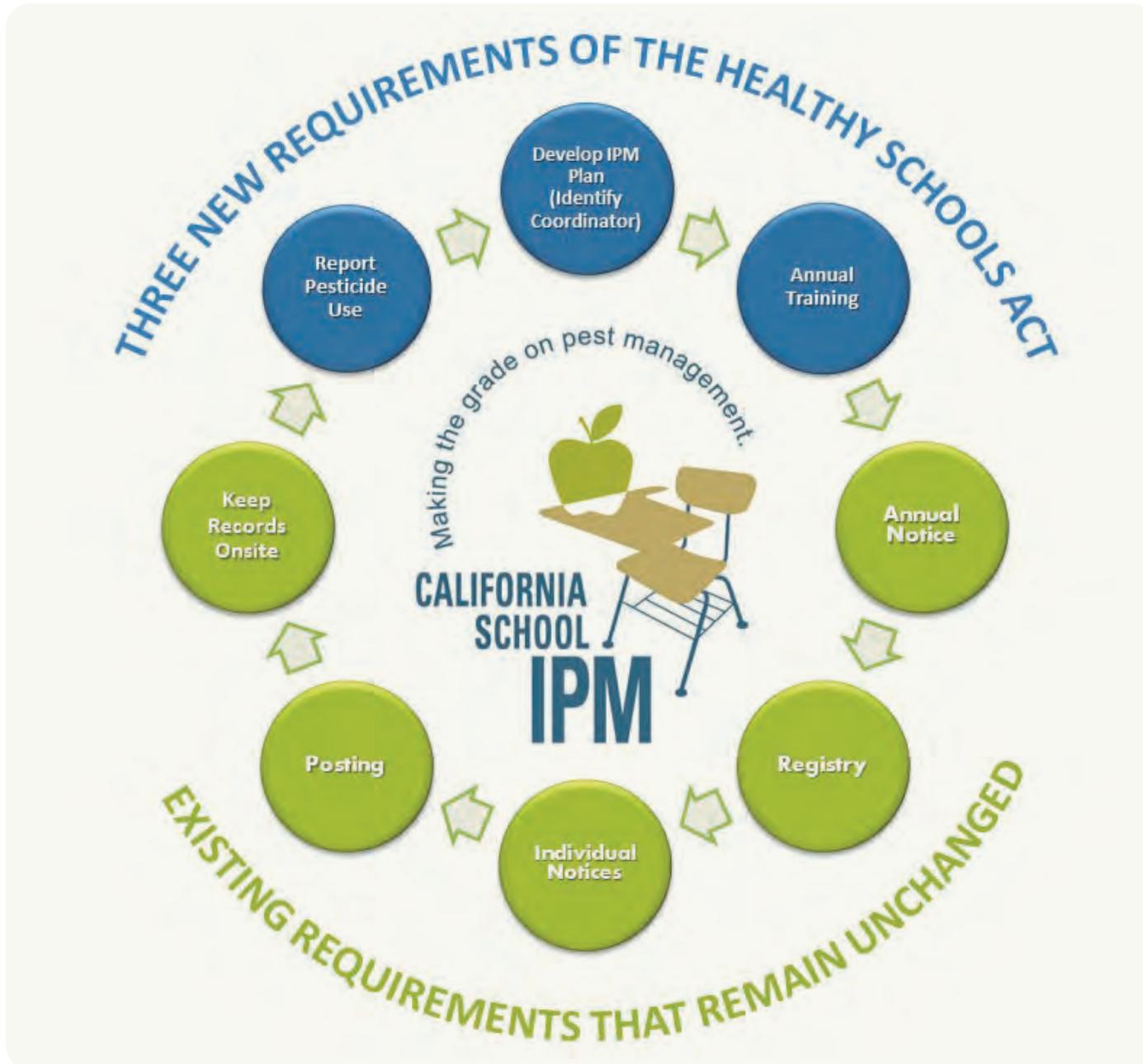


DPR has hands-on IPM workshops

FOR MORE DETAILS ON PREVENTING AND MANAGING PEST PROBLEMS

- Visit the DPR School IPM Web site at: www.cdpr.ca.gov/schoolipm
- Visit the University of California Statewide IPM Program Web site at: www.ipm.ucdavis.edu. This Web site includes many useful features for school pest managers, including Pest Notes on how to manage more than 160 common pest problems, photo galleries of natural enemies and weeds, an easy-to-use key for ant identification, and the UC Guide for Healthy Lawns.

