Master Gardeners of Ontario Facebook Group

An Informed Approach to Animal 'Pests' in the Garden

Spring gardening season often brings renewed questions from Ontario gardeners struggling with various animal pests in gardens. We always recommend learning to live with and enjoy nature, however, options are provided for addressing serious infestations.

Integrated Pest Management (**IPM**) is the best approach to managing perceived pests in the garden. This is an ecosystem-based strategy that focuses on long-term prevention of all **pests (including weeds)** or their damage through a combination of techniques. It begins by assessing the risk posed by the pest and determining if any action is really required. A gardener may decide they can live with the problem or they may decide that action is needed. Once the gardener decides the **threshold for action** is met, an effective pest management program uses the best combination of five basic treatments:

1. Cultural
2. Mechanical and physical
3. Biological
4. Behavioral
5. Chemical (repellents & poisons)

Before taking any action, consider the following:

- **Chipmunks, squirrels and raccoons**- While they can do some damage in the garden, chipmunks, squirrels and raccoons can consume quantities of invasive LDD moth pupae. LDD moth caterpillars are invasive pests which eat the foliage of trees and cause serious damage. Chipmunks even favour the female pupae of LDD moths, reducing potential caterpillar populations. Chipmunks also eat baby mice and may be essential to keep rodent populations in check.
- **Skunks** are shy creatures and are helpful in reducing mice, white grubs, army worms, Japanese beetle grubs, slugs and snails. They can't climb so barriers along the fence line may be all that is needed. Deter their presence with lights, noise (e.g., loud radio). Place an apple cider vinegar-soaked rag in a bag poked with holes in places they enter. Be patient as it may take several weeks to deter them.
- **Opossum** - While a bit scary looking, opossum are very gentle, harmless creatures. They eat small rodents, insects, worms, slugs and snails, frogs and birds. They are very beneficial in the garden as they eat enormous amounts of ticks, which can carry Lyme disease.
- **Snakes** are very beneficial in the garden and help to control the population of pests. They are very effective against mice and rats. Gardeners are urged to not only tolerate, but encourage their presence.
- **Voles** can harm vegetation but can also be beneficial. They fertilize soil and also aerate it, reducing compaction. They are food for owls, hawks, foxes, coyotes, snakes, weasels, marten etc.

- **Rats** are attracted by water and food, including garbage and pet food. Remove food and water sources to deter them.
- **Cats** are challenging as they can easily climb over fences**.** Feral and outdoor cats are carnivores who can feed on local songbirds, negatively affecting their populations. Cat feces can contain parasites or pathogens not present in herbivore manure and are a concern in veggie gardens.
- **Most "bugs"** such as wasps, spiders, beetles and bees are beneficial and eat other "bugs".
- **Part of the joy of gardening is having the privilege to watch the many living creatures that share our outdoor spaces.**

Questions to Ask Before Committing to Action:

- What is the animal 'pest'? Ensure you have an accurate ID before proceeding.
- Does it have a beneficial role to play in my garden?
- What is attracting it to the garden?
- What is its lifecycle and is this going to be a transient problem or a perennial issue? There may be more damage in spring when animals have young to feed.
- Can I live with the damage, or do I need to take further action?

In most cases, living with wildlife and allowing some minimal damage is the appropriate response. If you can't live with the damage, then consider the following:

1. **Change cultural Practices**

- **Reduce attractants**: Remove food sources that attract the animal pest, e.g., bird feeders, bread left out for birds, compost, pet food left outside, unsecured garbage. ***Note****: bread should* ***never*** *be left out for birds as it causes health issues such as obesity & malnutrition and is more likely to attract rats.*
- **Grubs** – Moles, skunks and raccoons may be attracted by grubs. Reduce grubs in lawn by changing lawn practices, e.g., interplanting, watering differently, using mulches may be part of the solution. Nematodes can be used to reduce grub populations, but keep in mind that they will kill a number of other insects such as beneficial beetles or fireflies whose larvae eat snails and slugs.
- **Plant selection** - Choose plants that are odour repellents (e.g., lavender, garlic) or simply not attractive to the pest.
- **Chipmunk damage** – Anecdotal evidence suggests they may actually be looking for a water source, when they nibble on your tomatoes. Try providing a water supply in the garden that chipmunks can access.
- **Pull mulch** –away from trees & ornamentals to deter voles from chewing.
- **Seal off foundations** – and the area under decks with skirting or heavy mesh or bricks to prevent skunks, raccoons from digging and making a den under buildings or porches.
- **Garbage** – use containers with lids that lock. Don't place outside until garbage day.

