



Residential Services ✧ Commercial Services ✧ Bird Solutions

Green Pest Management

What is Totally Green Pest Management?

Dr. Gerry Wegner, BCE

The term “green” is thrown around a lot nowadays; but a concise definition of green seems to elude us. Green can mean a lot of things, depending on the one describing it. In a general sense, we hear green associated with other terms like “environmentally responsible”, “energy-efficient”, “reduced carbon footprint”, “conservation and recycling of resources”, “naturally-derived” and the list goes on. Among pest management professionals and those who regulate the structural pest management industry, the term green has become fairly well-defined. Green pest management is considered to be a marriage of integrated pest management (IPM – another term with many definitions) and the guidelines of the National Organic Program (NOP – applied to food production and processing).

One of the tenets of IPM is a more strategic use of pesticides which target the pest organism and pose reduced risk to non-target organisms and the environment. Another tenet of IPM is the implementation of methods other than chemical, when possible, to eliminate pests and prevent their entry to buildings. The three-step protocol of the National Organic Program is: (1) First utilize physical and mechanical methods to remove pests or prevent their entry. (2) If pest exclusion and removal alone do not achieve the desired results, then naturally-derived pesticides may be used. These materials include (a) minerals such as diatomaceous earth, borates and crushed limestone; (b) plant extracts such as natural pyrethrins (without synergists), essential oils and terpenoids; (c) fungal and microbial toxins; and (d) animal extracts, secretions and byproducts. (3) If pests continue to be an issue, then, with the expressed permission of the client, limited applications of least-toxic synthetic pesticides can be used in sites considered to pose no risk of contamination to humans, non-target organisms and other sensitive products and property.

The ultimate in a green pest management program would be based entirely upon (1) physical / mechanical measures, (2) landscape modification, (3) biological control and (4) common-sense changes in the way we perceive and do things.

Physical and mechanical pest management methods make good sense all around: Tight-fitting doors and windows, tight flashing at chimney, dormer, skylight and roof junctures, and sealed utility penetrations (e.g., water lines, gas lines, electric conduits and cable) not only keep out pests but help with the energy efficiency and leak-proofing of a building. Of course, leak-proofing also assists with mold remediation in buildings; which, in turn, minimizes the nuisance value of arthropods that breed in fungi and damp structural materials (e.g., [springtails](#), [silverfish](#), [psocids/barklice](#), [foreign grain beetles](#) and other [fungus beetles](#)). Installation of chimney caps (screened rain hoods) will prevent [raccoons](#), [squirrels](#) and [birds](#) from entering chimney flues where nesting or death of the invasive animals



Residential Services ✧ **Commercial Services** ✧ **Bird Solutions**

may occur. Similarly, installation or repair of gable vent-, hat vent- and soffit vent screening will prevent nuisance wildlife from entering attics, where significant structural damage may occur as a result of animal activity and where secondary pests (i.e., mammal and bird ectoparasites such as fleas, mites, ticks, etc.) may be introduced. Rain gutters and downspouts should be cleaned and covered to prevent pests from breeding (in standing water and decaying organic matter) and entering at the roofline. Rodent snap traps and sticky traps for crawling pests fit into the category of mechanical pest control, as well as vacuum cleaners fitted with a hose attachment. Vacuum cleaners are an excellent tool for removing spider webs, crawling pests and flying insects that make their way indoors.

Sound landscape management practices include keeping tree branches and shrubbery pruned away from building roofs and exterior sheathing, trimming back or removing tall vegetation (such as ivy, ground cover, flowers, weeds and grass) away from building foundations and preventing mulch from accumulating close to building foundations. Mulch and soil should never be in contact with the siding of a building, above the top of the poured or block foundation wall. Wood and debris piles should be kept away from buildings as well. Retaining walls and planting bed borders comprised of logs, railroad ties and layered stone are attractive to several kinds of pests as well (i.e., centipedes, millipedes, spiders, sowbugs, pillbugs, ants, earwigs and ground beetles). All of these situations provide pest harborage close to our homes and businesses or serve as convenient pest bridging points. Low areas on property where water pools for extended periods of time (after rains and spring melts) should be re-graded or drained to prevent mosquitoes from breeding in these sites.