August 2015



New in 2015, three additional requirements for schools were added to the Healthy Schools Act (IPM plan, pesticide use reporting, and IPM training).



The IPM Coordinator and anyone who will apply pesticides, including disinfectants, must complete DPR-approved school IPM training.



School districts must report employees' use of pesticides to DPR (at least annually by January 30 for the previous year's applications).

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

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Calendar grid with days of the week as columns and dates 1-29 as rows. Includes date ranges like 23/30 and 24/31.

NEW REQUIREMENTS OF THE HEALTHY SCHOOLS ACT

Three new requirements for California schools have been added to the Healthy Schools Act.

Starting January 1, 2015, school districts must do the following:

- 1. Develop IPM Plan— Develop an IPM Plan for your school district using DPR's template...
2. Report Pesticide Use by Employees— Send reports of pesticides (excluding non-HSA exempt pesticides) applied by school employees at least annually to DPR.

Starting July 1, 2016, school employees must do the following before applying any pesticide (including disinfectants and antimicrobials such as bleach) at a school site:

- 3. Take IPM Training— Complete DPR-approved training in school IPM and in the safe use of pesticides in relation to the unique nature of schools and children's health before applying any pesticide.

Four horizontal dotted lines for additional notes or comments.

September *2015*



Conserving beneficial predators, like this Orb Weaver, is important for biological control of other insects.



Black widows are the most common harmful spider in California. Usually they are found hiding in dark and undisturbed places.



Brown widows – found in Southern California – are less dangerous than black widows.

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Spiders are an environmentally friendly and a cost-effective way to manage other pests.

- Spiders are beneficial because they eat large amounts of insects.
- Most spiders are harmless and can be left alone.

TIPS TO MANAGE SPIDERS

When necessary, non-chemical practices are effective for managing spiders:

- Repair window screens and seal cracks.
- Vacuum and sweep windows and corners regularly to remove webs.
- Black widows are nocturnal, so search for them at night. Brown widows have distinctive, spiny egg sacs that make them easy to spot. You can easily knock the spiders and their egg sacs off their webs with a fly swatter and squash them.

OTHER PESTS

- *Gophers:* Concentrate on trapping, especially in irrigated areas. Gopher activity peaks in the fall.
- *Yellowjackets:* They are searching for sweets and proteins—wash out sugary recyclable cans and bottles.

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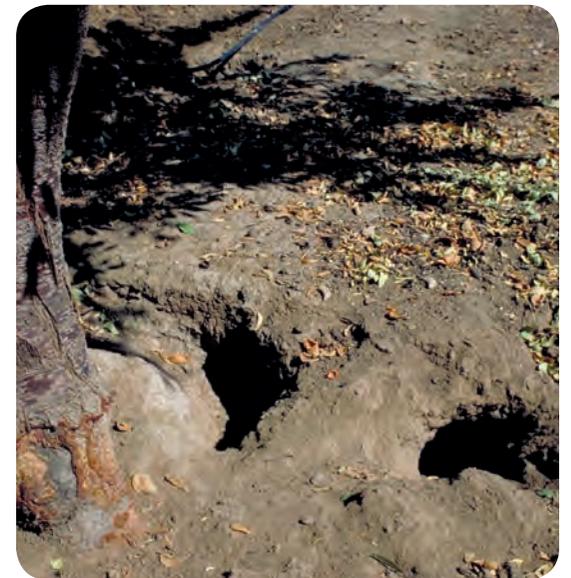
October *2015*



The optimum time for trapping ground squirrels is prior to winter hibernation and before the spring breeding season.



A conibear trap is set over the entrance to a ground squirrel burrow.



Ground squirrels live in colonies in a burrow system.