2. Mechanical or Physical Practices

- **Barriers** can be an effective long-term solution for a recurring animal pest problem, e.g., fences, root barriers, screens, coarse mulches.
    - Create cylinders around plants such as tomatoes using ½" x ½" steel hardware mesh. It's quite rigid and holes are small enough to deter chipmunks. Secure to the ground using tent pegs or heavy wire spikes.
    - Care should be taken to bury some of the fencing and restrict access from the top, since chipmunks are able to both burrow and climb. Boards along the perimeter of the garden can be used to secure fencing and block entry.
    - Sink fencing down 6" to deter voles.
    - Cylinders of heavy wire hardware cloth will protect valuable young trees from rabbits. Fencing needs to be 35" high to stop rabbit damage.
- **Birds**:
    - Protect plants with **stiff** black bird mesh sold at nurseries. Both bird mesh and steel mesh appear less visible than regular chicken wire and are generally more tidy-looking. Be aware that **loose mesh can entrap and kill birds and other beneficial creatures** such as snakes. Inspect regularly.
    - Hang reflective bird deterrent tape in trees. Here is just one example: https://amzn.to/3HjYwJC
- **Rabbits** can be excluded using stiff plastic mesh fencing 35" high and with 1/2" square openings.
- **Deer** fencing kits are available online or can be home made, e.g., 7-foot mesh, anchor pegs, poles, plastic zip ties. https://www.gardeners.com/buy/deer-fence-kit/8588470.html
- **Cats:**
    - Note that some municipalities have bylaws concerning nuisance cats wandering outdoors unattended.
    - Cats prefer loose soil to bury their feces. Placing "prickly" plant cuttings in the problem area (e.g., prunings from roses or junipers, pine cones) may deter cats from using your garden as a litter box or stalking birds under the feeder.
    - Cats mark their territory by spraying urine, which can attract other cats. Clean affected areas with your garden hose. Eco friendly castile soap can be used in problem areas.
    - There is anecdotal evidence that coffee grounds **heavily** sprinkled in an area will deter cats. Check your local coffee shop as they sometimes give coffee grounds away for free.
    - Repellents: Some commercial repellents are sold to control cats. Choose an **area repellent** that deters by smell. (see "**repellents"** below)
- **Relocation** - In Ontario, in some locations, certain types of wildlife can be physically relocated if they are damaging property. Check your community bylaws and protected status of the animal in question, e.g., Eastern Least Chipmunks are specially protected mammals. The Woodland vole and Eastern moles are species at risk.

3. **Biological Controls**
- Invite beneficial predators and parasites into your garden by creating refuges for predators, e.g., snakes and birds to control rodents, coyotes & foxes to keep squirrel & rabbit populations in balance.

- Note that shifting species prevalence can have unintended consequences and should be approached cautiously. E.g., removing a predator may cause other animal populations to increase dramatically causing further problems.

4. **Behavioral Remedies**
   - **Scare** techniques can deter mammals from coming to your garden, e.g., scarecrows, noise makers, motion triggered light or water spray.
     - **ScarecrowTM** sprays a jet of water activated by motion sensors and can deter chipmunks & deer but may not be as effective with other animals such as raccoons. Place these where animals enter the garden area and move them frequently.
     - Borrowing a **dog** can be effective.
     - **Plastic snakes**: There is anecdotal evidence that plastic snakes will deter certain animals like squirrels and chipmunks. Move them around often.

5. **Chemical Controls (Poisons** and **Repellents**) (See special note on cayenne pepper/capsaicin below)