Biological control can be a fairly easy and inexpensive measure to implement, provided you have patience and are willing to redefine what you consider to be a “pest” – which ties into the philosophy to be discussed under item (4), mentioned above. What I mean by this is that many of the organisms people label as “pests” actually play an important role in reducing numbers of other organisms that are much more troublesome. For example, paper wasps and mud dauber wasps may incite fear by association to stings, and their nests on buildings may be an eyesore; however, these insects reduce numbers of spiders and filth flies on/around buildings. Spiders and centipedes in and around buildings strike fear in the hearts of many; yet these beneficial creatures prey upon silverfish, earwigs, filth flies, stored products pests and others that occur in buildings. [I know this works because I allow house centipedes and yellow sac spiders to have free rein of my own house, with the result being scarcely any sightings of insect pests indoors!] In the absence of pesticide usage, various arthropods keep each other managed to an extent via predation and parasitism. Furthermore, arthropods have diseases just like humans have diseases that can decimate their populations. Various pathogenic fungi, bacteria and viruses attack insects and spiders. Some of these pathogens have been formulated into biorational insecticides that are available for use in the landscape. For example the bacterial strain, *Bacillus thuringiensis israeliensis* (Bti) is a pathogen of mosquito larvae that can be purchased in the form of mosquito dunks. When the dunks are spaced out into marshy areas, drainage ditches and shallow ponds where mosquitoes breed, the bacteria are released into the still, shallow water where mosquito larvae ingest them and then die from the toxins released in the larval gut. Similarly, there is a breed of small fish called the mosquitofish, *Gambusia affinis*, that can be purchased for release in ponds and marshes where mosquito breeding is a problem. As the name suggests, these fish feed on the mosquito larvae, thus reducing mosquito populations in those environments.



Residential Services ✧ Commercial Services ✧ Bird Solutions

The fourth aspect of a green pest management program – changing the way we perceive and do things – may prove to be the most difficult for some people because we tend to be creatures of habit; and habits can be difficult to break. Since many pests including [cockroaches](#), [flies](#), [ants](#), and [yellowjackets](#), gravitate to the fragrances of our foods and beverages, including food waste/garbage in which to feed and breed, it makes good sense to keep food and beverages covered / contained and inaccessible to pests, both outdoors and indoors. Food and beverage spills and leftovers should be cleaned up immediately after meals and snacks. Dirty dishes should never be allowed to remain in sinks, on countertops and tables overnight. Plastic trash bags containing food waste should be removed from indoor receptacles and placed in covered trash bins outdoors, away from entrances. It is equally important to store foods in containers that are impervious to pests (stored product pests – [Indianmeal moths](#), [sawtoothed grain beetles](#), [drugstore beetles](#), [warehouse beetles](#), [cigarette beetles](#) and others) that make their way through flimsy, imperfect packaging. Dried foods such as cereals, grains, seeds, nuts, dried fruits and vegetables, spices, jerky and pet foods should be stored in air-tight, thick-walled containers (i.e., Freezer-style Ziploc bags, Tupperware, Rubbermaid, Glad snap-lid containers, screw-lid jars, etc.). Similarly, wool clothing should be kept in airtight plastic garment bags and boxes while in storage, after dry-cleaning, to prevent attack by [clothes moths](#) and [carpet beetles](#). Another important practice along the lines of pest prevention is to carefully inspect items that are purchased or rented, before bringing them into the house or workspace. Sometimes human and pet foods packaged in thin plastic, paper and cardboard can be infested by stored product pests in the warehouse or store. Look for evidence of holes, webbing, droppings, and insects in and on packaged dry foods before you purchase them. Also keep in mind that both [German cockroaches](#) and [bed bugs](#) readily hide in used cardboard boxes, used appliances, entertainment systems and furniture. So these items should be inspected for pest evidences / contaminants as well, before bringing them into your living or workspace.

Perhaps the greatest challenge to those who can't stand to see a bug or spider is to learn to tolerate an occasional indoor sighting of a [spider](#), [house centipede](#), [ground beetle](#), or [parasitic wasp](#). These are the “good guys” when it comes to biological control of insect pests that can damage property and infest our food. Although spiders and centipedes can be scary-looking, most are harmless to people and run for cover when discovered. If beneficial arthropods become too numerous indoors to tolerate, there's always the vacuum cleaner.