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TIPS TO MANAGE GROUND SQUIRRELS

Check burrows to be sure you have active populations and begin to monitor population levels.

- Control vegetation on school grounds including athletic field edges, borders, banks, and rights-of-way to enhance monitoring for burrowing activity.
- Use traps or bait stations to control breeding ground squirrels before the new generation of young emerge in spring.
- Mid-May through mid-July is usually a good time to control ground squirrels using bait stations, as native vegetation and food sources are drying up.
- In some areas, ground squirrels aestivate (summer sleep) during the hottest summer months (mid-July through August). This is a poor time to attempt control.

OTHER PESTS

- *Turf:* Don't mow if the ground is too wet. Rutted and uneven sports fields can cause as many tripping hazards as a family of ground squirrels.
- *Rodents and other wildlife:* Remove dense vegetation next to buildings to reduce hiding places and roof access.

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November *2015*



Effective management relies on monitoring for signs of rats and knowing where they are frequently found.



Without screening—pipes can become a freeway for rats.



Traps should be placed along walls where rats are likely to travel.

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TIPS TO MANAGE RATS

Combined practices, including sanitation, rat-proofing, and snap traps, should be used to manage rat infestations.

- Identify the species; Norway and roof rats behave differently.
- Monitor throughout the year, looking for rat droppings and chewing damage.
- Thin or remove vegetation near buildings that provide rats with shelter and roof access.
- Seal or screen openings larger than ¼ inch to exclude rats and mice.
- Place traps along walls and check frequently. Rats are very cautious; leaving traps baited but unset for several days (pre-baiting) will improve trap catches once actual trapping begins.

OTHER PESTS

- *German cockroaches*: Identify and continue to monitor in kitchens.
- *Pigeons*: Install roosting deterrents, like 80-pound monofilament line, 1 to 2 feet apart over frequented and sensitive areas. Seal all openings to eaves, lofts, and steeples.

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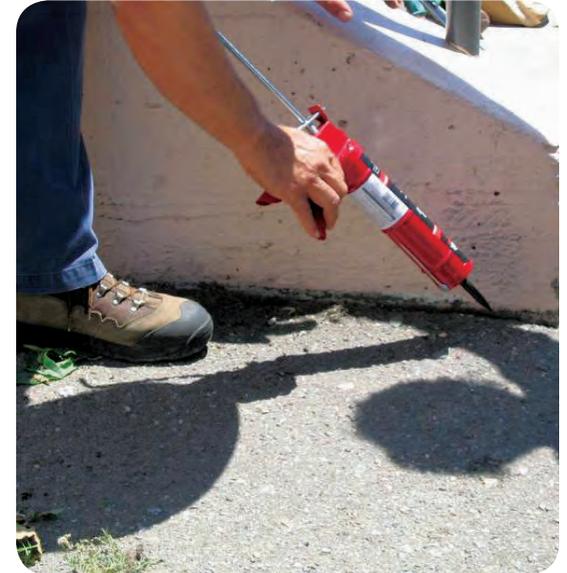
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December 2015



The Argentine ant is the most common ant in California. Sanitation inside and exclusion outside are the keys to ant management.



Prevent ants by sealing cracks.



Ant bait stations are good IPM.

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TIPS TO MANAGE ANTS

Use baits, not perimeter sprays. Early season baiting for ants is effective to keep ant populations from getting out of hand.

- Identify common ants:
www.ipm.ucdavis.edu/TOOLS/ANTKEY
- Indoors:
 - » Clean up food or items that may attract and bring ants inside.
 - » Vacuum up ants. Wipe away ant trails with soapy water.
 - » If it is necessary to bait inside, place bait only where ants are entering the room.
- Outside:
 - » Eliminate access by sealing cracks and trimming away tree and shrub contacts with buildings.
 - » Locate nests and apply baits; baiting outside keeps ants outside.

OTHER PESTS

- *Yellowjackets*: Repair windows and screens and caulk openings in walls to prevent nesting in wall voids.
- This is a good time to review structural and landscape pest management contracts.