   - **Poisons** – Keep in mind that poisoned bait will result in poisoned carcases which can poison desirable predators and pets (e.g., owls, hawks, foxes/ cats & dogs)
   - There are two kinds of repellents: **contact** and **area**.
     - **Area repellents** are applied **near the plants** and repel by **smell** alone.
     - **Contact repellents** are applied **directly on the plants** and repel by **taste**.
     - **Contact repellents** have an extremely bitter and unpleasant taste. They should not be used on food, edible plants, or directly on the fruits or nuts of trees. Do not use them on sugar maple trees if the sap is being used to make syrup, since the taste of the maple syrup may be affected.
   - **Repellents** need to be kept fresh for maximum effectiveness.
   - There are several brands of animal repellents to choose from that are helpful in deterring deer, rabbits & other animals. Some of the commercially available repellents are:
     - **Bonide Rabbit-Deer RepellentTM** - It produces a very bad taste. Can be sprayed or brushed onto plants.
     - **HinderTM** - A soap-based product that repels by odour. It needs to be reapplied after heavy rain.
     - **Ro-PelTM** - This has both odour and taste repellent properties. Spray it on both sides of the leaves of landscape plants.
     - **PlantskyddTM** – This is effective for up to six months for controlling deer, rabbits, voles and other small animals and does not to be reapplied after watering or rain.
     - **BobbexTM** - Deer and rabbit repellent and will also deter small animals. Can be used as a bulb-dip to prevent underground damage after planting.
   - **Pelleted Hen manure** has been found effective sprinkled on the soil where bulbs are planted.
   - **Blood meal**: Be aware that blood meal may attract dogs, raccoons, possums and other meat-eating omnivorous animals.
   - **Soiled cat litter** sprinkled around the edge of flower garden may be a deterrent but is not recommended near food plants and is likely to attract unwanted cats.

A Word about Cayenne Pepper (Capsaicin)

Capsaicin is a repellent to mammals at concentrations between 10 and 100 ppm. In Ontario, many products containing capsaicinoids and similar functioning piperine (oil of black pepper) are registered to repel vertebrate pests such as rabbits, squirrels, deer, voles, raccoons, cats, dogs, and skunks. Products registered in Ontario include: Bobbex Deer Repellent, Chemfree Critter Ridder, Scent-A-Gone Animal Repellent, etc.

Capsaicin to Control Invertebrates

Capsaicin is also used to inhibit certain invertebrates (e.g., insects, spiders, millipedes) and this may have implications for pollinators. As with most chemical options, it should be chosen only when the damage done exceeds thresholds of concern and when other less harmful options have been fully explored.

Cayenne Pepper Negative Impacts

There are serious concerns about recommending the use of **cayenne pepper** sprinkled in the garden to deter animals:

- **Animal cruelty**: Cayenne pepper can irritate skin and eyes of some creatures. For this reason, many consider the use of cayenne cruel. Note: Birds are not negatively impacted.
- Cayenne may **negatively impact pollinators**, although permitting authorities (PMRA and EPA) have not yet considered it a significant risk. There is some research to indicate it may be toxic to honey bees and other beneficial insects.
- Cayenne pepper should not be used near ponds or any aquatic life.

> "Capsaicin is very irritating to the skin and eyes, and it causes swelling in lung tissue. It can also irritate the mucous membranes in the mouth. In insects and mites, it appears to damage membranes in cells and disrupt the nervous system. Most wildlife will avoid capsaicin because it has such a strong odor and taste. However, birds cannot taste capsaicin and will not be repelled by it. Capsaicin is toxic to bees and other beneficial insects. Researchers believe that capsaicin and similar compounds protect the seeds inside the peppers from fungus." According to Gervais, J. A. ; Luukinen, B.; Buhl, K.; Stone, D. 2008. ***Capsaicin General Fact Sheet***; National Pesticide Information Center, Oregon State University Extension Services. http://npic.orst.edu/factsheets/capgen.html.
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> "The **capsaicin** lethal dose for Apis mellifera **bees** is greater than 100 µg per individual." (Flesar, J., Havlik, J., Kloucek, P., Rada, V., Titera, D., Bednar, M., and Kokoska, L. (2010). In vitro growth-inhibitory effect of plant-derived extracts and compounds against Paenibacillus larvae and their acute oral toxicity to adult honey bees. Veterinary Microbiology, 145: 129-133. doi.org/10.1016/j.vetmic.2010.03.018.)

References

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- How to keep cats out of the garden https://bit.ly/3spguWZ
- Species of Special Concern in Ontario
    - Woodland Vole https://www.ontario.ca/page/woodland-vole
    - Eastern Mole https://www.ontario.ca/page/eastern-mole
- Species at Risk in Ontario https://www.ontario.ca/page/species-risk-ontario
- Reference Manual for Ontario Master Gardeners
- EPA R.E.D. Facts for Capsaicin: https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/fs_PC-070701_1-Jun-92.pdf
- Capsaicin and Related Capsaicinoids (based on the Science Evaluation of this consultation document and Evaluation Report ERC2012-03, Capsaicin: Technical Fact Sheer: National Pesticide Information Center http://npic.orst.edu/factsheets/archive/Capsaicintech.html