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January *2016*



Gopher activity begins to increase in January, and in most areas mating will begin at the end of March.



Look for newly formed gopher mounds.



Place trap in runway, covering the opening.

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TIPS TO MANAGE GOPHERS

Trap and control populations in winter and early spring, when populations are lowest, prior to breeding.

- Monitor weekly: count active mounds and evaluate field condition for weeds.
- Minimize white clover and other herbaceous weeds which are preferred food for gophers.
- Maintain healthy turf by aerating and overseeding.
- Identify areas where gophers are moving into fields and install exclusion fencing along fence lines, at least 24" deep, and 18" above the level of the soil.
- Begin trapping with box, cinch, or claw-type impaling traps.
- Population activity will increase in April and May; continue to monitor and trap to keep population in check.

OTHER PESTS

- *Non-turf weeds:* Flame or heat treat in hardscapes and irrigated landscapes.
- This is a poor time to plant trees and shrubs, since the soil is too wet, leading to soil compaction, disease development, and weeds.

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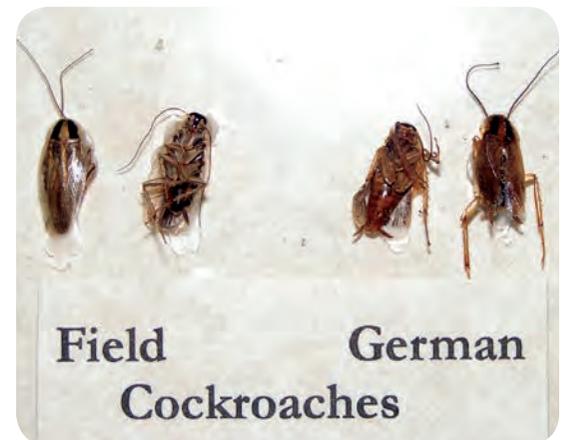
February 2016



Eliminate access, food, water, and shelter as much as possible to drastically reduce cockroach infestations.



Inspect hiding places using a flashlight and extending mirror.



Identification leads to effective management.

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TIPS TO MANAGE COCKROACHES

Prevent cockroaches from becoming pests in buildings by using sanitation and exclusion.

- Learn how to distinguish a field cockroach from a German cockroach. They are very similar in size and markings except that field cockroaches viewed from below have a dark line between their eyes. Field cockroaches live outside and may come inside in the fall. Installing brush-style door sweeps on doors and vacuuming is probably sufficient for their control.
- Place sticky traps behind refrigerators, sinks, and next to walls; cockroaches rarely venture into the middle of a room.
- Remove cockroaches using a HEPA-filtered vacuum before beginning a baiting program.
- German cockroaches hide in cracks and crevices, so place small drops of gel bait in these areas.

OTHER PESTS

- *Gophers:* Trap! Population activity is increasing; mating will begin by the end of this month.
- *Ground squirrels:* Breeding season has begun; monitor for increasing activity.

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March *2016*



Overseeding with appropriate turf species will help establish a healthy, vigorous lawn that resists weeds.



Use a catch-can test to evaluate whether water distribution is even. Fix any irrigation problems identified since water management is critical to turf health and water conservation efforts.



Healthy turf needs aeration.

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TIPS TO MANAGE TURF WEEDS

This is a good time to apply slow release organic fertilizers as recommended by a soil analysis. Avoid water-soluble fertilizers that can leach as nitrate into groundwater.

- Determine why weeds are present and repair underlying problems (for instance, overwatering, or overfertilizing, compaction).
- Manage young weeds by hand pulling, hoeing, or flaming.
- Aerate turf, de-thatch if needed, and overseed with appropriate variety of grass seed.
- Avoid mowing stress: mow high (2 ½ to 3 inches), mow often, mow when turf is dry, and keep mower blade sharp.
- Improve weed management by installing mowing strips, raising fencing to allow line trimmer access, and altering traffic patterns to reduce compaction.

OTHER PESTS

- *Ground squirrels:* Manage adults now, before the young can support themselves.
- *Non-turf weeds:* Monitor and manage emerging weed seedlings.

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April *2016*



Yellowjacket queens emerge from hibernation in spring and begin building nests and laying eggs.



Trap to monitor and reduce numbers.



Nests are below ground and can be very large and tended by many wasps. Approach with caution as wasps will defend nest and readily sting.

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TIPS TO MANAGE YELLOWJACKETS

Pay attention to yellowjackets in early spring to avoid a bigger problem later in summer and fall.

- Put out lure or water traps to catch queens before they establish nests and rear more yellowjackets.
- Place traps away from areas frequented by students.
- Use protein-containing baits, such as cat food or turkey ham this month and throughout early spring. Switch to sugar-based traps in summer and fall.
- Locate yellowjacket nests during the day and then return in the cool of morning before dawn to carefully treat nests.
- Empty and clean garbage containers and garbage container lids frequently.
- When feasible, use self-closing garbage cans to shut out wasps.

OTHER PESTS

- *Argentine Ants:* Switch outside baits to a protein-base.
- *Rats and wildlife:* Remove vegetation near buildings that provide shelter and roof access.

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May 2016



Don't provide food for wildlife or they'll move in and invite their friends.



Monitor storm drains, debris, and wood piles throughout the year. These places can provide shelter for wildlife.



Screen crawlspace vents and openings under buildings with $\frac{1}{4}$ inch galvanized hardware mesh (left) to exclude any wildlife (right).

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TIPS TO MANAGE WILDLIFE

Prevent raccoons, opossums, skunks, and feral cats from becoming pests by using habitat modification and exclusion.

- Thin bushes and trim trees near buildings to reduce hiding places and roof access.
- Remove food sources to avoid attracting or sustaining wildlife:
 - » Don't put out food for stray cats.
 - » Put garbage in tightly closed containers that can't be tipped over.
 - » Keep dumpster lids closed; if they don't close properly, have them replaced.
- Hire a professional wildlife control operator to remove animals beneath or in a building. It's illegal to relocate wildlife in California without the proper permits.
- Don't waste your money on strategies that don't work long-term:
 - » Motion-activated noise, light, or sprinkler devices.
 - » Scare techniques such as flags and scarecrows.

OTHER PESTS

- *Rats and mice:* Look for droppings, fresh gnaw marks, and tracks which indicate activity.
- *Pigeons:* Look for evidence of pigeon activity. Record location of birds at dawn, midday and evening to determine where building modifications will be most effective.

June 2016



Mice can squeeze through cracks the width of a pencil. Seal cracks in building foundations and eliminate gaps larger than $\frac{1}{4}$ inch.



Installation of a door sweep is needed to keep out mice and cockroaches.



Store food items in sealed, plastic containers kept on wire racks off the floor. This keeps food away from pests and allows the area to be cleaned easily.

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TIPS TO MANAGE MICE

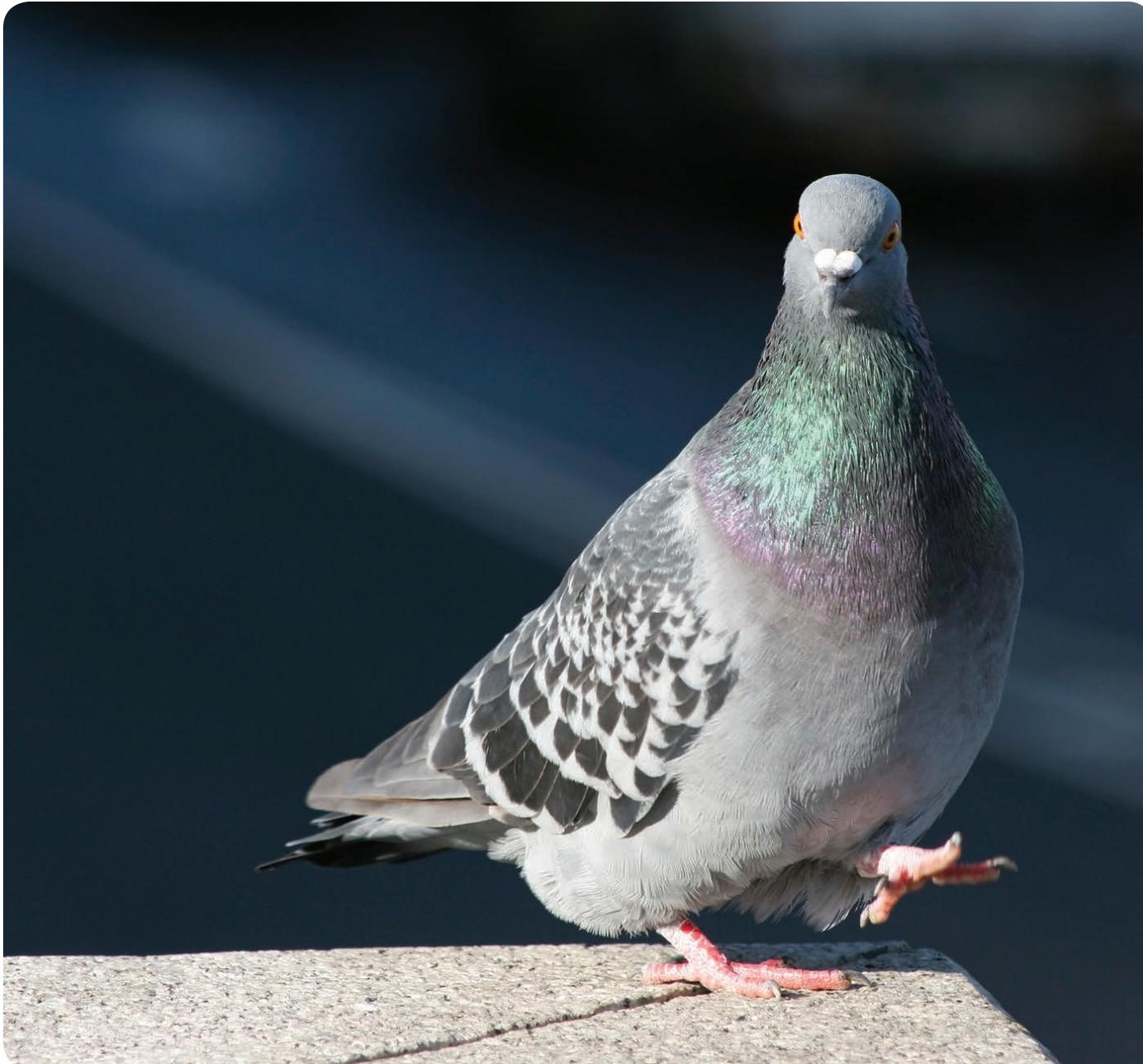
Periodically check for droppings, fresh gnaw marks, and tracks that indicate areas where mice are active.

- The best time for management tactics is when school is not in session.
- Monitor year round. Talcum powder or white flour can be used as tracking powder. Disturbed powder or tracks can confirm their presence in areas of suspected activity.
- If possible, inspect adjacent property, because mice may soon invade from that direction.
- Set traps behind objects, in dark corners, and in places where there is evidence of mouse activity.
- Use more traps than are thought reasonable.
- Focus on prevention: it is more effective to control rodents before their numbers get high.
- Exclusion is the most permanent form of house mouse control. Seal cracks in building foundations and eliminate all gaps and openings larger than ¼ inch.

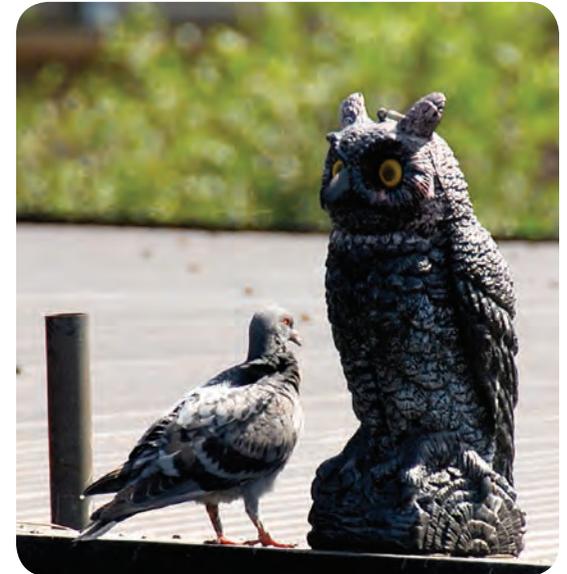
OTHER PESTS

- *Spiders:* Remove webs outdoors with cobweb brushes, longhandled brooms, or a strong stream of water.
- *Trees:* This is a good time to prune trees susceptible to diseases, such as anthracnose, and bacterial diseases like cankers.

July 2016



Pigeons produce young all year round, though peak breeding season is in the spring and fall.



Owl decoys do not work.



Deter pigeons with 45-degree angles.



Discourage roosting and nesting with wire spikes.

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TIPS TO MANAGE PIGEONS

Habitat modification to deter roosting pigeons is a good long-term solution to pigeon problems.

- Reduce perching sites; convert flat surfaces to 45-degree angles using wood, sheet metal, Styrofoam, or plexiglass.
- Remove or repair dripping faucets or other sources of water.
- Pigeon nests: knock down and destroy in late winter and again in summer.
- What doesn't work:
 - » Ultrasonics and other periodic noise devices.
 - » Owl decoys and other scare techniques (fake snakes, balloons, flags, flashing lights).

OTHER PESTS

- *Ground squirrels:* They aestivate (summer sleep) during the hottest summer months, so control efforts are not warranted.
- *Turf:* Check water requirements and adjust sprinklers to the recommended rate. Check sprinklers to be sure all are working.

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The 2015–2016 IPM Calendar at a Glance



AUGUST-2015
HSA compliance



SEPTEMBER-2015
spiders



OCTOBER-2015
ground squirrels



NOVEMBER-2015
rats



DECEMBER-2015
ants



JANUARY-2016
gophers



FEBRUARY-2016
cockroaches



MARCH-2016
turf weeds



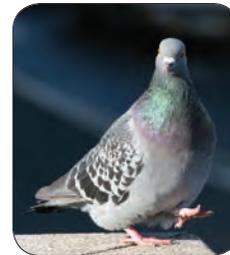
APRIL-2016
yellowjackets



MAY-2016
wildlife



JUNE-2016
mice



JULY-2016
pigeons

PHOTO CREDITS

Cover and Inside Cover Photos—are from iStockphoto except School IPM Training photos (DPR) and Argentine Ant (Alex Wild/alexanderwild.com).

Monthly Feature Photos—all are from DPR and iStockphoto except *Linepithema humile* and *Blattella germanica* (Alex Wild/alexanderwild.com); Mr. Gopher (Art Drauglis, Flickr); Striped Skunk (Kim Cabrera/beartracker.com).

August—computer user (iStockphoto); filing out PUR report (DPR).

September—black and brown widow spiders and egg sacs (Rick S. Vetter, Dept. of Entomology, UC Riverside).

October—conibear trap and burrows (Jack Kelly Clark, UCIPM).

November—unscreened pipes and rat traps (DPR).

December—sealing cracks (Michael Baefsky); good IPM (DPR).

January—look for mounds (iStockphoto); place trap (DPR).

February—Inspecting hiding places (Cheryl A. Reynolds, UCIPM); cockroach identification (Ingrid Carmean).

March—catch can test (DPR); healthy turf (Steven E. Lock, UCIPM).

April—trap (Jack Kelly Clark, UCIPM); nest illustration (Arthur L. Antonelli, Washington State University via UCIPM).

May—storm drain, screened openings and feral cat (DPR).

June—door sweep needed (Ingrid Carmean); storage containers (DPR).

July—owl decoy (Jurek Durczak); deter pigeons (DPR); spikes (Jack Kelly Clark, UCIPM).

Any reference in this calendar to companies, commercial products, their source, or use is not to be construed as either an actual or implied endorsement by the Department of Pesticide Regulation. Mention is made of some representative products, but the Department of Pesticide Regulation does not recognize any product as superior to any other.

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